A Qualitative Exploration of Health Behaviors and the Associated Factor among University Students from Different Cultures

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Abstract

English:

A qualitative focus group study was conducted to explore and compare the perceptions and practice of health behaviors and associated factors among east Asian and US students. Two focus groups with mixed ages and sexes were organized for each of the five participating countries. A total of 71 students participated in 10 focus groups.

Participants from east Asian and US had similar perceptions of most health behaviors identified in the literature and reported similar health behavior practices. Some activities reported as health behaviors were unique to participants from different countries. Sub-components of the predisposing, reinforcing, and enabling factors of the PRECEDE model were reported to be related to the practice or non-practice of certain health behaviors among east Asia and US participants. Different influences of such factors were reported by participants from different countries. Some health information reported by east Asian participants was found to be incorrect and have influenced their health behavior practices.

It is recommended that effective health education/communication should be emphasized to provide accurate and up-to-date health information for international students. Future qualitative studies should explore individual's perception of health and dimension of health among different cultural groups.

Spanish:

Un estudio cualitativo de grupos de enfoque fue llevado a cabo para explorar y comparar las percepciones y prácticas de comportamientos en salud y factores asociados entre estudiantes Asiáticos y de los Estados Unidos. Dos grupos de enfoque fueron organizados con participantes de edades y géneros sexuales mixto para cada uno de los cinco paises participantes. Un total de 71 estudiantes participaron en 10 grupos focales. Los participantes del Este del Asia y de los Estados Unidos tenían percepciones similares de la mayoría de comportamientos de salud reportados en la literatura y reportaron prácticas de salud similares.

Algunas actividades reportadas como componentes de la salud eran específicas para los participantes de los diferentes paises. Los sub-componentes como los factores predisponentes, facilitadores, y reforzadores del modelo PRECEDE fueron reportadas como relacionadas con la práctica y la no práctica de ciertos comportamientos de salud entre los participantes del Este del Asia y los participantes de los Estados Unidos. Las diferentes influencias de dichos factores fueron reportadas por los participantes de los diferentes paises. Parte de la información reportada por los participantes del Este del Asia se identificó como incorrecta y que ha influenciado sus prácticas de salud.

Se recomienda que la efectividad de la comunicación y la educación en salud sea enfatizada para proveer una información actualizada y correcta para los estudiantes internacionales. Los estudios cualitativos en el futuro deben explorar las percepciones del individuo sobre la salud y la dimensión de la salud entre los grupos culturales diferentes.

Chinese:

为了探讨及对比来自东亚和美国大学生的健康行为及其影响因素，本文采用了求质性焦点小组的研究方法。研究对象包括七十一名来自四个东亚国家及地区(中国，台湾，日本，南朝鲜)及美国的大学生。这些大学生分别参加所在国家及地区两个焦点小组中的一个小组。因此，本文作者总共组织了十个焦点小组，每个焦点小组包括六到九名不同年龄及性别的大学生。

研究结果发现来自东亚和美国的研究对象不仅对文献所报导的大多数健康行为有类似的认识，他们所从事的健康行为与文献所报导的相似。尽管如此，来自不同国家的研究对象报告从事不同的健康行为。他们的健康行为在不同程度上受到PRECEDE模型所预测的三组因素的影响。这三组因素包括先倾因素(predisposing factors)，加强因素(reinforcing factors)，以及促使因素(enabling factors)。本文作者并且发现有些来自东亚国家及地区的研究对象的健康行为受到他们所拥有的不正确健康知识的影响。

根据本文的发现，作者建议为了提供来自东亚的大学生及时而正确的健康知识，美国的大学应当提供更有效的健康教育及健康交流。今后的求质性研究应当针对来自不同文化背景的大学生，并且探讨他们对健康的定义及范围的认识。

Key Words: International student, health behavior, focus group

Introduction

It has been demonstrated that the adherence to good health behaviors may reduce the risk of chronic diseases such as some cancers and heart disease, which may not only delay mortality from these common causes of death but prevent or delay the onset of these diseases (Taylor, 1995). Individuals health behaviors are the products of a complex interweaving of biographical, social and cultural factors (Backett & Davison, 1995). Therefore, it is important to examine behaviors and the associated factors among people with different cultural background. According to the PRECEDE Model (Green & Kreuter, 1991), factors that contribute to individual behavioral practice include predisposing (such as knowledge, beliefs, values, attitudes, and selected demographic variables), enabling (such as availability and accessibility of health resources, community and/or government priority and commitment to health, and health related skills), and reinforcing factors (such as family, peers, teachers, employer, and health provider).

Numerous studies have attempted to understand the reasons behind certain behaviors among different groups of Americans (Benson & Taub, 1993; Jones & Macrina, 1993; Taylor, Taplin, Urban, Mahloch, & Majer, 1994; Mirotznik, Feldman, & Stein, 1995; Goldsteen, Counte, & Goldsteen, 1995; Merkle & Treagust, 1993; Glanz, et al., 1994; Grimley, Prochaska, Velicer, & Prochaska, 1995). Few studies have focused on examining behaviors and the contributing factors of individuals living in other countries (Chie, Cheng, Fu, & Yen, 1993; File, Mabbutt, & Shaffer, 1994; Howlett, Ahmad, & Murray, 1992; Sun & Shun, 1995), or foreigners residing in the United States (Ajuluchukwu, 1987; Padilla, Wagatsuma, & Lindholm, 1985).

It is reported that the total number of international students enrolled in American colleges and universities has been increasing over the past few decades. This has made a great impact on American higher education in many ways, including economical income, the quality of higher education, and the leading role of the United States in international education exchange (Lambert, 1992). According to the Association of International Educators, more than half a million international students currently attend 15,000 colleges, universities and vocational schools in the United States. Most of them come from China, Korea and India. Because majority of them pay their own way, it is estimated that their impact on the US economy to be more than 13 billion a year (Ahmed, 2001). Research institutions, particularly in the sciences and engineering, depend heavily on foreign students who make up to half or more of the doctoral candidates. At many universities, foreign students, especially from Asia, are a cheap source of high quality research assistance (Schemo, 2001).

Among the factors that contribute to the enrollment of international students in colleges and universities, medical problems are believed to be the most important reasons for termination of studies by international students (Blom, 1986). However, since the September 11 attacks, foreign students have faced closer scrutiny by US government (Ahmed, 2001). The more stringent visa and immigration laws as a result of the September 11 terrorist attacks may discourage international

students from enrolling American colleges and universities. This may cause the potential loss of economic benefits of having foreign students study and live in the US (Ahmed, 2001; Astell, 2001; Schemo, 2001). The events of September 11 may impact the US colleges and universities' ability to fulfill its traditional role to be open institutions of creation and knowledge sharing. Finally, the impact in the loss of inexpensive, yet quality research assistants, has yet to be felt. To retain and promote the well being of international students currently enrolled in the US colleges and universities, especially after the September 11 attacks, it is necessary to address the health and health behaviors of international students.

Roeschley (1993) found from her study that the majority of institutions provided health services and health education programs for international students. Because international students come from diverse cultural backgrounds with different beliefs and values, factors influencing their health behaviors may differ from those of American students. Existing programs may not provide international students with what they really need in promoting health. Some studies have shown evidence that students from different racial and ethnic background have different health knowledge levels; different self-reported risk behaviors; different attitudes toward alcohol /other drugs, HIV/AIDS and STDs; and different preference to receiving health messages (McCaughrin, 1995).

Existing studies have provided limited amount of knowledge concerning East Asian students' perceptions and practice of health behaviors and the related factors. And the existing health education, health promotion, and disease prevention programs are mainly based on needs assessment results among Americans, or westerners. Such programs may not meet the needs of other international students. According to the report of 1990 Joint Committee on Health Education Terminology (1991), health-enhancing behaviors are "shaped by internally consistent values, attitudes, beliefs and external social and cultural forces" (p. 178). Due to possibly different levels of health knowledge, values, beliefs, cultural background, and other factors, East Asian students may behave differently. Health behaviors such as exercising regularly, having proper diet, and controlling weight, generally accepted by American society, may not be what East Asian students consider to be beneficial.

The purpose of the study was to explore and compare perceptions and practice of health behaviors and the associated factors among East Asian and American students using a qualitative focus group interview design. The results may be used to develop instruments that are appropriate to address health behaviors among this particular population (Hughes & DuMont, 1993).

Methods

Study Population and Sample

Students from the East Asian countries attending a large Midwest university during the spring semester of 1997, including China, Taiwan, Japan, Republic of Korea, and Hong Kong, were included as the study population. To understand health behaviors and contributing factors of East Asian students, American students were chosen as the comparison group in this study. Hong Kong students were selected as pilot subjects and excluded from the final study. Key informant method was utilized to identify potential participants based on their willingness and availability to participate. Research suggests that a minimum of two groups are needed for each subset of population under the study, which ensures the focus group data do not simply reflect the idiosyncrasies of a particular group (Morgan, 1988). Two focus groups of mixed age and sex consisting of 6 to 12 participants were organized for each of the represented East Asian countries and America, resulting a total of 10 focus groups in the final study.

Data Collection and Analysis Procedures

Every focus group session was tape recorded by two recorders and was transcribed verbatim. Immediately before and after each session the moderator quickly checked each tape recorder to ensure that it captured participants' responses and had sufficient clarity and volume to be used for later analysis. In addition, the moderator reviewed and recorded the high-points of the discussion, recorded personal observations and impressions of the session. The complete transcript for each session was completed within hours after the session by the moderator. As agreed upon when the study was approved by the institutional review board, all of the tapes and written materials related to focus group notes were destroyed.

SAS was used to calculate frequencies, percentages, means and ranges of the distribution of participants' demographical and related background characteristics. Other materials collected, including field notes, brief summary reports, and transcripts of tape recordings were analyzed utilizing content analysis techniques which help identify key themes in the study as well as compare trends and patterns occurred across the various groups. Based on the suggestion by Knodel (1993), it was determined the primary coding categories for this study would be the individual interview questions, and subcategories would be created from related responses within those categories. Sub-components of the predisposing, enabling, and reinforcing factors of the PRECEDE model were used to determine sub-categories under factors associated with health behaviors. Additional categories for topics that arose and were of special interest were created along with the coding procedure. Similarities and differences among groups for each East Asian country and between East Asian and American groups were compared and discussed. Responses from the majority of the participants for each country and those of special interests were to be reported.

Reliability was determined by assessing and comparing statements within and across sessions (Knodel, 1993). To assess intra-coder reliability, tapes and transcripts of two focus groups were randomly selected and re-categorized one week after the initial

categorizing by the primary researcher. No difference was found between two coding exercises.

Results

A total of 71 students enrolled in programs ranging from English language preparation to doctorate participated in the ten focus group interview sessions. As was planned, the sizes for all of the focus groups ranged from six to nine, and the time spent for each session ranged from 70 to 100 minutes. Majority of the participants was female and unmarried. Table 1 compares the selected demographic and background characteristics between East Asian and US participants.

Perceptions of Health Behaviors

In general, exercising regularly (i.e., exercising at least three to five times a week and at least 30 minutes each time), having proper diet (i.e., having diet that is low in fat and calorie but high in carbohydrates and fiber, having breakfast and three meals everyday), maintain ideal weight, sleeping six to eight hours per day, having no stress and keeping emotionally healthy (by listening to music, watching TV, talking to friends, walking or hiking), not smoking, drinking alcohol in moderation were considered beneficial to their health by participants from east Asia and the United States (Table 2).

As shown in Table 2, perceptions varied regarding other health related behaviors among different groups. For example, Chinese participants did not consider snacking to be bad for their health when they could not have a regular meal, while Taiwan participants thought one should not snack at all. American participants seemed to pay much attention to the types of snacks. They considered snacking on calorie dense food (i.e., chips, cookies, or ice cream) to be bad and snacking on vegetables and fruits to be acceptable. Both Chinese and Taiwan participants perceived the traditional

Table 1. Comparison of Means and Ranges of Selected Demographic and Background Characteristics among East Asian and US Participants[a]

Category	Mean		Minimum		Maximum	
	East Asia	US	East Asia	US	East Asia	US
Age	24.9	22.8	19	20	37	29
Months in the US	22.2	N/A	1	N/A	72	N/A
Total Years in School	16.6	15.8	11	11	22	18
HED in Elementary	1.9 hr./wk.	2.2 hr./wk.	0 hr./wk.	0 hr./wk.	8 hr./wk.	7 hr./wk.
School	4.7 semest.	2.9 semest.	0 semest.	0 semest.	2 semest.	12 semest.
HED in Junior High	2.2 hr./wk.	3.6 hr./wk.	0 hr./wk.	0 hr./wk.	10 hr./wk.	10 hr./wk.
School	3.2 semest.	1.8 semest.	0 semest.	0 semest.	12 semest.	6 semest.
HED in Senior High	2.4 hr./wk.	2.0 hr./wk.	0 hr./wk.	0 hr./wk.	15 hr./wk.	15 hr./wk.
School	3.8 semest.	2.3 semest.	0 semest.	0 semest.	10 semest.	8 semest.
HED in College/Univ.	2.3 Cr. hr.	3.7 Cr. hr.	0 Cr. hr.	0 Cr. hr.	50 Cr. hr.[b]	9 Cr. hr.

[a] There are missing cases

[b] One east Asian student was in the Master's Program of health education

Chinese ways of keeping in good health (including going to bed early, getting up early, having three regular meals a day, not eating between meals, drinking plenty of water, having a cup of tea and a brief walk after each meal, drinking alcohol in moderation, taking afternoon naps, being patient, keeping good mood, having "setting-up" exercises daily, practicing TaiJi or Qi everyday, etc.) to be things one should follow to maintain health.

Practice of Health Behaviors

Table 3 shows that similar health behavior practices were reported by east Asian and US groups. Some activities reported were unique to participants from different countries. For example, practicing martial arts was reported by Korean participants, practicing Qi by Chinese and Korean participants, having safe sex and wearing seat-belt by US participants, and participating religious activities by Taiwan participants.

Various exercises and physical activities were reported by participants from different countries. For example, walking was practiced by participants from all groups; swimming reported by all groups except Japan and Korean groups; stretching by Taiwan and Japan participants; playing racket ball, walking on treadmill, playing tennis by Korean and American groups; running and jogging by Chinese, Japan, and American participants; riding bicycle by Taiwan and American participants; aerobic exercise, never sitting down after meals, doing housework by Taiwan groups; climbing stairs and playing tennis by Japanese groups; climbing mountains by Korean participants. The time spent on exercising or engaging in physical activities varied among different groups, ranging from 30 minutes to one hour and two to three times a week reported by Chinese participants, 30 minutes to two hours and two to five times a week by Taiwan participants, 25 minutes to two hours and two to six times a week by Japanese participants, one to two hours and two to five times a week by Korean participants, and 35 minutes to an hour and five to seven days a week for US participants.

While participants from all of the selected countries except Japan reported snacking as good meal supplement, American participants emphasized the importance of snack content (such as vegetables and fruits). Other behaviors such as practicing personal hygiene (i.e., taking shower everyday, gargling regularly, washing hands before eating and after using bathroom, brushing teeth, etc.) was reported by all but Chinese groups.

Factors Associated with Health Behaviors

Factors associated with health behaviors were categorized based on the sub-components of the predisposing, enabling, and reinforcing components of the PRECEDE model. It was found that participants from different countries reported generally similar motivating factors and barriers. However, components of the predisposing, reinforcing, and enabling factors were associated with different health behaviors among participants from different countries (Table 4).

Predisposing factors. In general, most participants from all groups indicated that they were aware of the benefits of exercising, having proper diet and sleeping, taking vitamin and mineral supplements, as well as the harmful effects of being overweight, smoking and drinking alcohol. Such knowledge was reported by participants to be related to their practice of related health behaviors.

As was expected for participants from all of the participating countries, participants with positive attitudes and beliefs about exercise, proper diet, health food choice, proper sleeping, smoke and alcohol reported their practice of those related behaviors. Participants who indicated they disliked the taste or flavor of smoke or alcohol, disliked vegetables or exercise, or disbelieved the benefits of quitting smoking, drinking, having enough vegetables, or exercising did not report their practice of those related behaviors. In addition, attitudes and beliefs about the desired or undesired physical conditions were found to be related to the practice of certain health behaviors that would lead toward or away from the physical conditions. For example, participants who wanted to have ideal body weight reported their practice of exercising and dieting behaviors.

Body image was a value held by most participants from each group. For example, Chinese participants emphasized study and school work, family, healthy body and attractive ideal body weight. Taiwan participants emphasized having energy, healthy body, and ideal body shape. Japanese participants emphasized following social norms to be healthy, and having ideal body weight and figure. One Japanese participant stated, "...I always feel social pressure or social norm to be healthy." Korean participants emphasized having a healthy body, living life well, avoiding overweight and being too thin. American participants focused on having perfect body figure, having family, being accepted by the society, and doing school work first.

Reinforcing Factors. Influences of significant others were reported to have both positive and negative impact. For example, parents, spouses, siblings, and friends were reported to have motivated their exercise and weight control behaviors by some Chinese participants and to be barriers by some other Chinese participants. Friends were reported to have encouraged some Chinese participants' smoking and drinking behaviors. One participant said, "Many of my friends smoke and drink." For Taiwan and Japanese participants, parents, siblings, relatives, and nurses

Table 2. Comparison of Reported Perceived Beneficial Health Behaviors by Country

Categories	China	Taiwan	Japan	Korea	US
Regular exercise/physical activity	✓	✓	✓	✓	✓
Regular balanced diet	✓	✓	✓	✓	✓
Sleeping 6 to 8 hours per day	✓	✓	✓	✓	✓
Weight control	✓	✓	✓	✓	✓
Drinking alcohol in moderation	✓	✓	✓	✓	✓
No stress/emotional healthy	✓	✓	✓	✓	✓
Not smoking	✓	✓	✓	✓	✓
Vitamin/mineral supplements	✓	✓	✓		✓
Personal hygiene			✓	✓	✓
Drinking plenty of water	✓	✓			✓
TaiJi/Qi/Yoga	✓	✓		✓	
Not using illegal drugs			✓		✓
Safe driving	✓				✓
Reducing sodium intake			✓	✓	
Regular Check-up		✓		✓	
Smoking			✓		
Not snacking between meals		✓			
Religious belief		✓			

Table 3. Comparison of Reported Practice of Health Behaviors by Country

Categories	China	Taiwan	Japan	Korea	US
Having regular exercise/physical activity	✓	✓	✓	✓	✓
Having regular meals/proper diet	✓	✓	✓	✓	✓
Having breakfast everyday	✓	✓	✓	✓	✓
Sleeping adequate amount each day	✓	✓	✓	✓	✓
Keeping emotional health	✓	✓	✓	✓	✓
Not smoking/reducing smoking	✓	✓	✓	✓	✓
Not drinking/drinking moderately	✓	✓	✓	✓	✓
Snacking as meal supplement	✓	✓		✓	✓
Practicing personal hygiene		✓	✓	✓	✓
Taking vitamin/mineral supplements			✓	✓	✓
Drinking plenty of water	✓	✓			
Taking nap at noon	✓	✓			
Practicing Qi	✓			✓	
Using Chinese tea/tonic herb tea		✓	✓		
Wearing seat-belt while driving					✓
Practicing safe sex					✓
Reducing sodium intake			✓		
Practicing Martial arts				✓	
Having regular Check-up	✓				
Practicing religious activities		✓			
Taking Ginshen	✓				

Table 4. Comparison of Factors Associated with Reported Health Behaviors by Country

Categories		China	Taiwan	Japan	Korea	US
Factors Associated with Health Behaviors						
Predisposing:	Knowledge	+	+	+	+	+
	Attitude	+/-	+/-	+/-	+/-	+/-
	Belief	+	+	+/-	+/-	+/-
	Past experience	+	+	+	+/-	+
	Values	+/-	+	+	+/-	+/-
Reinforcing:	Significant others					
	Parent	+/-	+	+	+	+/-
	Sibling	+	+	+		+/-
	Spouse	+/-				
	Relatives		+	+		
	Boy/Girl friend					+/-
	Friends	+/-	+/-	+/-	+/-	+/-
	Roommates			-		+/-
	Doctors/Nurses		+	+		
	Media	+	+	+	+	+
Enabling:	Available/accessible facilities	+/-	+	+/-	+	+
	Available health services	+				
	Lack of time	-	+/-	-	+/-	-
	Lack of money	-	+/-	-	+/-	-
	Lack of transportation		+/-	+/-	+/-	-
	Lack of skills		-			-
	Being lazy	-	-	-	-	-
	Poor physical/emotional status	-	-	-	-	-
	Bad weather	-	-	-	-	-
	Language barrier		-			

+ *positive influence*
- *negative influence*

were reported to have motivated their exercise, proper diet, and personal hygiene behaviors. Friends were reported by Japanese participants to have both motivated and hindered their exercise and smoking behaviors. Korean participants reported that their parents had motivated them to take vitamins, exercise, avoid soft drinks, and quit smoking. Friends were reported by Korean participants to have motivated and hindered their exercise behaviors. American participants reported that parents, siblings, friends and roommates had made both positive and negative impacts on their practice of dietary and exercising behaviors.

Influences of media (i.e., TV, radio, newspaper, magazines, etc.) were found to have a positive impact on the practice of different health behaviors for participants from all groups. For example, media were found to have increased participants' knowledge of certain health behaviors and consequently motivated the practice of the behaviors among participants from all groups. One participant said, "I read an article about having breakfast is good for health. So, I have it everyday." Another participant indicated, "From TV and news paper, I learned we should exercise at least three times a week and an hour each time. That's what I have been doing."

Enabling Factors. The available and accessible exercise facilities and health resources were reported to have facilitated exercise activities among participants from all groups and regular check-up behaviors for Chinese participants. Lack of time, money, and transportation had mainly the negative impact for participants from various countries. For example, participants reported that busy school work had taken most of their spare time so that they had no time to exercise, prepare and have nutritious meals, or have enough sleep. This is especially true for east Asian students. As one Chinese participant made following typical statement, "I have to spend extra time reading chapters and writing papers." Lack of money was reported to have negatively related to having proper diet for some American participants, exercising for some Chinese and Taiwan participants, and seeking health services for Chinese participants. One American participant stated, "It's too expensive to buy lunch everyday. I don't have that money." One Taiwan participant said, "I don't have money to buy sports equipment. Otherwise, I could stay at home exercising and save time." One Chinese participant said, "I know I need to have dental care. But it is not covered by student insurance. I'll wait until I go back to China and have them (teeth) fixed." Lack of transportation was reported to have negatively related to exercise

behaviors for some Taiwan participants. One Taiwan participant said, "I don't have transportation. It's hard for me to get to the recreation center." However, lack of transportation had a positive impact on physical activities for participants from Taiwan, Japan, and Korea who indicated that without a car, they had to walk to places.

In addition, lack of money had a positive impact on weight control behaviors for American participants and smoking behaviors for American and Taiwan participants. Some American participants said that they did not want to gain weight because "Clothes are expensive to buy. When you gain weight, you have to buy new clothes." Some participants from both America and Taiwan indicated "cigarettes were too expensive to buy" and they did not want to get addicted to smoking. Lack of skills was reported by participants from Taiwan and America as barriers of exercising or preparing nutritious meals. For example, one participant stated, "I wanted to do the aerobic dance. But I don't know how and I am too shy to try..."

It was interesting to find from this study that incorrect health information had both positive and negative impact on the practice of certain behaviors. An example of positive impact was one Taiwan participant reported her having breakfast behavior was influenced by her friend's statement of "not having breakfast makes one get older faster." Another Taiwan participant indicated that her having enough sleep behavior was influenced by reading from newspaper that "if you have cold hands and feet, you should have enough sleep." One American participant started to take iron after her lab teaching assistant told her that her blood pressure was low and she needed iron. Such a misconception (confused low blood pressure with anemia) is quite common among lay people based on the clinical experience of the primary researcher of this study. Other behaviors related to the influences of incorrect health information included not eating before taking shower to avoid stomach pain and not having regular check-ups. One Japanese participant indicated that she read from a magazine that her stomach pain was due to her eating before taking shower. One Taiwan participant reported her not having regular check-ups was influenced by a statement from a physician (i.e., "A physician once told me that there was no difference whether or not I go for a regular check-up.").

Conclusions and Discussions

Generally, participants from both east Asia and America had similar perceptions of many health behaviors identified in the literature. For example, participants from east Asia and America perceived regular exercise and balanced diet as behaviors they should be practicing. Such behaviors are the health enhancing behaviors identified by Taylor (1995). The non-use of tobacco products and non-excessive use of alcohol perceived as health behavior by the participants in this study are the avoidance of health compromising behaviors identified by Taylor and avoidance of exposure to hazardous substances behavior defined by Vickers, Conway, & Hervig (1990). Six of the seven "good" health behaviors reported by Belloc and Breslow (1972), that is, sleeping seven to eight hours a day, eating breakfast almost every day, having ideal body weight, never smoking cigarettes, moderate or no use of alcohol, and regular physical activity, were perceived by participants from all of the participating countries as health behaviors as well. Some variations existed among participants from various groups regarding the perceptions of certain health behaviors. For example, the preventive health behaviors (i.e., having regular check-ups) included in Taylor's definition of health behaviors (Taylor, 1995) were mentioned by participants from Taiwan and Korea. The avoidance of traffic-related risk taking behaviors identified by Vickers, Conway, & Hervig (1990) were mentioned as health behavior by participants from China ("never drinking and driving") and America ("wearing seat-belt while driving"). "Never or rarely eating between meals" identified by Belloc and Breslow (1972) were accepted by participants from China and Taiwan due to their cultural influence, while American participants considered having vegetables and fruits between meals was acceptable due to their knowledge of healthy diet.

Some activities such as taking vitamin and mineral supplements, personal hygiene, drinking plenty of water, and reducing sodium intake were not mentioned by all groups. Because the results of focus groups depend on what participants mentioned, it is impossible to determine whether those groups did not considered some or all of the above behaviors to be important or they might just not have thought about those activities. Other activities reported may be related to the influence of Eastern culture, including practicing TaiJi, Qi, or Yoga by participants from China, Taiwan, and Korea, and "taking Ginshen" by Korean participants.

East Asian and American participants were more alike than different in practicing most of the health behaviors identified in the literature, including regular exercise or physical activities, balanced diet, breakfast every day, adequate amount of sleep, not smoking or reducing the amount of smoking, not drinking alcohol or drinking alcohol in moderation, and maintaining emotional health. All of these behaviors, except keeping emotional health, were recommended by Belloc and Breslow (1972). As to a balanced diet, most participants from each country reported having regular three meals with low fat, low calorie food and plenty of vegetables and fruits everyday, taking vitamin and/or mineral supplements, avoiding drinking regular coffee or soft drinks, and having breakfast everyday. Such a dietary practice was similar to what was recommended in the literature ("Beating the Odds:...," 1996; Belloc & Breslow, 1972; DHHS, 1990; "Reducing Saturated fat...," 1996).

American participants generally followed the recommendations by the Centers for Disease Control

and Prevention and the American College of Sports Medicine (Pate, et al. 1995) regarding the amount and intensity of exercise or physical activities. This means American participants reported having engaged in exercise or other physical activities for at least 35 minutes each time and at least five times a week. But for participants from East Asian countries, the reported length and intensity of exercise each time met the recommendation but the frequency was not enough for some of the participants. For example, Chinese participants reported exercise for only two to three times a week and some of them never exercised or engaged in light physical activities recommended. For participants from Taiwan, Japan and Korea, some reported having exercised at least five times a week, but others only two times per week.

The behavior of "wearing seat-belt while driving," the avoidance of traffic-related risk taking behaviors identified by Vickers, Conway, & Hervig (1990), was reported by American participants, indicating they were more aware of safe driving and were perhaps practicing the behavior. For participants from east Asian countries, it is hard to tell whether or not they practiced such behavior. One possible explanation for some of the east Asian participants would be that they did not drive or ride in a car. For others, the alternative explanation is that they did not consider seat belt use as a behavior that could help maintain their health.

Unlike participants from any other groups, some Taiwan participants were actively participating in religious activities to help maintain health. The connection between certain religious behaviors and the improved health has been reported in the literature. For example, based on their review of the current empirical studies from different disciplines, Levin and Vanderpool (1991) found a link between religious involvement and health outcomes. Georger Gallup, Jr., speaker of the First Conference on Spiritual Dimensions in Clinical Research, indicated that "...there is a recognition of the connection between prayer and healing. A strong faith can have a profound effect on our life-styles and outlook in terms of health (as cited in Marwick, 1995, p 1561).

Participants from some east Asian countries were influenced by Eastern culture regarding their practice of certain activities. For example, practicing martial arts was reported by Korean participants, and practicing Qi by Chinese and Korean participants. Taking Ginshen was reported by Chinese groups, while drinking ginger and other Chinese herb tea, using traditional Chinese tonic herb was reported by Taiwan participants.

Predisposing, reinforcing, and enabling factors had an impact on whether or not participants practiced health behaviors. As was expected for participants from all of the participating countries, positive attitudes and beliefs (predisposing factor) about both healthy and unhealthy behaviors were reported to be related to the practice of those behaviors in the same direction. In addition, attitudes and beliefs about the desired or undesired physical conditions were found to be related to the practice of certain health behaviors that would lead toward or away from the physical conditions.

Similar to the relations between values (predisposing factor) and health behaviors reported in the literature (Torres, Fernandez, & Maceira, 1995; Leung, 1989; Wagner & Moch, 1986), most of the values reported by the participants seemed to relate to whether or not they practiced certain behaviors. For example, majority of the participants from all of the participating countries valued a healthy body and an ideal body figure and reported having engaged in exercising, having proper diet and sleep, controlling weight, etc. For Chinese participants, they valued study, schoolwork, and family over exercise. They were willing to give up exercising and use the time to study and take care of family. Although American participants also emphasized family value, their value of family had influenced their health behaviors differently compared to that of Chinese participants. It was found that Chinese participants emphasized the importance of fulfilling obligations in a family and were willing to give up the activities that could keep and improve their health. What they cared more was to take care of what was in front of their eyes, such as doing housework, taking care of wife and child. This finding may be biased because all of the eight married participants were from China. American participants, on the other hand, used family value to motivate themselves to participate in activities that could maintain and improve their health. This phenomenon can be explained by the fact that none of the American participants were married at the time of focus group interviews and they had no concrete and immediate family obligations at all. What was in their mind regarding family was to have healthy body and good health habits now so that they could take care of their family in the future.

Reinforcing factors were reported to be related to the practice or nonpractice of certain behaviors, similar to the findings of existing studies utilizing the PRECEDE model (Benson & Taub, 1993; Chie, et al., 1993; Sun & Shun, 1995; Taylor, et al., 1994; Villas, Mottinger, & Cardenas, 1996). In this study, influences of significant others were reported to have made both positive and negative impact. Media influence was found to have positive impact on the practice of certain health behaviors for participants from all groups.

Sub-components of the enabling factor, similar to the findings reported in the literature (Chie, et al., 1993; Sun & Shun, 1995; Villas, Mottinger, & Cardenas, 1996), were found to be both motivating factors and barriers in this study. The available and accessible exercise facilities and health resources were found to promote exercise and regular check-up behaviors. Lack of time, lack of money, and lack of transportation had mainly negative impact for participants from all groups. However, lack of transportation had certain positive impact on exercise behaviors for participants from

Taiwan, Japan, and Korea. Lack of money had positive impact on weight control behaviors for American participants and dietary practices for Taiwan participants. Lack of skills was reported by Taiwan and American participants as barriers. Other barriers reported by participants from all groups included being lazy, physical or emotional status, and bad weather.

Incorrect health information, "having daily breakfast to avoid getting older" and "having enough sleep to treat cold hands/feet" had positive impact on related behaviors; "having regular check-ups makes no difference" had negative impact. Other behaviors influenced by incorrect health information included not eating before taking shower to avoid stomach pain and taking iron to treat low blood pressure. Such phenomena indicate that many people including some health professionals do not have accurate health knowledge and the news media, an important source of information, sometimes provide incorrect health information.

Reasons other than to maintain or improve their health appeared to relate to certain health behaviors among east Asian participants. It was found from this study that American participants generally engaged in health behaviors with the desire of having a physically healthy body and a body that "looks good," while participants from east Asia appeared to be engaged in health behaviors more unintentionally or for reasons other than keeping health. For example, some Chinese participants indicated that their motivation to exercise was to have fun and relax, and some Korean participants said their motivation was to be social and to be with friends. This suggests giving factual information about exercise, teaching the related skills, providing exercise equipment, etc. are not enough. Having fun, being social, and other "side-effects" of exercise could motivate some east Asian people to exercise or engage in physical activities recommended.

Recommendations

Based on the findings of this study, it is recommended that health education efforts should be continued to provide health knowledge and change attitudes of east Asian students by developing specific health education programs for east Asian students, especially for those enrolled in graduate programs. Effective health communication should be emphasized through all means to provide accurate and up-to-date health information for the public and to make impact on media sources to provide accurate health information. Exercise programs designed for the international students should incorporate elements that help them appreciate their own cultural strengths regarding their health behaviors. Health education sessions and language specific health resource materials should be provided during foreign student orientation. Future qualitative studies should explore individual's perception of health and dimension of health as well as their practices of health behaviors among different cultural groups.

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