

STRATEGIC CHOICES IN DIETARY  
ACCULTURATION: THE CASE OF  
INTERNATIONAL STUDENTS  
AT OKLAHOMA STATE  
UNIVERSITY

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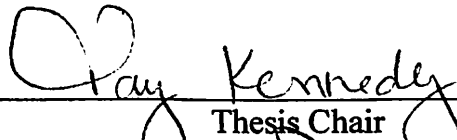
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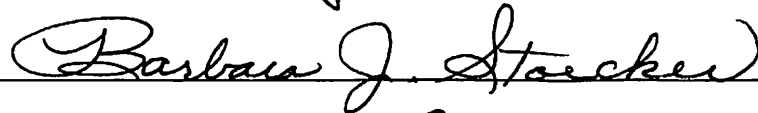
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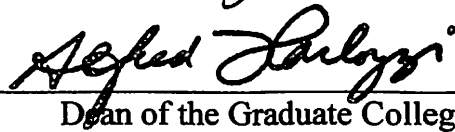
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# CHAPTER I

## INTRODUCTION

Dietary acculturation is the process by which foreigners adapt to the dietary and eating practices while in a foreign country. This process is multidimensional, dynamic and complex. Also, it varies considerably, depending on a variety of personal, cultural, and environmental attributes (Satia et al., 2002). Existing literature has identified at least three dietary acculturation approaches. First, some foreigners may completely adopt host country foods and dietary behaviors. For example, it was identified that foreigners may quickly adapt to host country's breakfast citing convenience, cost, taste preferences and food quality as the key factors (Satia et al., 2002).

Second, foreigners may find ways to use host country's foodstuffs to prepare meals that are near substitutes to their home country's foodstuffs. This approach is often practiced in conjunction with "new" foods from the host country. Primarily it involves incorporating host country foods and dietary practices into the foreigners' diet at certain meals and occasions while maintaining some traditional dietary patterns at other meals or occasions. Third, some immigrants may maintain their traditional eating patterns (Satia et al., 2002).

Satia et al., (2000) observed that first generation Chinese immigrants in Nebraska reported that they used United States (US) foods such as canned vegetables for preparing Chinese dishes. It is also reported that while among Asian immigrants rice remains an important staple, cereal, sandwiches, and milk are used to replace other traditional foods.



Some stated that they eat American foods because it is difficult for them to find traditional Chinese foods (Yi-Ling et al., 1999).

Within each of the three acculturation approaches, convenience, cost, taste preferences and food quality are factors that determine individuals' strategies (Satia et al., 2002). In general immigrants are more likely to consume traditional foods at dinner, whereas breakfast and lunch are more likely to be "westernized" largely for reasons of convenience (Satia et al., 2000). Finally unavailability of traditional foods and ingredients will likely result in increased consumption of the host country foods. However, where home country foodstuffs are available and affordable, foreigners may choose to stick to their traditional dietary practices (Satia et al., 2002).

#### Problem statement and objectives

There are an increased number of international students enrolling in academic institutions in the United States. Both students and scholars perceive higher education in the US as the best system in the world (Johnson, 1993). Additionally, American universities consider hosting international students not only an economically rewarding opportunity but also a means of enhancing cultural diversity (Sandhu, 1996).

It may be argued that dietary acculturation strategies employed by international students depend on key factors such as: the country of origin, the length of stay in the US, and the availability of home country/traditional foodstuffs. The availability of home country foodstuffs may also play a major role as students adapt to new diets while also attempting to retain their core identity – including values as well as cultural and religious beliefs. For new arrivals to the US, consumption of traditional foods forms a link with the

past, eases the shock of entering the new culture, and serves to maintain ethnic identity (Kalcik, 1984).

This study explores the process of dietary acculturation among international students at Oklahoma State University, particularly the strategies these students use and the reasons behind the use of the strategies. Specifically the study focuses on the following objectives:

1. Identifying dietary acculturation strategies employed by international students at Oklahoma State University.
2. Determine factors influencing food choices and dietary habits among international students at Oklahoma State University.
3. Determine the effect of the availability of traditional food on the choice of dietary acculturation strategy.
4. Determine if international students see a need for the university community to assist in easing the acculturation process.

#### Significance of the study

As difficulties adapting to the new culture may lead to negative emotional or physical health outcomes, a better understanding of food acculturation of international students, particularly the strategies used would be useful for planning services to help these students adjust to life in the United States. There is a need for collaboration among nutritionists, social and behavioral scientists to established new paradigms for research efforts in this important area. Results from this study may help to improve the adaptation process among international students. Results will be shared with OSU administration to

determine whether there is a need to encourage opening of outlets selling traditional foodstuffs in Stillwater, or if there is a need to increase awareness and development of alternative food purchasing mechanisms.

### Outline of the Thesis

This thesis consists of five chapters. The first chapter involves background information. The second chapter provides a review of literature pertinent to the study. The third chapter discusses the methods used in the study including the procedures used to recruit study participants, the tools that were used to collect data on food habits and nutritional behaviors of the participants and the procedures that were used in the data analysis. Chapter four covers the analysis of the research data, the findings and their interpretation. The last chapter gives the conclusions and implications as well as suggestions for future research.

### Definition of Terms

In this study, the terms "immigrants" and "international students" are used to indicate distinct groups of foreigners. The former are assumed to have an intention of permanently settling in the host country while most of those in the latter group plan to return to their home countries on completion of their studies.

### Assumptions

1. Participants report accurately.
2. The interviewer biases were minimal.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Acculturation

The term “acculturation” is often used to denote the process by which a minority group adopts the cultural patterns (example beliefs, religion, and language) of a dominant group (Satia et al., 2001). In this case the dominant culture would be the general US culture and the minority culture would be the original culture of international students.

Acculturation should not be confused with the related concept of assimilation. LaFramboise (1993) reported that assimilation is a mode of acculturation, in which the acculturating individual "loses his or her original cultural identity as he or she acquires a new identity in a second culture"(p. 395-412). The responses to acculturation can be linked with language, identity or acculturative stress.

The process of acculturation can be viewed as a response to conflict between two cultural views or attitudes, resulting in conflict resolution. Three categories of response have been identified, which are adjustment, reaction, and withdrawal (Berry, 1980). In adjustment, the individual or group makes changes to minimize conflict between their culture and the dominant culture by adopting beliefs and behaviors that are more similar to the majority culture; however, adjustment does not imply that the native culture is not retained to some extent. With reaction, there is an attempt to reduce conflict by reaction against the source of conflict. With withdrawal, changes are made to remove contact with the dominant culture. Within these three, reaction and withdrawal represent negative attitudes toward the dominant culture (Berry, 1980). These types of responses

may also influence attitudes towards health beliefs and other components of a new culture as well as adoption of new behaviors.

Cultural identity is defined as characteristics or traits that individuals maintain with regard to the linguistic, social and psychological dimensions of their culture (Berry and Sam, 1997). Cultural identity also involves personal issues of pride in one's native culture and attitudes, based on cultural beliefs and values. Acculturation is then the manner in which cultural identity may or may not change when an individual is exposed to a new majority culture. Individuals may choose to identify with the new majority culture, while others may not. There is also evidence suggesting that individuals may retain traditional religious or ethnic identifiers as demonstrated by terms such as Indian-American, Hispanic- American, or Irish-American (Berry and Sam, 1997).

Regardless of theory, acculturation occurs at two levels. The first level is the micro (individual) level which refers to changes in attitudes, beliefs, behaviors such as diet, and values in individuals resulting from acculturation (Berry,1980). The second one is macro (group) level. At this level acculturation results in physical, biological, political, economic, and cultural changes in the acculturating group or in the society as a whole (Sodowsky and Plake, 1991).

Numerous factors influence the facility with which an individual or group assimilates into a new society. Highly educated immigrants from urban areas and those with similar cultural or physical characteristics (e.g. skin color) to the new country are less likely to experience cultural isolation or major lifestyle changes upon immigration. High education and income, employment outside home, having young children and

fluency in the host language result in increased exposure to the dominant culture and consequently acculturation (Berry, 1980).

### Dietary acculturation

One adjustment to a new environment that must be made daily is dietary. Food acceptance by the individual is a complex reaction involving physical, social, and psychological influences. Mental and emotional states affect reaction to food. Cultural and religious customs which are deep-rooted tend to set food usage (Ho et al., 1966).

Dietary acculturation is described as a process which occurs when members of a minority group adopt the eating patterns and/or food choices of the host country (Satia et al., 2000). For example, dietary acculturation for a Mexican immigrant to the United States may be characterized by increased consumption of "Western" foods (e.g. hamburgers) and a decreased consumption of whole grains and legumes (Otero-Sabogal, et al., 1995). The host group may also adopt some of the foods and dietary practices of the minority group(s), as evidenced by the popularity of the ethnic supermarkets and restaurants throughout most of the United States (Satia et al., 2002).

Dietary acculturation is not a linear process but a multidimensional, dynamic process in which a person moves from one end of the acculturation continuum (traditional) to the other end of acculturated (Berry, 1980; Sadowsky, 1991; Satia et al., 2001). Rather, available research showed that as part of the acculturation process, immigrants may find new ways to use traditional foods, exclude other foods or consume new foods (Satia et al., 2000).

Dietary acculturation may result in healthful or unhealthful changes. For instance, it has been observed that, among Hispanic immigrants, drinking pop instead of traditional fruit-based beverages may be considered unhealthful changes, whereas consumption of fewer highly saturated fats (e.g lard) is a healthful change (Bermudez et al., 2000). Therefore, it is important to consider that not all dietary changes related to acculturation are necessarily detrimental.

Satia et al. (2002) proposed a dietary acculturation model which suggests that there is a complex, dynamic relationship of socioeconomic, demographic and cultural factors in relation to exposure to host culture. The model shows the set of characteristics that predict the extent to which new immigrants may change their traditional attitudes and beliefs about food, taste preferences, as well as food purchasing and preparations which ultimately can lead to changes in dietary habits.

Exposure to host culture through television, books, and friendships can lead to changes in the diet, attitudes and beliefs and/or taste preferences. Furthermore, exposure to nutrition messages can modify beliefs about food and its relation to chronic disease risks. Another effect of immigration is exposure to a new food supply which can lead to changes in food procurement and preparation. For example, unavailability of traditional foods and ingredients will likely result in increased consumption of the foods of host country (Satia et al., 2000). In addition, if traditional foods are expensive and time consuming to prepare, it may be more convenient and affordable to eat prepackaged foods or to frequently eat at fast food restaurants (Satia et al., 2000). Studies in minority populations showed that these environmental factors are among the most commonly cited reasons for dietary acculturation (Satia et al., 2000., Pan et al., 1999., Raj et al., 1999).



Sociodemographic, cultural factors and exposure to host culture as well as changes in diet-related psychological and environmental factors can together affect the dietary intake of immigrants in three main ways: migrants may maintain traditional dietary patterns, may completely adopt to host country dietary behavior, or may adopt biculturalism by incorporating host country eating patterns in to their diet while maintaining some traditional dietary practices (Satia et al., 2000).

Cultural factors can directly affect dietary acculturation independent of exposure to host culture or changes in psychosocial and environmental factors. For instance, a Chinese woman may not fully adopt American eating patterns if she is living with her mother-in-law, mainly because Chinese older adults typically prefer traditional diet and have strong influence on the household diet (Satia et al., 2002., Chang 1974). Although this hypothetical immigrant has characteristics that predict full acculturation, she is likely to have bicultural diet behaviors.

### Dietary Acculturation Research Studies

Most studies pertaining to dietary practices of immigrants have shown that, while some traditional dietary practices remain intact, other changes occurred by substitution, addition or modification of foods from other cultures (Yi-Ling et al., 1999).

Immigration to the United States is usually accompanied by environmental and lifestyle changes that can markedly increase chronic disease risks for those who have an intention of permanently settling. Of concern is the adoption of US dietary patterns that tend to be high in fat and low in fruits and vegetables (Satia et al., 2002). It is also believed that the consumption of traditional foods and dishes decreases and adaptation of

new practices increases with length of residency in the United States (Romero-Gwynn et al., 1993).

Ying-Ling and colleagues (1999) found that, dietary changes were determined by length of exposure to the new environment, ability of the immigrant to speak or read the new language, social contact with people of the new culture, and a greater involvement in extracurricular activities and educational programs. They also noted that men were more likely to change their food patterns than women who had more experiences preparing traditional cuisine. Furthermore, it was observed that students in their study consumed a large amount of salty and sweet snack items, a practice that might not be nutritionally desirable.

In another study, Satia et al. (2000) found that the major determinants for food choices among the participants include traditional beliefs regarding balancing foods, religious beliefs, perceptions about what constitutes a healthful diet, taste, dietary knowledge, and body weight-related issues. Attitudes of family members and friends were examples of reinforcing factors. Food quality, convenience, cost and availability were enabling factors that were among the most important predictors of dietary changes among the participants. For example, several women mentioned that they consumed more beef than fish in the United States because fish is expensive in the United States.

Furthermore, Chau et al. (1990) reported that groups of Asian immigrants retained certain types of their traditional foods; they eliminated others and adopted other nontraditional foods. For example, it was observed that rice remained an important staple, but other traditional foods were replaced by cereals, sandwiches, milk, and soft drinks. Dinner changed the least of the three meals and continued to be the most traditional meal.

Breakfast, lunch, and snacks items, however, were replaced by foods more commonly consumed by Americans.

A report (Nestle et al., 1998) published in *Nutrition Reviews* addresses behavioral and social influences on food choices. Nestle and colleagues reported that “culture is the pervasive foundation that underlies all food choices. People construct their perceptions, beliefs, and attitudes about foods on the basis of cultural values with psychosocial factors shaping their food choices” (Nestle et al., 1998, pS51).

It is presently not clear how dietary change occurs within the large process of socio-cultural acculturation. Some studies observed that high frequency of consumption of American foods does not necessarily mean decreased frequency of traditional food consumption (Dewey et al., 1984; Berry, 1980). Pelto et al. (1981) reported that traditional food consumption operated independently from US food consumption. On the other hand, Romero-Gwynn et al. (1993) reported decreased frequency of traditional food consumption as immigrants form a positive relationship with the host society.

By studying different cultures and cultural identity, it is possible to determine food habits (Wahlquist and Kouris, 1990). Food habits are influenced by social and economic factors (Sims, 1978). Individual food habits are strongly affected by values, beliefs, attitudes and knowledge as well as outside forces such as environment. However, they do not remain static but seem to constantly evolve (Grivetti et al., 1978). The factors determining adoption of non traditional foods are poorly understood as are those factors determining decreased use of traditional foods. A study done by Black and Sanjur (1980) found that, as people experience more outside interaction, food consumption patterns are affected, with the complexity of the diet increasing. While this is usually a

positive move, adoption of poor eating habits is always a concern for those who have an intention of permanently settling in the host country. Consumers with low income and lower levels of education tend to have little nutritional knowledge compared with other population groups (Fusillo and Beloian, 1977). At risk population groups are often comprised of minorities, many from developing countries. These hard to reach groups often possess a fatalistic view of health, ascribing the continuum of health to fate (White et al., 1990). Populations such as these seem to lack understanding of the connection between diet and health and thus the means of circumventing ill health and especially chronic disease. It is important to study various cultures in order to determine practices and habits that affect health and life expectancy (White and Maloney, 1990).

Coping strategies are believed to be situation- specific, and people cope with different situations at different times with different strategies during resettlement (Fu and Wong, 2002). Since research has demonstrated that coping strategies differ across cultures, it can be assumed that foreign students would utilize coping strategies that differ from those used by nonimmigrant students. Moreover, efforts to reduce the incidence of poor health among foreign students should not be the concern of the students alone but also of health professionals and foreign student administrators (Sam and Eide, 1991). Hence it is important to identify difficulties these individual experience when they come to the United States, and to determine factors influencing food choices and dietary intake among them in order to develop culturally relevant services. (Yeh and Inose, 2002).

### Factors that influence food habits

Understanding the relationship between a person's socioeconomic acculturation and dietary acculturation requires identification of what factors influence people's diet. Food choice is not determined by one single factor but rather is shaped by a system of factors (Nestle et al., 1998). Within the system of influences on food choices, different factors may be important at different situations. Those factors that may play an important role on food choices and dietary acculturation are:

#### Family structure and demographic characteristics

Family structure plays a major role in diet and can be divided into composition and size of household, and meal preparation. In general, household size is considered to have an effect on diet because of shared preparation and costs of meals. Composition of the household also has an effect on diet because married people were more likely to retain their ethnic diet, whereas people who marry someone out of their own ethnicity may change their diet to a greater extent. Bilingual children influence choice of new foods by adapting faster to the host country food behaviors (Tan and Wheeler, 1982).

In each household, food behaviors develop from the complex interaction of lifestyle influences. Although the lifestyle of each family is unique, similar household composition, influenced by similar societal and lifestyle factors, results in similar food habits and as the household size increases, there may be an associated increase in the money spent on foods, though the food quality tends to decrease (Starkey et.al., 1999).

A study by Glanz et al. (1998) reviewed two self-administered cross-sectional surveys to examine the importance of taste, nutrition, cost, convenience, and weight

control on dietary choices. Those factors varied among demographic groups. Taste was more important to women than other groups. Weight control and nutrition were more important to elder respondents and women. Younger respondents, women and lower income individuals found cost and convenience to be more important.

### Cultural factors and food patterning

Numerous cultural factors also affect the diet of each person within a society. Experts in this field have systematically analyzed these influences to delineate the interrelationships and predict food habits. Two approaches are especially helpful in understanding individual dietary practices within the context of culture. First is the developmental perspective of food culture, which suggests how social dynamics are paralleled by trends in food, eating, and nutrition (Sobal, 1999). Second is the lifestyle model of dietary habits, which outlines how specific food behaviors may result from the interaction of social factors with lifestyle factors (Pelto, 1981).

Culture plays a role in modifying and controlling the selection of foods. Jerome (1976) conducted field studies in 42 homes in Kansas City to evaluate their eating patterns. The data on food consumption showed the existence of a large number of dietary items in the highest and lowest frequency categories. The frequency in consumption of a large number of foods by many individuals led Jerome to suggest that “diet individuation” (person preference and selection) drives food choices and consumption in modern societies which have constant and abundant food supplies, such as the US (p 92).

In another study, Jerome studied the interaction of nutrition and culture of southern blacks who migrated to a northern metropolitan environment (Jerome 1975, Jerome 1980). She found the change of food habits over time was dependent upon individual characteristics, group characteristics, adjustment to a new environment, values established by the environment, and the amount of common cultural contact in the environment. The industrialized change from the production to purchase of food led to high calorie and varied diet with the retention of many traditional food items.

Another factor is market environment which shapes dietary behaviors by allowing or restricting easy access to the traditional foods for individuals who wish to maintain traditional eating patterns in other words, providing food availability (Axelson, 1986). Purchasing power is also an important consideration in most dietary studies. For example, Son and Takeda found that market environment has an effect on traditional food purchasing behavior in Korean and Japanese immigrants (Son, 1994; Takeda, 1990).

### Lifestyle Factors

Both availability and control of food at the societal level affect the lifestyle of individuals. These influences include income, which limits what food can be purchased. Occupation also influences meal patterns. In some cultures everyone's job is near home and the whole family joins in a leisurely midday lunch. In urbanized societies, people often work far from home; therefore lunch is eaten with fellow employees. Instead of a large home cooked meal, employees or students may eat a quick, light fast-food meal. Furthermore, who is employed is also important, i.e. the greater number of hours a

woman spends working outside the home each day, the fewer the hours she spends in meal preparation (Kittler and Sucher 2001).

Income is directly affected by occupation and occupation is in turn affected by education. Educational attainment may also influence other lifestyle factors that affect food habits, such as nutritional knowledge. One study reported that college students were more likely to try new fruit, vegetable or grain products if information on nutritional benefits were provided (Martins et al., 1997). Some researchers have found that attitudes about the healthfulness of certain foods are important in food preferences. Also, preferences are more often influenced by beliefs regarding nutritional quality than the actual nutritional value or health consequences of a food. (Rozin, 1996; Shepard and Raats, 1996).

Ethnic identity may be immediate, as in persons who have recently arrived in the United States, or it may be remote, a distant heritage that has been modified or lost over the generations through acculturation. The degree of ethnicity identity directly influences food habits. An individual who has just emigrated from Japan, for example, is more likely to prefer Japanese cuisine than is a third or fourth generation Japanese American. Consumption of traditional foods and dishes decreased and adaptation of new practices increased with length of residency in the United States (Romero and Douglas, 1997).

Religious beliefs are similar to ethnic identity in that they may have a great impact on food habits or they may have no influence at all depending on what religion is followed and on the degree of adherence. Many Christians, for example, have no food restrictions, but some religions such as Judaism require that only certain foods be



consumed, in certain combinations, yet most Jews in the US do not follow these rules strictly (Kittler and Sucher 2001).

Health consciousness is the amount of concern individuals have about their health and has been identified as an important factor affecting people's diet (Betts et al, 1995; Furst, 1996). Some Americans, for example, show high health consciousness related to diet. Health beliefs also influence food habits in varying ways. Specific foods are often credited with health-promoting qualities such as ginseng in Asian, a balance of hot and cold or yin and yang foods may be consumed as traditional health beliefs and practices. Vegetarianism is another way in which health beliefs can affect food habits (Kittler and Sucher 2001).

Finally, migration of populations from their original homes to new settlements creates significant structural changes as they may shift from a homebound, culture-bound society to one in which global travel is prevalent and immigration common. Traditional food habits are in flux during acculturation to the diet of a new culture and novel foods are introduced and accepted into majority cuisine. Most of the time new traditions emerge from the contact between diverse cultural food habits (Kittler and Sucher 2001).

### Acculturative Stress

The number of foreign students in the colleges of the United State is rapidly increasing, and although the students' goals are mainly academic, they will have to adapt to American customs to some extent (Ho et al, 1966). Their success as scholars may be dependent on the degree of their adjustment to prevailing cultural patterns.

Acculturative stress includes those behaviors and experiences which are generated during acculturation, and which are mildly pathological and disruptive to the individual and his group (Berry, 1991). It is possible that migrants experience less stress in societies in which several different cultural backgrounds are represented than in unicultural societies because in a multicultural society there is more support to maintain cultural identity than in a unicultural society. A unicultural society has one majority culture, to which the migrant culture must adapt (Berry, 1991).

Because international students living in the United States are hundreds or thousands of miles away from home, they are likely to find it frightening while trying to establish sense a of belonging. When cultural contexts change, values change, priorities change, and subsequently behaviors change (Sandhu, 1997). Immediately after the international students arrive in the United States, their cultural transformation is launched. As a consequence of this acculturating process and the threat to cultural identity, feelings of powerlessness, marginality, inferiority, loneliness, hostility and perceived alienation and discrimination become major mental health concerns (Sandhu et al., 1996). Students also undergo other problems including language difficulties, financial problems, and problems in adjusting to new educational systems and customs, as well as homesickness and limited opportunities for social contacts and dietary changes. There is a general consensus that foreign students have more adjustment problems in American colleges and universities than the native students (Cheng et al., 1993). But sadly, Pedersen (1991) points out that foreign student have fewer resources than their counterparts to solve their adjustment problems. The multifaceted nature of problems foreign students face has led

some researchers to conclude that these students tend to suffer from poor health during their stay abroad (Satia et al., 2002).

The need for cultural nutrition resources is undisputed. The population of the United States is increasingly heterogeneous, moving toward a plurality of ethnic, religious, and regional groups (Kittler and Sucher, 2001). Each of these minorities has traditional foods and food habits that may differ significantly from the so-called typical American diet. Effective nutrition counseling, education, and food service require that these variations be acknowledged. Diet is best understood within the context of culture to avoid inadvertent criticism of the underlying culture (Kittler and Sucher, 2001).

## **CHAPTER III**

### **METHODOLOGY**

This study sets to explore the strategies used in dietary acculturation and the reasons behind the use of such strategies among international students at Oklahoma State University (OSU). In this study, data were collected using two different research methods: - survey and focus group discussions.

Sampling methods are described, and then specific study protocols for the survey and focus group are reviewed. Interviews guides (Appendices B and E), together with notes from the data analysis can be found (appendix H) at the end of this report. This study was approved by the Institutional Review Board at Oklahoma State University and was conducted from March through July 2004. The human subjects review form is located in Appendix A.

#### Sampling

Convenience sampling was used to identify participants who were graduate and undergraduate international students at Oklahoma State University for the survey. Recruiting for the survey was conducted through the regularly scheduled e-mail sent to all international students at OSU (weekly list serve). Students, who chose to participate, followed the link to the study website to respond to the survey. Items were coded through a generated file for analysis. Approximately 1500 students were asked to participate. For the focus group discussions, sampling was conducted through a personal recruitment process which took place at the Family Resource Centre (FRC) and the

University Laundry. Target participants were women from African and Middle Eastern countries. Flyers were also posted at both sites containing a description of the study, activities required to be completed by the study participants, and contact information for potential volunteers (See Appendix C.). Following the recruitment procedure, informed consent was obtained. Participation in this study was completely voluntary, confidential and anonymous.

### Survey

The data was collected using a structured questionnaire composed of a checklist and open-ended questions. Most of the questions used in the interviews were developed by the researcher based on the literature relevant to the topic (Satia et al., 2002). The use of the literature and a previously used questionnaire, contribute to the validity of the data collection tools. The main purpose of the dietary behaviour questionnaire was to assess the degree of Western influence on eating habits among international students and to determine some of the behaviours that might reflect the Western influence on their diets. The questions included in the questionnaire were related to the participants' food choices, changes in their diet, patterns of dining out, and other factors that influence their eating patterns and dietary behaviour (See Appendix B).

The survey had three sections. The first section was about dietary behaviour and had twenty six questions utilizing multiple choice answers and ten open ended questions. The second section of the questionnaire was designed to obtain information about participants' demographic characteristics which included age, gender, marital status, residence, country of origin, class at OSU, language, and residency in Stillwater and

religious affiliation. The last part of the questionnaire was designed to assess the acculturation stress using an acculturation stress scale for international students by Sandhu and Astrabadi (1994). An explanation of the study was included on the first page of the questionnaire.

### Focus group

Focus groups are typically used to obtain a range of opinions or perceptions on products or process with a goal of enhancing marketing strategies. A focus group interview is a qualitative research technique in which a group of 6 to 10 people who are representative of a target population are brought together to discuss a particular topic for 1 to 2 hours (Berg, 2004). Focus groups are repeated several times with new subjects each time to identify trends and patterns in perceptions (Krueger, 1994).

### Pilot Group

One pilot group discussion was conducted with individuals in the target group (international students and spouses) in order to pretest the interview guide. Pilot groups help to ensure: effectiveness and sequential flow of questions, understanding of each question by participants, adequate time allocation for questioning, and generation of the desired information to meet research objectives as well as increasing the efficiency with which the moderator asks questions (Shepherd and Achterberg, 1992). Based on the pilot group, small adjustments were made to the interview transcript. A few of the questions were reworded for clarification, for example “what determines your food choices?” was reworded to “how do you decide what food to buy?”

### Transcript development.

The unstructured interview script used by the moderator served as a guide to elicit the women's perceptions and meet the research objectives. Questions were systematically generated by using procedures outlined by Krueger (1994) but similar issues were addressed as in the survey questions. An interview guide was used (See Appendix E). This guide was designed to examine what experiences the students and spouses had on adapting to American foods the first time they came to US as well as criteria used during the adaptation process. Specifically questions explored factors determining food choices and preference for traditional foods if available and affordable. Additionally participants were asked if they saw the need for changes to ensure that the dietary acculturation process is made easier for international students and their families.

For this study, approximately 2 hour focus group sessions were conducted with women students and spouses, each with ten participants grouped according to area of origin (Africa or Middle East). The primary goals of these focus groups were to observe the degree of consensus on what are the strategic choices in dietary acculturation among international students. Additionally, women students and spouses were selected because of their customary role in food selection and preparations. Subjects were recruited in the Stillwater area by sending fliers to the Family Resource Center and University Laundry (See Appendix C). At the conclusion of each group discussion; participants received a gift of approximately \$10 value to acknowledge appreciation of their participation.

### Focus Group Moderator

The focus group was directed by a moderator who directed the discussion using an interview script as well as taking comprehensive notes of the responses and operating the audiotape. The moderator of the discussion, the author, was a master's student in Nutritional Sciences from Tanzania-East Africa. She is the mother of two and had lived here for five years. The experience of adapting to new foods when she first arrived in the US drove her interest on finding out how other international students adapt to new foods in the US. This experience contributed greatly towards the trust that these women showed in the researcher while revealing their experiences and personal information. The training she had on focus group included reading several of Dr. Krueger's text books on Focus Groups, course work on qualitative research and supervision by faculty.

### Focus Group Procedures

The purpose of the study was fully explained to potential participants; they were given a chance to ask questions and then signed informed consent forms. After signing the informed consent forms, participants were asked to provide demographic information on the same paper (See Appendix F). Meetings were held at the Family Resource Center with the chairs arranged in a circle so that all participants and the group moderator could be seen and heard by one another. The focus group questioning followed the outline.

During questioning, the moderator stated that the questions did not contain yes or no answers and that the participants were encouraged to state their opinions and feelings openly when responding to the questions. After asking each question, participants were allowed to direct their responses while the moderator took a passive role during



discussion among group members. If the discussion began to shift to an unrelated topic, the moderator would restate the original question or move on to the following question. The same procedure was used for each of the two groups.

## Data Analysis

### Survey

The Statistical Package for the Social Sciences (SPSS for Windows, release 12.0, 2003) was used for data analyses. For the survey, data collected were analyzed by using basic descriptive statistics as well as an independent sample T– test. Chi square was also calculated to examine differences in responses between graduate and undergraduate students. The differences were considered significant at  $p < 0.05$ . Content analysis was used to analyze qualitative responses from focus group discussions. The data from the Acculturative Stress standardized questionnaire were not used in this study due to miscoding of the questions.

### Focus Group

The audiotapes were transcribed verbatim by the OSU Bureau for Social Research. The transcript for each tape was typed on a computer using word processing software. The notes taken by the moderator were also used for analysis. The moderator and two assistants reviewed the printed transcripts for accuracy by listening to the original tapes. Working independently, the moderator and two sociology graduate students identified major themes from the printed transcripts of the two groups. Transcripts and themes

were also reviewed by the thesis advisor. After the identification of major themes, categorization of the text followed. A list of code words or phrases was developed and a description was written for each of the code words. Because usages of terms are subject to many interpretations, definitions were clearly delineated (See Appendices G & H).

In this technique, meanings were designed according to common cultural usage or experience (Strauss and Corbin, 1998). No inter-coder reliability was calculated. Hence there may be bias in coding.

The coding enabled the identification of strategies/methods used in dietary acculturation as well as factors influencing dietary behavior. An inductive approach was used to describe the results.

## CHAPTER 1V

### RESULTS

#### Subjects

##### Survey

The survey was sent to approximately 1500 international student's enrolled in OSU. There was a response rate of 10 % (157 students). Based on the descriptive statistics, most of the respondents were male (52%). Respondents were from 45 different countries but most of them (57%) were originally from the Asian continent i.e. India, China, and Japan.

The duration of stay in the United States varies widely; fifty six (25.1%) had less than one year, sixty (38.6%) had one to five years and thirty eight (26.5%) had more than five years. Most participants (69%) were graduate students while thirty-seven of them (24%) were pursuing undergraduate degrees.

Forty- eight (40 %) believed in Christianity, twenty -three (19%) were Muslims, thirty three (27.4%) were Hindu believers and others had religious affiliation such as Atheist, Buddhism and Jewish.

With regard to association outside community, most (53.2%) associated with both equally i.e. people from the same background and US citizens and other 41.1% individuals indicated they associated only with people from same background (Table 1).

Table 1. Selected Characteristics of Survey Participants

<b>Characteristics</b>	<b>N</b>	<b>%</b>
<b>Place of residence</b>		
University Apartments	53	36.8
Residential Hall	2	1.4
Off campus	89	61.8
<b>Class at OSU</b>		
Freshman	5	3.5
Sophomore	6	4.2
Junior	11	7.6
Senior	15	10.4
Graduate (Msc.)	63	43.8
Graduate (Phd.)	44	30.6
<b>Marital status</b>		
Single	110	77.5
Married	32	22.5
<b>Age (years)</b>		
Under 26	82	56.6
26-30	34	23.4
31-35	19	13.1
36-40	4	2.8
41-45	5	3.4
Over 45	1	0.7
<b>Gender</b>		
Male	73	52.1
Female	67	47.9
<b>Religion</b>		
Muslim	12	60
Christian	8	40
Hindu	33	27.4
<b>Association</b>		
Same background	58	41.1
US citizens	8	5.7
Both equally	75	53.2

Two thirds of the respondents (66.5 %) reported a negative change in their food habits after immigration to the United States. However, approximately the same percentage (62.2%) reported that they were satisfied with their eating habits after immigration to the United States (Table 2). There were significance difference ( $p=.050$ ) in the comparison of food behavior today comparing to before their arrival in the US between graduate and undergraduate students. Furthermore, there was a significance difference on the dietary changes ( $p=.012$ ).

Table 2. Responses on food behaviors after arrival in the US

Question	N (%)				
	VS	SM	SD	VD	NC
How is your food behavior today compared to before your arrival in the US?	10 (6.5)	4 (2.6)	22 (14.3)	62(40.3)	56(6.4)
Total l= 154 Missing system =1					
	VP	SP	SN	VN	HC
If there has been a change, how would you characterize that difference in your diet?	6(4.1)	19(13)	16 (11)	81(55.5)	24(16.4)
Total = 146 Missing system = 9					

1. Responses (VS= Very similar SM=somewhat similar, SD=somewhat different, VD=Very different and NC=No change)

2. Responses (VP=Very positive, SP=somewhat positive, SN=somewhat negative, VN=Very negative and HC=Healthy change)

Influencing behavior for the changes included no time to prepare traditional meals due to busy class schedules and also believing that it takes a lot of time and effort to prepare their traditional meals (64 %), unavailability of traditional foods (N=55; 38%), traditional foods being more expensive (13 %) and no access to the kitchen (43 %).

There were significance difference on the reason of not cooking between graduate and undergraduate students ( $p= .028$ ). In general dietary supplements were not widely used (87%) by this population.

Table 3. Frequency of eating

Question	N (%)				
	1-2	3-5	>5		
How many times do you eat per day?	33 (21.3)	116 (74.9)	6 (3.8)		
Total=155 Missing=2					
How often do you eat in the following establishment per month?					
	Never	1-2	3-4	5-6	>6
<b>Restaurant</b> Total=146 Missing=9	29 (19.9)	75 (51.4)	27 (18.5)	7 (4.8)	8 (5)
<b>Cafeteria</b> Total=137 Missing=18	54 (39.4)	48 (35)	13 (9.5)	9 (6.6)	13 (5)
<b>Fast food*</b> Total=145 Missing=10	26 (17.9)	59 (40.7)	33 (22.8)	17 (11.7)	10 (6.9)

\*e.g. McDonalds, Pizza, Chinese fast food

Table 3 above summarizes how often students eat and where they are eating. Meals consumption by most of the respondents was mostly 3-5 times per day (74.9%). Thirty-six (23%) reported eating their lunch out daily while fifty (35%) of them indicated that they never had their dinner out. There was significance trend on the number of times they eat lunch out ( $p= .083$ ) and a significance difference ( $P= .019$ ) on the number of

times they eat dinner out between graduate and undergraduate students. When asked how often per month do they eat in the restaurants, cafeteria and fast food, seventy-five (51.4%) reported eating 1-2 times in restaurants. There were significance trend in the number of eating in the cafeteria per month by undergraduate and graduate students ( $p=.063$ ).

Table 4. Frequencies of buying traditional foods

Question	Always N (%)	Often N (%)	Less often N (%)	Rarely N (%)	Not at all N (%)
How often do you buy your traditional foodstuffs from the following sources?					
Wal Mart	47 (33.1)	31 (21.8)	26 (18.3)	26 (18.3)	12 (8.5)
N=142					
International foodstuffs outlets in Stillwater	30 (21.9)	44 (32.1)	25 (18.2)	23 (16.8)	15 (10.9)
N=137					
International foodstuffs outlets outside Stillwater	24 (18.5)	30 (23.1)	23 (17.7)	29 (22.3)	24 (8.5)
N=130					

When asked how often do they buy their traditional foodstuffs from the following sources: forty seven (33%) reported they always buy from Wal Mart, thirty (21.9%) from international foodstuffs outlets in Stillwater and twenty four (45%) from international foodstuffs outlets outside Stillwater (Table 4 above).

Table 5. Responses for Strategic Choices in Dietary Acculturation

Choices	Always N (%)	Often N (%)	Less often N (%)	Rarely N (%)	Not at all N (%)	Missing
<b>Breakfast</b>						
American meals From dinning places	2(7.7)	7(26.9)	1(3.8)	4(15.4)	12(46.2)	131
American meals prepared at home using American type ingredients	19 (40.4)	18 (38.3)	2(4.3)	2(4.3)	6(12.8)	110
Home country meals prepared at home using home country ingredients	23 (31.9)	21(29.2)	8(11.1)	7(9.7)	13(18)	85
<b>Lunch</b>						
American meals from dinning places	(11.4)	22(62.9)	2(5.7)	2(5.7)	5(14.3)	122
American meals prepared at home using American type ingredients	14(29.8)	23(48.9)	4 (8.5)	2 (4.3)	4 (8.5)	110
Home country meals prepared at home using home country ingredients	23(51.1)	17(37.8)	5(11.1)	-	-	112
<b>Dinner</b>						
American meals from dinning places	2(10)	13(65)	3(15)	-	2(10)	137
American meals prepared at home using American type ingredients	17(37)	23(51.1)	2(4.4)	2(4.4)	1(2.2)	112
Home country meals prepared at home using home country ingredients	33(50)	25(37.9)	3(4.5)	1(1.5)	4(6.1)	91



In response to the questions about their dietary acculturation, 51 % strongly believed that they would be more comfortable to living in Stillwater, 45% if their traditional food were available believed they would prepare their own meals more often and 42.5% believed that their dietary acculturation process will be easier if their traditional foods were available (Table 6).

Table 6. Responses to question on the effect of traditional food availability

Question	SA N (%)	A N (%)	N N (%)	D N (%)	SD N (%)	Missing
I had difficulties adapting to new foods in US	19(13.2)	36(25)	33 (22.9)	38 (26.4)	18 (12.5)	11
My eating habits have changed since coming to US	57(39)	52(35.6)	19 (13)	17 (11.6)	1 (0.7)	9
It is easy for me to find my traditional foods	3 (2.1)	22 (15.1)	17(11.6)	49 (33.6)	55 (37.7)	9
I would prefer to eat my traditional food if is available	89 (61)	40 (27.4)	15 (10.3)	2(1.4)	0 (0)	9
Suppose your traditional Food were available :						
Will prepare my own meal more often	65 (44.5)	38 (26)	30 (20.5)	10(6.8)	3 (2.1)	9
My food adaptation process would be easier	62 (42.5)	46 (31.5)	25 (17.1)	11 (7.5)	2 (1.4)	9
Would be more comfortable to live here	74 (50.7)	44 (30.1)	23 (15.8)	4 (2.7)	1 (0.7)	9
The choices use to meet my daily dietary needs would NOT change	25 (17.1)	37 (25.3)	37 (25.3)	34 (23.3)	13(8.9)	9

Responses: SA=Strongly agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly disagree

There was significance difference on the changes in eating habits since coming to the US ( $p= .028$ ) and preference of traditional foods ( $p= .033$ ). There was also a trend on the difficulties adapting to new foods in the US ( $p= .058$ ) between undergraduate and graduate students.

Table 7. Responses from Attitude questions (N=155)

Question	N (%)	Missing
What is the primary factor that influences your food choices?		
Time/convenience	50 (32.9)	
Environment (friends and family)	41 (27)	
Cost/finance	15 (9.9)	
Taste/craving	44 (28.9)	
Others	2 (1.3)	3
Do you feel that it takes a lot of time and trouble to prepare your traditional meals?		
Yes	98 (64.1)	
No	55 (35.9)	2
Do you think your traditional diet is healthier than the usual American diet?		
Yes	121 (79.1)	
No	7 (4.6)	
Not sure/don't know	25 (16.3)	2
Are you satisfied with your eating habits here in US?		
not satisfied	57 (37.7)	
slightly satisfied	47 (31.1)	
moderately satisfied	40 (26.5)	
highly satisfied	7 (4.6)	4

Factors that influence food choices among the respondents were time/convenience (32.9 %), cost (9.9%), taste (28.9%) and environment (family and friends (27 %). Other factors such as quality and similarities to traditional foods and religious beliefs were also reported as to have influences food choices among the students.

Most (79 %) respondents believed that their traditional foods are healthier than the usual American foods. Eighty-nine (61 %) reported preference of their traditional foods if is available and affordable (Table 7 above).

To assess the coefficient of reliability of the questionnaire the 12 attitude items (questions from table 6 and 7 excluding the question on factors influencing food choices) were grouped. Cronbach's alpha was 0.4470 indicating that several underlying attitudes were being assessed. Factor analysis and regrouping the items did not resolve this difficulty. Independent sample test (T-test) was performed to assess the difference in response to the attitude items between undergraduate and graduate students (Table 8 below). In general, graduate students appeared slightly more satisfied with their eating habits here in the United States

Differences between married students who were living with or without their spouses were also assessed (Table 9 below). In general, students who were married and living with their spouses appeared to be also slightly satisfied to their eating habits.

Table 8: Results from T-test for attitude items for undergraduate and graduate students

Item	Undergraduate	Graduate	p-value
	Mean	Mean	
I had difficulties adapting to new foods in US	2.94	3.09	.757
My eating habits have changed since coming to US	1.62	2.12	.009
It is easy for me to find my traditional foods	3.94	3.86	.689
I would prefer to eat my traditional food if it is available and affordable	1.78	1.43	.033
Suppose your traditional food were available :			
Will prepare my own meals more often	1.72	2.02	.140
My food adaptation process would be easier	1.97	1.89	.686
Would be more comfortable to live here	1.97	1.63	.041
The choices you use to meet my daily dietary needs would NOT change	3.11	2.69	.081
Do you feel that it takes a lot of time and trouble to prepare your traditional meals?	1.40	1.34	.614
Do you think your traditional diet is healthier than the usual American diet?	1.18	1.43	.047
Have you ever seen or heard about any educational pamphlets about how to choose a healthful meal	1.33	1.50	.079
Are you satisfied with your eating habits here in the US?	1.97	2.07	.571

Table 9: Results from T-test for attitude items for married students living with or without spouse

Item	Married with spouse	Married without spouse	p-value
	Mean	Mean	
I had difficulties adapting to new foods in US	2.91	3.09	.573
My eating habits have changed since coming to US	2.33	2.02	.275
It is easy for me to find my traditional foods	4.04	3.95	.760
I would prefer to eat my traditional food if it is available and affordable	1.41	1.51	.592
Suppose your traditional food were available :			
Will prepare my own meals more often	1.54	2.04	.034
My food adaptation process would be easier	1.66	2.09	.061
Would be more comfortable to live here	1.45	1.73	.208
The choices you use to meet my daily dietary needs would NOT change	3.33	2.85	.117
Do you feel that it takes a lot of time and trouble to prepare your traditional meals?	1.29	1.24	.678
Do you think your traditional diet is healthier than the usual American diet?	1.33	1.53	.329
Have you ever seen or heard about any educational pamphlets about how to choose a healthful meal	1.45	1.43	.882
Are you satisfied with your eating habits here in the US?	2.12	2.19	.771

### Focus Group

Two focus groups were conducted with 10 women per group from Africa and Middle Eastern Muslim countries. The African women were from Nigeria, Tanzania (2), Uganda, Swaziland, Malawi, Lesotho, Namibia, Cameroon, and Guinea. The Middle Eastern women were from Libya (2), Sudan, Morocco, Turkey, Kuwait, Egypt, Iran and Jordan (2). Fifteen women (75%) indicated one or more children living in the home, four (20%) indicated living with other older parents. Eleven women were employed full-time.

For religious beliefs, most women, 12 (60%) were Muslims while eight (40%) were Christians (Table 10).

Furthermore, with regard to association outside community, most (65%) associated only with people from same the country of origin and others (35%) individuals indicated they associated with both equally i.e. people from the same background and US citizens.

### Difficulties in adapting to new foods

The women were asked if they had any difficulties adapting to new foods in the US. Most of them agreed that they had difficulties adapting to new foods when they first arrived. Some comments were like “it was difficult, when I first came here I just tried to adapt to American foods because I had no choice” and “because it is not the same traditional food what we find here and does not have the same taste and now we start to give up finding our traditional foods”. However, some women especially from Middle Eastern countries indicated few problems in adapting to new foods and commented that “it is easy to adapt to American foods, especially nowadays that American foods are, or

that American restaurants are everywhere in most of the whole World. And uh, I think they use simple ingredients that are most of the time available around the World.”

Table 10: Selected Characteristics of Focus Group Participants

<b>Characteristics</b>	<b>N</b>	<b>%</b>
<b>Age</b>		
Under 26	10	2
26-30	15	3
31-35	50	10
36-40	15	3
41-45	10	2
<b>Class at OSU</b>		
Junior	5	1
Senior	10	2
Graduate (Msc)	20	4
Graduate (Phd)	20	4
Spouse	45	9
<b>Residence</b>		
University Apartments	75	15
Off Campus	-	5
<b>Marital status</b>		
Married	75	15
Single	25	5
<b>Living with spouse</b>		
Yes	74	14
No	26	5
<b>Have children</b>		
Yes	75	15
No	25	5
<b>Religion</b>		
Muslim	60	12
Christian	40	8
<b>Association</b>		
Same background	13	65
Both equally	7	35

In trying to adapt to their host country food, these students and families use different strategies including trying different types of foods in the process of choosing what to eat; cooking their traditional meals (a few times per week) using traditional ingredients bought from traditional food outlets like Asian Food Mart in Stillwater and China Town in Oklahoma City; bringing ingredients from home countries and growing some vegetables. When eating American foods, they tend to select those items that are close to their traditional foods. Some also indicated that American foods have too much cheese as well as preservatives/chemicals which makes them be careful when selecting foods. Some women experienced problems like weight gain or leg and feet problems after eating these foods. In addition, it was indicated that most of them did not have any information about US foods before coming here.

### Influence on food choices

Themes that dominated the conversations in both groups relating to food choices were cost, time/conveniences, and quality of the food including appearance and taste, family and friends helping in choosing what can be eaten.

Cost was mentioned in both groups as a major factor determining food choices. Some women commented “cost is very important for me. And uh, if I have two types of food which have the same ingredients and one is at least cheaper, I buy it.” Furthermore, others commented “I go for the need first, then the cost and then I will look if there are some certain things we don’t eat by checking the ingredients so...if there are certain ingredients we don’t eat in that, then I choose the other one, after that, may be it could be the appearance of the food too, I mean, it depends on what you need.”. Others also



mentioned that in the US fish and beef are more expensive than chicken and pork thus they find themselves eating chicken everyday.

For time/convenience, the women mentioned frequently that their busy lifestyle determines the types of food chosen. There was little time to prepare meals; therefore items that were considered convenient in terms of availability or ease and quickness of preparation were more likely to be eaten. Some comments included “I become so tired when I get home from school, so tend to eat what is fast to cook and for most of the time I go for fast foods especially for lunch”. However, some women indicated that they eat certain kind of foods because it is easier to find American foods and ingredients than their traditional foods and that traditional food tends to be expensive compared to American foods.

Taste was a strong factor determining what can be eaten in both groups. In responding to the question related to determinants on their food choices, some comments included “Taste of the food has to go with what you like” and “for us with kids, sometimes when you go to the store to buy stuff, and the kids like it even if is expensive we buy it, so sometimes we not follow the price, we follow the taste too”. Food quality as fresh over frozen foods was among the factors mentioned as influencing food selections.

Furthermore, it was also indicated that individuals living with other people, whether their husbands, children, roommates or parents, were influenced by other’s food preference meaning that the women were interested in pleasing their family members. The women tended to be primary food purchasers and preparers, although some mentioned that sometimes, especially here in US, their husbands can help doing shopping

and preparing ingredients for cooking but traditionally it is shameful to let/make your husband cook. This was indicated by the comment like “I started my family in my country, and usually it is shameful for men to cook”, “my husband would rather die-starve than cook. If I’m sick he will order ready- made food. So I usually prepare the food by myself”.

### Changes in food preparation

When asked if there are any changes in food preparation, themes were difficult to find across the groups. The strongest theme associated with changes was incorporation of small gradual changes, which was indicated by participants in both groups. This was reflected through comments such as “ back home we cook fresh foods but here most of foods are frozen so feel threatened to eat here” and “traditionally we cook food and finish but here we keep foods in the refrigerator overnight”. Also “we try to get used to what is available but change the way to cook (use available ingredients to cook as your traditional foods)”. Participants also indicated that they feel that their traditional foods are healthier than usual American diets in terms of preparation and freshness. Their comments for the comparison between their traditional foods and usual American diets included “back home the food is healthier. My older son gained weight from the food here-fried and cheese, a lot of cheese in pizza. So back home we don’t eat as much of fried and the cheesy stuffs”.

There seemed to be many conflicting views regarding which of their traditional foods they would like to have available here in Stillwater. Common themes were not obvious among the two groups as most of the participants mentioned their foods in their

native languages. Some of foods mentioned were green banana, yams, cassava, spinach, cucumbers, vegetables, millet, palm oil, and some fruits like papaya and mangoes. For the foods they would like to have here, the comments were like “the things that I would like to have here are vegetables and fruits. The kind of vegetables that I would like available is cucumber-we have the small kind of cucumbers, it tastes much better and it tastes really cucumber but I don’t buy them here in the States because we tried once and it is very different”.

#### Suggestions to improve food adaptation

The major idea in response to the question on how to improve the process of food adaptation to international students and their families, the women suggested that OSU administration should try to improve the dietary adaptation process among international students by arranging with local farmers to grow some traditional foods and should increase fresh foods without chemicals/preservatives (grow foods naturally) and sell them to students at affordable prices. Their comments to the local farmers included “back home we get small tomatoes, but here you see all those chemicals they put to help them grow big stuffs, it’s really not helping us health wise. So if those local farmers are going to give us something natural and fresh, I think it will help international students, because that’s what we are used to”.

The women in both groups recommended that if possible the OSU administration can explore and see what other states are doing in terms of traditional foods and see if can be applicable here. The comments for this suggestion included “I would say that OSU is an academic institution which has to take care of their students. They have an

opportunity to explore International World and try to find those foods that are rather common for International students and try to produce them for the purpose of feeding students and even for research purposes” and “OSU administration can try to contact the Asian Food Mart or Wal-Mart, and ask if they can bring more of traditional foods, because in some other states, or even Oklahoma City, you will find an Asian Food Mart, and they have pretty much all traditional foods but here have only Asian foods”.

Other suggestions were that OSU administration needs to try and make changes in the cafeteria meals patterns as well as encouraging the opening of outlets selling traditional foodstuffs which will develop alternatives food purchasing mechanisms and ultimately improve the process of dietary adaptation for international students and their families.

Furthermore, it was also suggested that International organizations need to come up with a proposal for traditional food availability in Stillwater. Comments for the international students organizations were like “so may be some of the things we cannot just leave them to OSU, we need to take initiatives through our African Students Association”.

The Muslim women commonly recommended that if possible Muslim people should get animal slaughter areas in Stillwater rather than traveling to other cities to get slaughtered animals. The comment for this suggestion were like “something that I always dream about is may be if possible to give Muslim people a place to slaughter animals because for us we prefer to have it slaughtered in an Islamic way...so that this will be cheaper for us although there are stores which sell slaughtered animals but it is kind of expensive”. They also recommended that food labels should be clearer. The

information should give details of the ingredients of the food and specifically for people who do not consume pork like Muslims. Their comments included “the labels are not clear, if they make the labels clear, this will be making our lives easier”.

#### Definition of food adaptation (Dietary acculturation)

The participants were asked to define food adaptation. The most common definitions were “different cultural foods and not your own”. Their comments included the following “adapting to the types of foods you are not used to”, “adapting to different culture’s food”, “the stuff that you would not eat at home country”, “adapting to another country’s foods without being affected health wise”, “eating foods which is not like your traditional foods”, “eating what you are not used “and “you need to eat because you don’t have choice”.

## CHAPTER V

### DISCUSSION, CONCLUSIONS AND IMPLICATIONS

This chapter presents a summary of the data collected, conclusions drawn from the data and recommendations for future research. Implications of the findings from this study for practice are also discussed. The purpose of this research study was to explore the process of dietary acculturation among international students, particularly the strategies these students use and the reasons behind the use of the strategies. The study also examined factors influencing food choices and dietary habits among international students as well as determining the effect of traditional food availability on the choice of dietary acculturation strategy and if international students see the need for the university community to assist in easing the dietary acculturation process.

#### Summary

In general, the findings show that the information collected from the two methods compliment each other. Both subjects from the survey and focus group agreed that they had difficulties in adapting to American foods. Subjects cited traditional beliefs, convenience, cost, taste preferences and food quality as the key factors that determine individuals' food choices. When eating American foods, international students tend to select those items that are close to their traditional foods. However, some eat some items because that is what is available and affordable. The strategies used in adapting to American foods includes; cooking their traditional foods once in while using American ingredients or ingredients they buy from international food outlets here in Stillwater,

Oklahoma City or from nearby States; also by finding a garden plot to grow some preferred foods especially vegetables, and eating both traditional foods and American foods. Participants also indicated that hectic class schedules, and the fact that it takes a lot of time and effort to prepare their traditional meals, are the reasons why they cook less often. As a result, they find themselves eating in fast food restaurants and cafeterias while restricting cooking to some weekends and special occasions. Respondents indicated that it is difficult for them to find their traditional foods and that their food adaptation process would be easier and they would be more comfortable living here if their traditional foods were available and affordable.

### Discussion

Our findings are consistent with the literature cited. The literature suggests that foreigners encounter many problems including psychological as well as dietary difficulties during their stay abroad (Satia et al., 2002). Findings from this study also indicate that subjects had difficulties in adapting to the American diets.

As predicted by the Satia et al. (2002) model, international students at OSU use different strategies such as adopting biculturalism by incorporating host country foods and dietary practices at other meals and occasions while maintaining some traditional dietary patterns at certain meals or occasions, sticking to their traditional foods by finding ways to use host country foodstuffs to prepare meals that are near substitutes to those in their home countries.

Furthermore, unavailability of traditional foods and ingredients will likely result in increased consumption of the foods of host country. In addition, if traditional foods are

expensive and time consuming to prepare, it may be more convenient and affordable to eat prepackaged foods or to frequently eat at fast food restaurants (Satia et al., 2000., Pan et al., 1999., Raj et al., 1999). However, where home country foodstuffs are available and affordable, foreigners may choose to continue their traditional dietary practices (Satia et al., 2002). For this study, common cited reasons for eating in fast food restaurants and cafeterias were difficulty in finding their traditional foods, no time to prepare traditional meals believing that it takes a lot of time and effort to prepare their traditional meals, traditional foods being more expensive and no access to the kitchen.

Furthermore, Chau et al. (1990) reported that groups of Asian immigrants retained certain types of traditional foods; they eliminated others and adopted other nontraditional foods. For example, it was observed that rice remained an important staple, but other traditional foods were replaced by cereals, sandwiches, milk, and soft drinks. Dinner changed the least of the three meals and continued to be the most traditional meal. Breakfast, lunch, and snacks items, however, were replaced by foods more commonly consumed by Americans. For this study, dinner and lunch changed the least of the three meals and continued to be the most traditional meals among the students. Breakfast, however, included foods most commonly consumed by Americans.

A study by Glanz et al. (1998) reviewed two self- administered cross sectional surveys to examine the importance of taste, nutrition, cost, convenience, and weight control on dietary choices. Those factors varied among demographic groups. Taste was more important to women than other groups. Weight control and nutrition were more important to elder respondents and women. Younger respondents, women and lower income individuals found cost and convenience to be more important. In another study,



Satia et al. (2000) found that the major determinants for food choices among the participants included traditional beliefs regarding balancing foods, religious beliefs, and perceptions about what constitutes a healthful diet, taste, dietary knowledge, and body weight-related issues. Within each of the three acculturation approaches, convenience, cost, taste preferences and food quality are factors that determine individuals' strategies (Satia et al., 2002). In this study, factors that influenced food choices among the respondents were time/convenience, cost, taste and environment (attitude of family members and friends). Other factors such as quality and similarities to traditional foods and religious beliefs were also reported as having influenced food choices among the students. For example several women in the focus groups mentioned that they consumed more beef than fish in the United States because fish is expensive in the United States. In addition, women who lived with others indicated that they were influenced by the preference of these individuals. The women influenced mostly were those with families. Also, the women did most of the food purchasing and preparation for their families.

For the women who cook for their families, what the families preferred to eat was very important. If children or spouse did not like specific food, the women felt that it would be a waste of time and money to cook those foods. Similarly, other studies have found that family influences played a major role in food selection of individuals (Lennernas et al., 1997).

### Conclusions

This study indicates that most international students have difficulties in adapting to host country food and dietary patterns. International students come from different

cultural backgrounds and therefore each one has a different strategy in trying to adapt to the host country food and dietary patterns.

The following were the objectives for this study:

1. Identifying the dietary acculturation strategies employed by international students at Oklahoma State University.

Based on this objective, we found that there are different strategies used by international students at Oklahoma State University in trying to adapt to the host country food and dietary patterns which includes:

- Taste different types of foods in the process of trying to choose the right food; prepare own meals using home country ingredients brought from their home countries.
- Prepare meals using home country ingredients bought from traditional food outlets like Asian Food Mart in Stillwater and Oklahoma City as well as China Town in Oklahoma City.
- Prepare traditional meals using American ingredients and find garden plots to grow some foods such as vegetables.

2. Determine factors influencing food choices and dietary habits among international students at Oklahoma State University.

Time/convenience, cost, taste preference and environment (attitude of family members and friends) were the key factors that determined food choices of individuals in our study. Other factors such as quality and similarities to traditional foods as well as religious beliefs were also reported to influence food choices among the students.

3. Determine the effect of the availability of traditional food on the choice of dietary acculturation strategy.

It is difficult for international students to find their traditional foods in Stillwater. Their food adaptation process would be easier and they would be more comfortable to living here if their traditional foods were available and affordable. However, graduate students and students who were married and living with their spouses appeared to be slightly more satisfied with their eating habits here in the United States.

4. Determine if international students see the need for the university community to assist in easing the acculturation process.

Based on this objective, the focus group participants suggested that it is important for OSU administration to try to improve the dietary adaptation process among international students by arranging with local farmers to grow some traditional foods, make changes in the cafeteria's meal patterns as well as encourage opening of outlets selling traditional foodstuffs which will develop alternatives food purchasing mechanisms.

### Limitations

There are several limitations to this study. First, the subjects were not randomly selected; therefore, the convenience sample limits the generalization of our study results about the strategies used by international students at Oklahoma State University in dietary acculturation as well as factors influencing their food choices to the overall body of international students in the United States. These findings may apply only to international students of similar backgrounds. Second, the responses of the subjects may

be based on perceived expectations from the subjects rather than their true opinions and feelings. Third, the data had a multidimensional structure which contributed to the poor coefficient of reliability. Fourth, no intercoder reliability was determined for content analysis. Reliability could be increased by increasing sample size for focus groups and use of computer software such as Ethnograph for content analysis. Fifth, there were coding difficulties with the web based questionnaire that contributed to the loss of some data.

### Implications

Despite these limitations, results from this study indicate the need for nutrition professionals to consider the many personal and environmental factors that can affect food choices of international students. A better understanding of dietary acculturation strategies would offer a valuable opportunity to intervene more effectively on diet and health among international students in the United States. These findings may help dietetics and nutrition practitioners who work with international students in the United States as they identify factors that affect changes in dietary patterns and barriers to changing the diet and work toward preventing diet related negative outcomes.

On the other hand, health promotions programs for ethnic minorities should be targeted differently depending on level of dietary acculturation. For instant, international students should be encouraged to maintain their healthful traditional eating patterns that emphasize consumption of vegetables, fruits and seafood as well as advising them to make healthful modifications to foods consumed because of Westernization.

### Future research

There is need for collaboration among dietetics professionals and social and behavioral scientists to establish new paradigms for research efforts in this important area. A larger sample of subjects should be randomly selected from the population in order to obtain a representative sample of international students in the United States.

The following are recommendations for future research:

a) Researchers need to conduct quantitative, longitudinal studies to determine the relative importance of various determinants in influencing acculturation associated dietary changes and the impacts of those changes on health status among international students. Results would be useful in providing nutritional counseling and in program planning.

b) Researchers working with health of immigrants particularly in their diets need to use qualitative techniques regardless of their weaknesses (time consuming, expensive and labor intensive for a small sample) because techniques such as focus group discussions can provide the critical groundwork needed to successfully develop survey instruments and to design, implement, and evaluate dietary interventions.

c) Nutrition professionals are advised to take in to account the cultural dietary traditions, identify and support healthful dietary practices (traditional as well as new ones) and discourage the adaptation of less healthful dietary practices.

d) Conduct a study to see the differences and relationships between graduate and undergraduate international students in the dietary acculturation process.

e) Conduct a study to see the effects of support systems for married students living with spouses and those without spouses in the dietary acculturation process.

f) Studies are necessary in which larger number of international students participate.

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## APPENDICES

### APPENDIX A

### APPENDIX B

APPENDIX A

INSTITUTIONAL REVIEW BOARD  
APPROVAL FORM

**Oklahoma State University  
Institutional Review Board**

Protocol Expires: 2/16/2005

Date: Tuesday, February 17, 2004

IRB Application No HE0439

Proposal Title: Strategic Choices in Dietary Acculturation: The Case of  
International Students at Oklahoma State University

Principal  
Investigator(s)

Ritha R. Saidi  
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Stillwater, OK 74074

Tay Seacord Kennedy  
312 HES  
Stillwater, OK 74078

Reviewed and  
Processed as: Expedited (Spec Pop)

Approval Status Recommended by Reviewer(s): Approved

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Dear PI:

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact me in 415 Whitehurst (phone: 405-744-5700, colson@okstate.edu).



Carol Olson, Chair  
Institutional Review

**APPENDIX B**

**SURVEY CONSENT LETTER AND QUESTIONS**



Oklahoma State University

Exploration of Strategic choices in food adaptation for International students

Dear fellow international students, greetings;

My name is Ritha Saidi, and I am a graduate student in the department of Nutritional Sciences at Oklahoma State University (OSU). For my Masters degree, I am doing research on how international students at OSU adapt to American foods. My supervisor is Dr. Tay Kennedy from the Department of Nutritional Sciences.

A better understanding of how International students adapt to American foods would be useful for planning services to help International students better adjust to lives in the United States. Results may be used to determine whether there is a need to encourage opening of outlets selling traditional foodstuffs in Stillwater or development of other food purchasing mechanisms.

Your participation is extremely important to the outcome of this study. I therefore request you to volunteer to be in my research study by taking approximately 15 minutes to fill the questionnaire regarding your experience with foods in the US. It is very important to answer truthfully and the answers will be kept strictly confidential, we will not ask for any specific identifying information.. After the project is complete, all surveys will be destroyed.

To participate in this study, click on <http://fp.okstate.edu/ktay/survey.htm>. If you would like to receive the results of this study or have any question, please feel free to contact me Ritha Saidi, 124 Brumley #4, Stillwater, Oklahoma 74074, 405 332 0032, or my advisor Dr. Tay Kennedy, Assistant professor, Department of Nutritional Sciences, 301HES, Stillwater, Oklahoma 74078, 405 744 5965. For information on subjects' rights, please contact Dr. Carol Olson, IRB Chair, Oklahoma State University, 415 Whitehurst, Stillwater, Oklahoma 74078, 405 744 -1676, [colson@okstate.edu](mailto:colson@okstate.edu).

## Questions for the Survey

### DIETARY BEHAVIOR ASSESSMENT

1. How many times a day do you eat (include snacks)?

- 1-2 times per day                       3 times per day  
 3-5 times per day                       >5 times per day

2. How often do you eat lunch out?

- Almost daily                       2-3 times per week  
 1 time per week                       1-2 times per month  
 almost never

3. How often do you eat dinner out?

- almost daily                       2-3 times per week  
 1 time per week                       1-2 times per month  
 almost never

4. How often do you eat in the following establishment per month?

	0	1-2	3-4	5-6	>6
Restaurant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cafeteria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fast food*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*e.g. McDonalds, Pizza, Chinese fast food

5. How is your food habit today compared to before your arrival in the US?

- very similar                       somewhat similar     no change  
 somewhat different                       very different

6. If there has been a change, how would you characterize that difference in your diet?

- very positive                       somewhat positive                       healthy change

somewhat negative                       very negative

7. What is the primary factor that influences your food choices?

time/convenience                       cost/finances

others (please specify) \_\_\_\_\_

environment (family, friends)       taste/craving

8. How often do you try new foods (American Foods?)

almost never                               occasionally

often     very often

9. When you try new foods (American foods), what influences your decision to try new foods the most?

TV commercials                               Advertising in newspapers magazines

In-store advertising                       Recommendation from friends & family

Compatibility with my cultural/ religious beliefs

other factors (Please specify) \_\_\_\_\_

10. Are you satisfied with your eating habits here in US?

not satisfied                                       slightly satisfied

moderately satisfied                               highly satisfied

11. Did ever cook your own meals before coming to US?

Yes     No

12. Do you feel that it takes a lot of time and trouble to prepare your traditional meals?

Yes     No

13. Do you think your traditional diet is healthier than the usual American diet?

Yes                               No                               Not sure/don't know

14. Have you ever seen or heard about any educational pamphlets from any source about how to choose a healthful meal (either American or traditional)?

( ) Yes ( ) No

For questions 15-18 please use a scale based on the following abbreviations

AL Always  
 OF Often  
 LO Less Often  
 RR Rarely  
 NAA Not at all

15. How often do you prepare your own meal?

	AL	OF	LO	RR	NAA
Breakfast (morning meal)	( )	( )	( )	( )	( )
Lunch (meal taken during the day)	( )	( )	( )	( )	( )
Breakfast (evening meal)	( )	( )	( )	( )	( )

16. If you do not prepare any meals at your residence please select one of the following (you may choose more than one answer)

I do not have access to a kitchen ( )  
 I do not like to cook ( )  
 I do not have the right foodstuffs ( )  
 It is inconvenient and time consuming to cook ( )  
 It is expensive to cook myself ( )

17. How often do you use the following choices/methods to meet your daily food needs for each of the following meals?

	AL	OF	LO	RR	NAA
<b>Breakfast</b> (morning meal)					
American meals from dining places	( )	( )	( )	( )	( )
American meals prepared at home	( )	( )	( )	( )	( )
Home country meals prepared at home using American type ingredients	( )	( )	( )	( )	( )
Home country meals prepared at home using home country ingredients	( )	( )	( )	( )	( )
<b>Lunch</b> (meal taken during the day)					
American meals from dining places	( )	( )	( )	( )	( )
American meals prepared at home	( )	( )	( )	( )	( )
Home country meals prepared at home using American type ingredients	( )	( )	( )	( )	( )
Home country meals prepared at home using home country ingredients	( )	( )	( )	( )	( )

**Dinner (Evening meal)**

American meals from dining places	( )	( )	( )	( )	( )
American meals prepared at home	( )	( )	( )	( )	( )
Home country meals prepared at home using American type ingredients	( )	( )	( )	( )	( )
Home country meals prepared at home using home country ingredients	( )	( )	( )	( )	( )

18. How often do you buy your traditional foodstuffs from the following sources?

	AL	OF	LO	RR	NAA
Wal Mart	( )	( )	( )	( )	( )
Food Outlet	( )	( )	( )	( )	( )
International foodstuff outlets in Stillwater	( )	( )	( )	( )	( )
International foodstuff outlets outside Stillwater	( )	( )	( )	( )	( )
Other sources (Please specify) _____					

Please respond to the following statements using the indicated scale based on the following abbreviations:-

- SA Strongly agree
- A Agree
- N Neutral
- D Disagree
- SD Strongly disagree

	SA	A	N	D	SD
19. I had adequate information regarding foods/diets in the US before coming here	( )	( )	( )	( )	( )
20. I had difficulties in adapting to new foods/diets in the US	( )	( )	( )	( )	( )
21. My eating habits have changed since I came to OSU	( )	( )	( )	( )	( )
22. Most of international students at OSU have difficulties in adapting to new foods/diets	( )	( )	( )	( )	( )
23. It is easy for me to find traditional foods in Stillwater	( )	( )	( )	( )	( )

24. I would prefer to eat my traditional food if it is available and affordable

25. I take food supplements (Vitamins & minerals supplements)  Yes  No

26. Suppose your home country foodstuff were available (in Stillwater) and affordable, how would you respond to the following statements

	SA	A	N	D	SD
I would be preparing my own meals more often	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My food adaptation process would be easier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would be more comfortable to live in Stillwater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The choices/methods I use to meet my daily dietary needs would NOT change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SOCIAL-DEMOGRAPHIC CHARACTERISTICS**

Gender  Male  Female

Age (in years)  under 26  26-30  31-35  36-40  
 41-45  Over 45

What is your Country of origin/citizenship \_\_\_\_\_

How long have you resided in US? \_\_\_\_\_ Years  
Stillwater? \_\_\_\_\_ Years

Your class at OSU  freshman  sophomore  Junior  Senior   
Graduate Masters  Graduate (PhD)

Your Residence  University apartments  
 Residential Life Suites  
 Residential Hall  
 Off Campus

Marital status

Single  Married

If married, is your spouse currently living with you?  Yes  No

Do you live with parent(s) or older adults?  Yes  No

Do you live with any children  Yes  No

If yes what are their age's    \_\_\_ \_\_\_ \_\_\_  
  \_\_\_ \_\_\_ \_\_\_

What is your native language? \_\_\_\_\_

Who do you associate with in the outside community; ( ) most people of your same background  
( ) US citizens, ( ) both equally

What is your religion/cultural belief   ( ) Christian   ( ) Muslim   ( ) others (please specify)

\_\_\_\_\_

### ACCULTURATION ASSESSMENT

Please respond to the following statements using the indicated scale based on the following abbreviations:-

- SA    Strongly agree
- A     Agree
- N     Neutral
- D     Disagree
- SD    Strongly disagree

	SA	A	N	D	SD
Many opportunities are denied to me	( )	( )	( )	( )	( )
I am treated differently in social situations	( )	( )	( )	( )	( )
Others are biased towards me	( )	( )	( )	( )	( )
I feel that I receive unequal treatment	( )	( )	( )	( )	( )
I am denied what I deserve	( )	( )	( )	( )	( )
I feel that my people are discriminated against	( )	( )	( )	( )	( )
I am treated differently because of my race	( )	( )	( )	( )	( )
I am treated differently because of my colour	( )	( )	( )	( )	( )
I feel sad leaving my relatives behind	( )	( )	( )	( )	( )

Homesickness bothers me	( )	( )	( )	( )	( )
I feel sad living in unfamiliar surroundings	( )	( )	( )	( )	( )
I miss the people and country of my origin	( )	( )	( )	( )	( )
People show hatred toward me non-verbally	( )	( )	( )	( )	( )
People show hatred toward me verbally	( )	( )	( )	( )	( )
People show hatred toward me through actions	( )	( )	( )	( )	( )
Others are sarcastic toward my cultural values	( )	( )	( )	( )	( )
Others don't appreciate my cultural values	( )	( )	( )	( )	( )
I fear for my personal safety because of my different cultural background	( )	( )	( )	( )	( )
I generally keep a low profile due to fear	( )	( )	( )	( )	( )
I feel unsecured here	( )	( )	( )	( )	( )
I frequently relocate for fear of others	( )	( )	( )	( )	( )
I feel uncomfortable to adjust to new foods	( )	( )	( )	( )	( )
Multiple pressure are placed upon me after migration	( )	( )	( )	( )	( )
I feel uncomfortable to adjust to new cultural values	( )	( )	( )	( )	( )
I feel guilty to leave family and friends behind	( )	( )	( )	( )	( )
I feel guilty because I am living a different lifestyle here	( )	( )	( )	( )	( )

**Thank you very much for participating in this study**



APPENDIX C

RECRUITMENT FORM FOR FOCUS GROUP

# Focus Group Sessions

Ritha Saidi, a Graduate student in the Department of Nutritional Sciences at OSU is holding Focus Group Sessions on Food Adaptation for foreign students and their families. The purpose of the sessions is to explore the strategies that foreign students and their families use in adapting their dietary needs while in the US. She is therefore interested to talk to women from Africa and Middle East living in the University apartments, who prepare meals for their families.

This notice is to invite all who are interested to attend the discussion sessions to be held at Family Resource Center (FRC) on 2nd and 3rd April 2004 at 1:00 pm and 10:30 am respectively. All discussions will be conducted in English. Your attendance and participation is highly appreciated and small gift of kitchen equipments with the value less than \$10 will be given to participants!

For more information about  
these sessions please contact:  
Ritha Saidi  
Phone: 405 332 0032

OR  
Dr. Tay Kennedy  
Nutritional Sciences Department  
Phone: 405 744 5965

**APPENDIX D**

**CONSENT TO PARTICIPATE IN FOCUS GROUP**

## **Informed Consent for focus group members**

**Who is conducting the study:** This study is being conducted by Ritha Saidi, a graduate student in the Nutritional Sciences department at Oklahoma State University under the supervision of Dr. Tay Kennedy.

**Why is the study being conducted:** To fulfill the requirements of a Master's degree in Nutritional Sciences.

**What is the purpose of the study:** This study sets out to explore the process of food adaptation among international students at Oklahoma State University particularly the strategies used in food adaptation and the reasons behind the use of such strategies

**What will I have to do today:** You will be interviewed today by Ritha Saidi about your eating habits here in US. The interview will take approximately 60 – 90 minutes and will be tape recorded for accuracy purposes.

**What are the risks of my participation:** There are no risks involved, except accidental disclosure of responses. However, confidentiality is taken very seriously and every possible measure will be taken to prevent such a risk from occurring.

**What are the benefits of my participation:** By participating in this interview, you are providing information to be used to determine how to improve food adaptation process among International students and families. The results of the study may be shared with OSU administration to determine whether there is a need to encourage opening of outlets selling traditional foodstuffs, and whether there is a need to include traditional food information in the brochures as well as University curricula.

**What will be done with my responses:** Your responses will be kept completely confidential. Your name will not be attached to your responses, and your responses will be reported as a summary of composite responses. No individual responses will ever be reported. Your responses will be kept in a locked cabinet and will only be seen by Ritha Saidi and her advisor or an associate of hers. All associates are trained in confidentiality measures. After the project is complete, all original transcripts and tapes will be burned.

**Who do I contact if I have questions:** If you have any questions concerning this project, please feel free to contact Ritha Saidi, Department of Nutritional Sciences, Oklahoma State University, 301 HES, Stillwater, OK 74078, 405-332 0032; or Dr. Tay Kennedy, Assistant Professor, Department of Nutritional Sciences, Oklahoma State University, 301 HES, Stillwater, OK, 74078, 405-744-5965. For information on subjects' rights, please contact Dr. Carol Olson, IRB Chair, Oklahoma State University, 415 Whitehurst, Stillwater, OK 74078, 405-744-1676, [colson@okstate.edu](mailto:colson@okstate.edu)

Do I have to participate: Your participation is absolutely voluntary and no consequences will result from your not participating? You are free to withdraw from the study at any time without penalty after contacting the principle investigator, Ritha Saidi or Dr.Kennedy, at the phone or address listed above.

I have read and fully understand the consent form. I sign freely and voluntarily, and a copy has been give to me.

Date: \_\_\_\_\_ Time: \_\_\_\_\_(a.m./p.m.)

Name of participant (Please print): \_\_\_\_\_

Signature of participant: \_\_\_\_\_

I certify that I have personally explained all elements to the subject before requesting the subject to sign.

Signature of principle investigator

\_\_\_\_\_

APPENDIX E

FOCUS GROUP QUESTIONS

## LEADING QUESTIONS FOR FOCUS GROUP DISCUSSION

1. Tell us about yourself and what you enjoy doing when not in school or work.
2. When you hear the term food adaptation what comes to your mind?
3. Describe your experience with foods when you first came to Stillwater/US.
4. It is believed that, most of international students/people have difficulties adapting to new foods at their host countries. What is your own opinion about this?
5. Did you have any difficulties adapting to new foods? What strategies/criteria did you use to adapt to new diet?
6. What determines your food choices when purchasing your foods or how do you decide what food to buy?
7. i) Are there changes in food preparations (are you the one preparing the food)?  
ii) Compare your experience of preparing traditional meals here as opposed to your home country.
8. How would you compare the health of your traditional food to usual American Foods?
9. Since coming to Stillwater, have you made any changes in your eating habits? Tell us about them and what prompted those changes.
10. What of your traditional foods would you most like to have here?
11. Suppose that if it is arranged with the local farmers, horticulture, Cooperative Extension to grow some of traditional foods and sell them to international students, do you think it will make it easier to adopt food in US?
12. i) We are trying to help foreign people make healthy food changes. What kind of changes would you like to happen to make easier for international students and their families to choose/get foods they like?  
ii) What is the main reason for the changes? What would it take for the change to get in to action?
13. Is there anything else we should have talked about but we didn't?

APPENDIX F

FOCUS GROUP DERMOGRAPHIC  
INFORMATION SHEET



**SOCIAL DEMOGRAPHIC CHARACTERISTICS**

Gender  Male  Female

Age (in years)  under 26  26-30  31-35  36-40  41-45  
 Over 45

What is your Country of origin/citizenship \_\_\_\_\_

How long have you resided in US? \_\_\_\_\_ Years  
 Stillwater? \_\_\_\_\_ Years

Your class at OSU  Freshman  sophomore  Junior  Senior  Graduate  
 (Masters)  Graduate (PhD)  Spouse

Your Residence University apartments   
 Residential Life Suites   
 Residential Hall   
 Off Campus

Marital status   
 Married  Single

If married, is your spouse currently living with you?  Yes  No

Do you live with parent(s) or older adults?  Yes  No

Do you live with any children  Yes  
 No

If yes what are their age's \_\_\_\_\_  
 \_\_\_\_\_

What is your native language?

Who do you associate with in the outside community; most people of your same background   US citizens  both equally

What is your religion/cultural belief  Christian  Muslim  Others (please specify) \_\_\_\_\_

Thank you

APPENDIX G  
ANALYSIS WORK SHEET

Focus group #	
Date of Focus Group	
Number of Participants	

Responses to questions

Key points and Themes	Quotes

APPENDIX H

CODE WORD DESCRIPTION AND DEFINITIONS

## CODE WORD

Traditional foods

### DIFFICULTIES IN FOOD ADAPTATION:

No right ingredients

No problem

Religious restrictions

### STRATEGIES IN F FOOD ADAPTATION:

Importing

Bicultural

Travel

Garden

Taste

## DEFINITIONS

Mentioned in relation to inherited pattern of foods in the country of origin

Mentioned as anything that are formed in to a mixture when cooking traditional foods

Mention no problem in association with adapting to American foods

Mentions in relation to obeying the rules of religion beliefs that limits certain kinds of foods e.g. Muslims are restricted with consumption of some kinds of meats like pork

Mention that they bring traditional ingredients from their home countries

Mention that they eat both traditional and American foods

Mention that *they sometimes go to nearby states to buy traditional foods and ingredients*

Mention that they get a piece of land, often around or at the side of a house, in which they plant some fruits and vegetables

Mention that they had to taste (to ascertain a flavor by mouth) different *types* of foods in the process of *choosing what to eat*

## FOOD CHOICES DETERMINANTS:

Personal preference	Mentioned in relation to choosing what goes with what one likes
Satisfaction	
Taste	To ascertain a flavor by mouth
Craving	A great desire or longing
Convenience	Mention as suitable time
Ease of preparation	Effort it takes to get something ready for some purpose
Time of preparation	Time it takes to get something ready for some purpose
Time	Mentioned in relation to class/work schedules and time influence on eating
Price	The amount or equivalent paid or charged for something
Nutritional quality	Mentioned as a nutrient content of a food
Appearance	Mentioned in relation to how the food looks
Availability	Accessible or attainable, mention that it is easy to get American ingredients compared to traditional ones
Condition	Mentioned as state of being or existence in relation to fresh over frozen
Similarities	Mentioned in relation to the quality of food being like traditional food

Filling or provides satiety	Mention that sometimes they eat any food that provides state of being full
Weight control	Includes comments about the influences of weight gain or loss
Other people	Mention as effect of other people not living in the house
Friends	
Family members	
Colleagues	Mentioned as some one works in the same place, office, etc

#### CHANGES IN FOOD PREPARATIONS:

Traditionally	Mentioned in relation to cooking patterns in the country of origin that they cook fresh foods while here most foods are frozen
Preservatives	Chemical substance that can be used to preserve foods. Mention that most foods here are chemically preserved
Spoilage rate	Speed of unfitness for consumption. Mention that food here gets spoiled very quickly due to preservatives used
Threatened	Expression of an intention to hurt, cause pain if instruction or demands are not obeyed. Mention that they feel threaten to eat here due to food preservations

Make changes

To make or become different.  
Mention that they try to make use of what is available but change the way to cook (cook like traditionally)

#### SUGGESTIONS:

Nothing

Increase traditional foods supply

See what have been done to other States in terms of traditional foods supply and see if can be applied here

Make arrangements with local farmers to grow some traditional foods

Administration need to establish other food purchasing mechanisms

Costs should be affordable when establishing food purchasing mechanisms

Encourage opening of outlets selling traditional foodstuffs

Changes should be made in the meals at the campus cafeterias

International student organizations need to come up with a proposal for traditional foods availability in Stillwater

Encourage international students to keep their healthful traditional eating habits and discourage them from adapting to unhealthy eating patterns

#### DEFINITIONS FOR FOOD ADAPTATION:

Eating other country's foods which is not own traditional foods

Different culture foods and not your own

Eating food which is not like your traditional foods

Eating what is not used to you in the past,

Need to eat food because there is no choice





Ritha Raphael Saidi

Candidate of the Degree of

Master of Sciences

Thesis: STRATEGIC CHOICES IN DIETARY ACCULTURATION: THE CASE OF  
INTERNATIONAL STUDENTS AT OKLAHOMA STATE UNIVERSITY

Major Field: Nutritional Sciences

Biographical:

Personal Data: Born in Dar es Salaam, Tanzania, the daughter of Raphael Alexander and Amelia Saidi.

Education: Completed secondary education at Kiraeni Secondary School in November 1986; attained Advanced Certificate of Secondary Education Examination from Loleza High School in May 1989; received Bachelor of Science degree in Marine Biology and Microbiology from University of Dar-Es-Salaam, Dar-Es-Salaam, Tanzania in November 1995. Completed the requirements for the Master of Science degree with a major in Nutritional Science, at Oklahoma State University, Stillwater, Oklahoma, in December, 2004.

Experience: Employed by Oklahoma State University, Department of Nutritional Science as a graduate assistant in January 2003 through May 2004. Employed by National Environmental Management Council, Dar-Es-Salaam, Tanzania in Sept 1997 to present.