

Dietary Issues for Burmese Participants in a Community Garden

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Executive summary

1. Introduction: This project was a collaboration between students enrolled in the University of South Florida Department of Anthropology's ANT 4930, Anthropology of Food, and the Tampa Bay Gardens Refugee Agricultural Partnership Program of the St. Mary's Ethiopian Orthodox Church. The church is implementing a "Tampa Garden" to provide gardening opportunities to 35 newly arrived refugees, primarily from the Burmese community. The students in the class interviewed the refugee families to develop a baseline dataset on what they are presently eating. Particular concerns included: how the influences of American culture are affecting traditional Burmese diets, the extent to which diet related health problems are beginning to affect the Burmese, and the relationships between eating patterns and disease.

2. Methods: This study focuses on the thirteen Burmese families involved in the garden project. The interviews took place at a community center and/or in respondents' homes and/or at the garden. Interpreters translated during the interviews which were held in English, Burmese, Karen and/or Kayah. There were 6 components to the project: participant observation, 24-hour food recalls, weekly food recalls, health interviews, focus groups, and garden plant interviews.

3. Conclusions and Recommendations

1. American school lunches: The differences for the children between weekend and week-day foods are striking. American food, in the form of school lunches--consisting of American fast food type items--is most of what is being eaten. Otherwise, outside of the school setting, American items appear only as occasional breakfast foods. While the adult men and women differed on how they valued American food within their traditional diets, the overall consensus was that Burmese foods should primarily be consumed at home.

□ Recommendation--Children should be taught to make better food choices at school.

2. Junk food, healthy snacks, liquid calories: All Burmese have begun to eat American junk food snacks, including adopting the pattern of consuming calories in the form of liquids. As age increases we see fewer junk food snacks consumed and more healthy snacks are eaten. The Kayah, particularly the Kayah women in this sample, eat the most junk food.

□ Recommendation--Education should focus on the impact of these choices--especially liquid calories--on body size.

3. Treatment of chronic illnesses: A mix of Burmese and biomedical treatments are used.

□ Recommendation--Evaluation of these Burmese plant and foods based therapies would be appropriate.

4. Food and health: Other than those with chronic illnesses, for most people, there is not a clear relationship between food and health.

□ Recommendation--Nutrition education should not assume understanding of, or focus on, the relationship between food and health.

5. Body Image: The Burmese do not want to be too fat or too thin. Many are short and thin, probably related to experiences in the refugee camps. Parents recognize that American food makes their children gain weight, so encourage its consumption--to a point. Additionally, the men are concerned about children's consumption of soda and candy, and worry about potential disease, such as diabetes.

□ Recommendation--Stress the consumption of healthy American food that will not make you (too) fat. Discourage consumption of soda and sweets. Promote consumption of fruit.

6. Foods to avoid: Adults note foods they consider to be fattening, particularly cheese.

□ Recommendation--Most of this population is lactose intolerant, so nutrition education should be based around this fact-and their objections to cheese.

7. Household needs: More, or different food is not first on the list of what would be done with additional household funds. This is a low-income population with many unmet needs.

□ Recommendation--Promote the garden as a way to have money for non-food household needs.

8. Greater expenditures for food: Additional funds would be spent on foods traditional to the Burmese diet--more meat and more vegetables.

□ Recommendation--The garden should produce these items.

9. Rice: Rice is the basis of the diet.

□ Recommendation--Do not discourage rice consumption.

10. American food/snacks: These are not considered filling by the adults, nor appropriate for regular consumption.

□ Recommendation--Teach some spicy rice based dishes (ex. Cajun foods) that may be more palatable alternatives for Burmese adults.

11. New foods: there was an interest in trying new foods.

□ Recommendation--Foods that the Burmese are interested in eating should be identified, and healthy and appropriate ways of cooking these should be demonstrated.

12. Prestige: A number of American foods have come to represent high prestige--soda, pizza, and hamburgers.

□ Recommendation--Introduce the Burmese to other healthy American status foods, such as fish, smoothies, etc. Stress the prestige value of the organic food grown in the garden.

13. Future issues for the garden: The refugees are unsure of what items can be marketed outside the Burmese community and how to go about doing so.

□ Recommendation--Conduct trainings on these topics.

14. Health issues: While there is little current chronic disease in this population, the dietary acculturation patterns present are of concern.

□ Recommendation--Record and analyze additional information on weekday food consumption of adults and children, as well as focus group data on children's ideas about diet, health and body image. Switches to American high calorie, low nutrient foods/drinks need to be determined, as well as any increases in overall consumption related to a change from two to three meals a day. Conduct health screenings for all adults, including HbA1c and fasting cholesterol, and heights and weights on adults and children.

□ Recommendation--Culturally appropriate health and nutrition education programs to include:

I. Cultural focus--The healthy plate approach is not useful for a population which eats mixed dishes from bowls. Additionally, diagrams which devote 1/5 of suggested consumption to dairy products are not useful. It should also be noted that the traditional meal pattern is 2 meals a day. Programs should be adapted to cultural aspects of meal patterns.

2. Appropriate terms need to be used in nutrition education--Words such as calories, fiber, iron, calcium, etc. are not familiar to this population.

3. An initial focus should be on the question posed to us: why does American food make you fat?
4. Tips for eating better when eating out, healthy snacks.
5. Information on high prestige healthy foods that are consumed by "Americans."

□ Recommendation--Promote pride in Burmese food and identity:

1. Continue the annual festival--less emphasis on serving soda.
2. Consider Burmese meals for the public--one day a month, using garden produce, to demonstrate the appeal of Burmese food to Americans, and raise money for the community.

□ Recommendation--The garden should focus on those foods necessary for good health that are the most expensive: vegetables, fruits (expand fruit production to cater to desires for "sweets"), and high quality proteins (such as fish, chicken, and eggs).

□ Recommendation--The population should be further introduced to u-pick farms, and methods of food preservation, such as freezing and canning. The garden might purchase a large freezer where participants can store u-picked food.

Introduction

This project was a collaboration between students enrolled in the University of South Florida Department of Anthropology's ANT 4930/ANG 6469, Anthropology of Food, and the Tampa Bay Gardens Refugee Agricultural Partnership Program of the St. Mary's Ethiopian Orthodox Church. The church is implementing a "Tampa Garden" to provide gardening opportunities to 35 newly arrived refugees, primarily from the Burmese community. The garden consists of agricultural land, an area for raising chickens, and ponds suitable for aquaculture. A pilot garden was implemented over the last several years, with approximately 10 families. This phase of the program is a scaling up of the project to include more refugee families. The goals are to promote greater food security and financial security among the refugees, and to accelerate self-sufficiency and integration into the larger community. The students in the class interviewed the refugee families to develop a baseline dataset on what they are presently eating. This will be valuable information for the program to use in evaluating the effects of the gardens project. Particular concerns included: how the influences of American culture are affecting traditional Burmese diets, the extent to which diet related health problems are beginning to affect the Burmese, and the relationships between eating patterns and disease.

Methods

This study focuses on the thirteen Burmese families involved in the garden project. The interviews took place at a community center and/or in respondents' homes and/or at the garden. Interpreters translated during the interviews which were held in English, Burmese, Karen and/or

Kayah. There were 6 components to the project: participant observation, 24-hour food recalls, 2 weekly food recalls, 3 health interviews, 2 focus groups, and 2 days of garden plant interviews.

Data collection and analysis

Participant Observation

Members of the team participated in the Garden Advisory Board meetings (the author is a member of this board), attended and assisted with the Garden Open House in Jan. 2014, and interacted informally with the Burmese community at the Burmese festival, a wedding, a birthday party, a community meeting, and two u-pick farm outings. Particular attention was paid to the types of foods and beverages chosen and consumed, as well as comments about diet in general.

Food recalls

Respondents were from three different Burmese ethnicities: Kayah (n=8, 33%), Shan (n=2, 8%), and Karen (n=14, 58%). One adult and one school aged child (usually the oldest) from each household was interviewed; age range was 9-56 years. Fifty eight percent of those interviewed were female. The 24-hour food recalls included: time of meal, the name for this meal and with whom they ate, the types and quantities of foods consumed, and their sources (home supply, eat-en out, etc.-see Appendix 1). Lastly, a checklist was provided for each interviewer to review foods which may have been forgotten (Table 1).

The data from the 24-hour food recalls were collected on Sunday evenings and referred to food consumed on the previous Saturday. We chose Saturday food because it was convenient to record

the data on Sunday evenings; we also wanted a day that was most likely to represent the maximum Burmese consumption. All coding was triple checked. We tabulated age, gender, ethnic group, number of Burmese meals, number of American meals, servings of liquid calories (soda, etc.), servings of healthy snacks and servings of junk food snacks. For the latter three categories, location of consumption was also tabulated. Seventy percent of respondents felt their food consumption was typical for the day recorded.

Weekly recalls

Similar to the 24-hour recalls, two teenagers were asked to keep records of what they ate for one week. One was a female Karen, the other was a male Kayah.

Health interviews

We collected 24-hour recalls from the three adults who had chronic health problems: diabetes and/or hypertension. In addition, we asked them about their health problem, how they treated it, and connections they saw between their health and their diets (see Appendix 2 for the guide).

Focus Groups

Two focus groups were conducted at a community center, one for men and one for women. Participants were asked about ideal body image, allocation of finances, eating habits, cooking traditions, and future plans for the Tampa Bay Gardens (Appendix 3). Interpreters translated; each focus group was conducted in a mix of English, Burmese, Karen and Kayah.

Garden plant interviews

We interviewed respondents from the Kayah and Karen ethnic groups at the garden to determine the name of each plant and what food and/or medicinal uses it had.

Results

Participant Observation

At the open house, many of the Burmese children, particularly the young boys, were more inclined to eat American foods. Many of the children selected soda pop instead of water, with some observed holding multiple sodas in their hands at a time. The adults were less likely to consume soda at the event and were observed consuming more traditional foods. The Burmese children were also less likely to visit the nutritional health fair table at the open house.

At the wedding, birthday party, and festival, large amounts of soda were provided and consumed. However, bottled water was also available. There were no “American” desserts served at the festival or wedding; fresh fruit was served on both occasions. While few eggs were reported consumed in the dietary recalls (see below), hard-boiled eggs featured prominently in the curry served at the festival. Some salads were served at the wedding, none were prepared for the festival, and few of the foods at the festival contained vegetables. The birthday party food was noodles and curry, and store bought birthday cake. At the community meeting, soda was served to adults and children (Orange Crush and Mountain Dew); additionally, children were observed snacking on green papaya. On one of the trips to a U-pick farm, the teenagers expressed the desire to stop at McDonald's, noting how much they like the food there.

Food Recalls and Weekly Food Consumption

American vs. Burmese meals

There were very few American meals eaten by the Burmese on Saturday. Almost everyone interviewed ate Burmese meals. This pattern is one of two meals a day, one mid-morning and one late afternoon, usually (but not always) labeled breakfast and dinner. Of the four American meals eaten on Saturday, bread was consumed in each of the meals. Three of the meals were categorized as "breakfast" (donuts, a sandwich, bread and coffee, and bread with a slice of cheese), and were eaten at home. One of these meals (a sandwich: bread, chicken, cheese, tomatoes, cauliflower, garlic) was categorized as "lunch," and was consumed at work (a sandwich shop). During the school week, the ratio between Burmese to American meals reverses. More American meals are consumed on the weekdays in the form of school breakfasts (free to all students) and school lunches (free or reduced rate to qualifying students based on household income). The two teenagers interviewed during the week ate biscuits (3x), cheese pizza (2x), a chicken sandwich (2x), a muffin (2x), pepperoni pizza, chicken with rice, buffalo chicken, yellow rice with chicken, strawberries, and peaches. In comparison, the Burmese meals consumed were: rice with eggs (2x), a papaya salad, rice with pork, rice with broccoli and chicken, rice with chicken and an egg, rice with chicken, rice with potatoes, rice with fish and shrimp, and strawberries.

Healthy/junk food snacks and liquid calories

For the Saturday food consumption, we found the most common healthy snack was grapes (5x). Next in frequency were oranges (4x), apples (2x), followed by avocados, ginger soup, bananas, and wheat bread (1x each). For the junk food snacks category, potato chips were consumed the

most (3x). Candy was the second highest junk food snack (2x), while ramen noodles, noodles, crackers, cookies, and popsicles were all consumed once each. For liquid calories, Coca Cola was the most consumed (7x), followed by apple juice and orange juice (4x each). Coffee, Pepsi and milk were third (2x), and diet soda, fruit juice, and tea were the least consumed of all liquid calories (1x each). Comparing the three categories of food shows that liquid calories were the most consumed by this population. Healthy snacks were second and junk food snacks were third on the list. Almost all of the junk food was consumed at home.

Forgotten foods

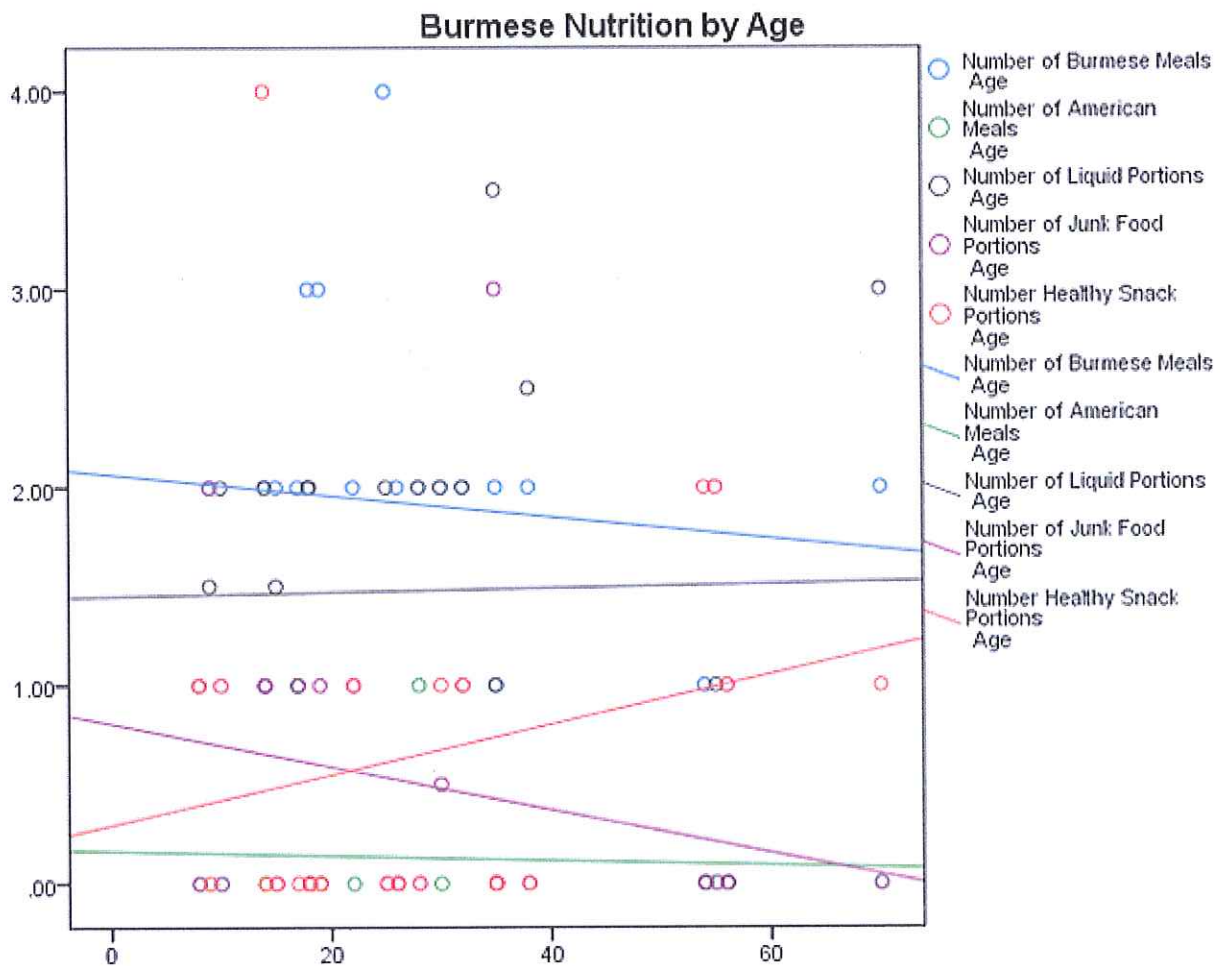
The most commonly forgotten foods were chiles, apple/orange juice, soda (particularly Coca Cola) and fruits (particularly grapes). Forgotten foods were documented for 11 of the participants (Table1).

Table I Forgiven Foods

Item For- gotten	Number of times for-
Oranges	1x
Bananas	1x
Apples	1x
Potato Chips	1x
Popsicles	1x
Fish Paste	2x
Milk	2x
Noodles	2x
Grapes	3x
Juice	4x
Chiles	5x
Coke	5x

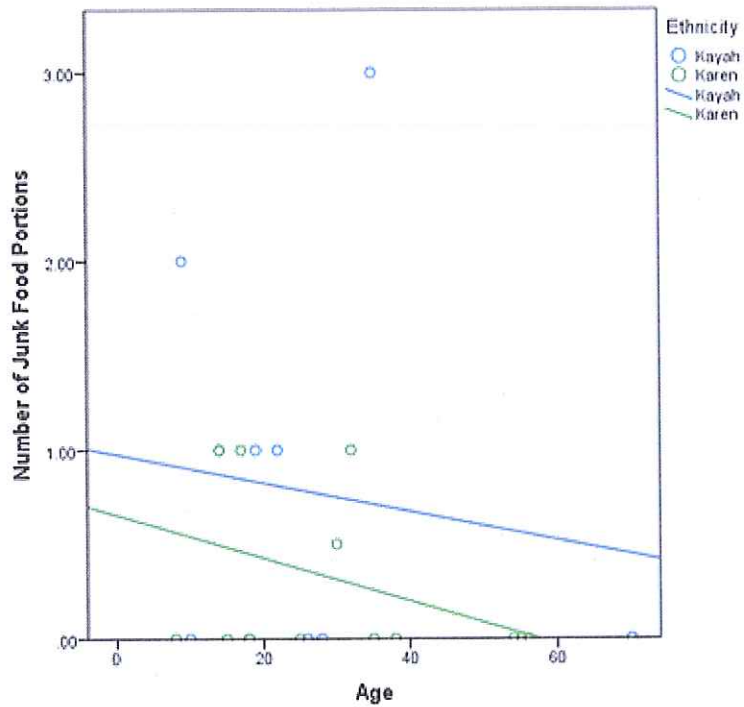
The sample sizes in this study are too small to run analyses with any statistical significance. Thus scatterplots with best-fit straight lines were produced as a means of data exploration. While the best-fit straight lines do not have statistical significance (i.e. low p-values or high r-values), they do reveal some potentially meaningful trends that merit additional research. Figure 1 suggests that there is a trend for junk food snack consumption to decrease with age and healthy snack consumption to increase with age. Other calorie sources do not appear to vary by age.

Figure 1 Consumption by age



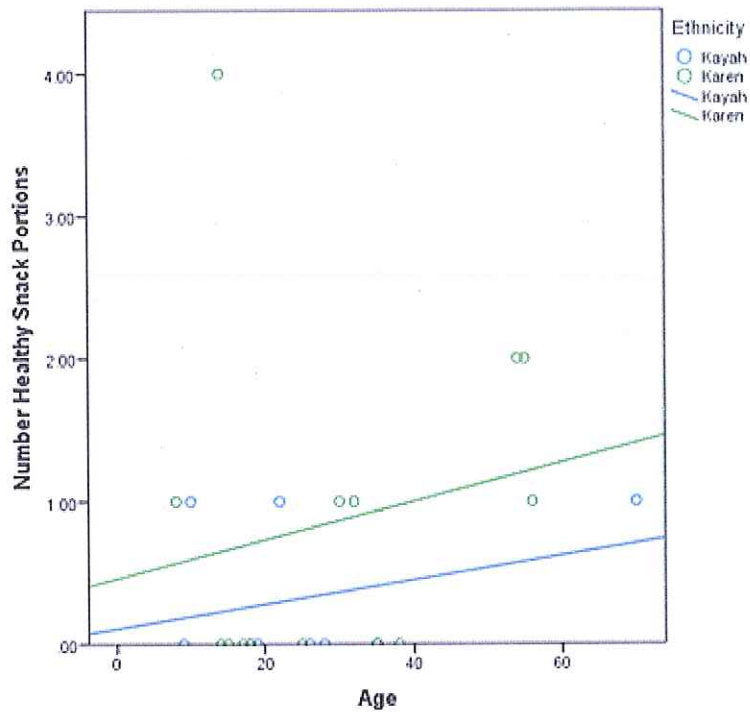
By examining the trend in Figure 1 in more detail a few additional patterns were observed. There is a weak relationship between ethnicity and junk food consumption ($p=.18$). The strength of the difference is just over half a portion with the Kayah consuming more junk food snacks(Figure 2).

Fig. 2 Junk food consumption by age and ethnicity



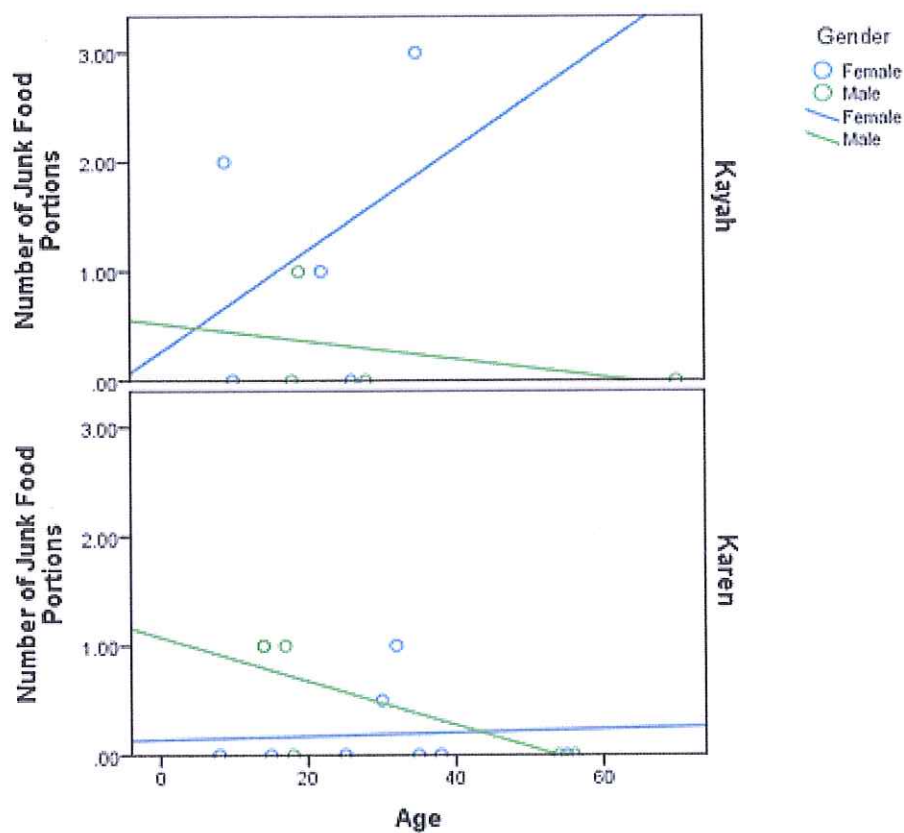
Similarly, the Karen appear to consume more healthy snacks than the Kayah (Figure 3).

Fig. 3 Healthy snacks by age and ethnicity



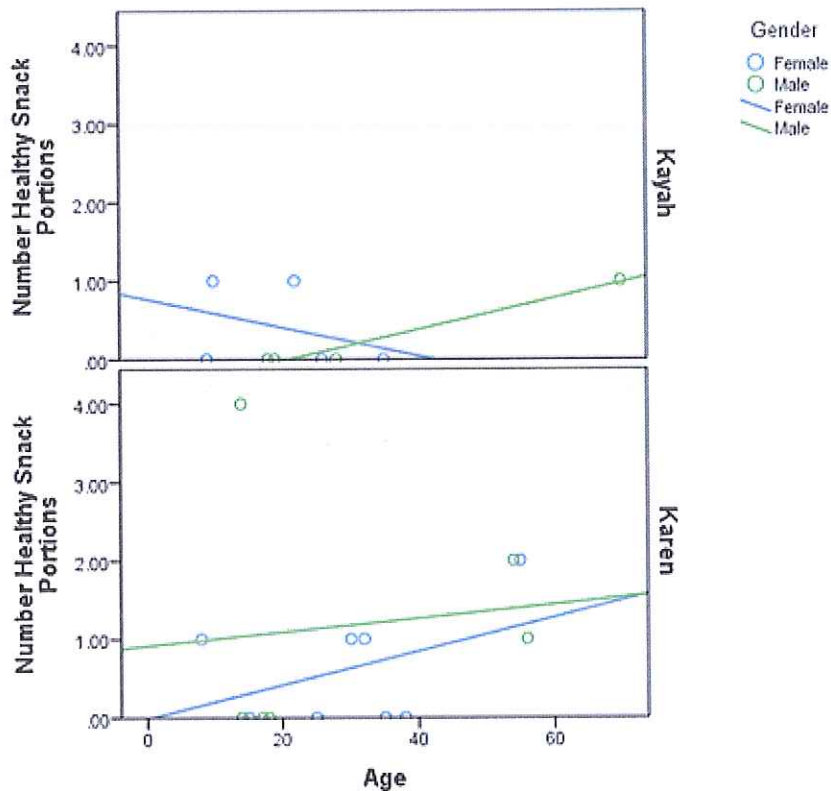
However, the overall trend suggesting that junk food consumption decreases with age may be marking a pattern that is only applicable to men in the sample. Figure 4 indicates that the Kayah women may be consuming more junk foods as they get older, while the Karen women appear to consume about the same amount throughout their lives. (Figure 4).

Fig. 4 Junk food snacks by gender, age and ethnicity



Furthermore, while both male and female Karen consume more healthy snacks as they get older, this pattern is only seen for the males among the Kayah (Figure 5).

Fig. 5 Healthy Snacks by gender, age and ethnicity



To summarize, the data suggest the possibility that adult men in both ethnic groups have healthier diets than other segments of the Burmese population. Furthermore, there is some indication that Kayah women may be especially at risk of weight gain and associated health problems if they are indeed increasing their consumption of junk foods as they age. These trends would have a significant impact on health and diet within this population as a whole, should they prove to be statistically significant. It is, therefore, strongly recommended that additional research be undertaken on the observed trends.

Health Interviews

We interviewed three adults who we were told had the health conditions of diabetes and /or hypertension. The first participant has both diabetes and hypertension (DH), the second has hyper- tension (H), and the third appears not to have hypertension, but a possible reflux disorder (R?).

Problem Identification and Symptoms

All three of the individuals said that they discovered their particular health problem(s) as a result of their immigration to the United States. H was the only one to be tested prior to traveling, DH and R? said they were tested shortly after arriving in the U.S. DH considered his problem to be very serious. In contrast, H said she did not believe that her problem was serious, although symptom severity increased at times. R? reported feeling better since having surgery when she arrived in the U.S.; however she is unable to eat spicy foods. DH stated the doctor informed him that the problem was due to genetics. Both H and R? said that they were not sure of the cause of their health problems.

DH felt that his condition interferes with his eating habits, and that he must now watch the kinds of things he eats. His symptoms included: body ache, dizziness, joint pain, trouble staying asleep, frequently needing to use restroom, tiring easily, palpitations, shortness of breath, and an in- creased appetite. For H, the problem is sometimes so severe she is unable to open her eyes, move, or even eat for 2-3 days. Her condition also gives her headaches, "burning eyes," and trouble with sleeping. R? focused on her stomach pains.

Treatments

DH uses both Burmese and prescribed medications. He has a clear understanding of what foods he must monitor in order to maintain a healthy blood sugar level. But in his description of foods to avoid and special helpful foods he mentioned only foods related to blood sugar and diabetes (he did not focus on his hypertension, with the exception of the medication he is prescribed by the doctor). For his diabetes, DH believes that rice soup, papaya, green tea, and moringa (cooked with a broth of chicken bones and garlic) are a helpful treatment. In order to help reduce his blood sugar levels, DH makes a remedy consisting of papaya, moringa, and kimunjing. DH also uses prescribed insulin injections, hypertension pills, cholesterol pills, and pain relief medication. He exercises lightly for five minutes five times a day so his health will improve. But he is careful not to over exert himself because then he will get sick. Overall, DH believes that his home remedies are more effective than the prescribed medications.

H has high blood pressure. She did not avoid any foods, do exercise, or take prescribed or herbal medications. When she first came to the U.S. she took prescribed medications, but has since stopped. She eats what she referred to as "normal foods" including chicken, vegetables, and rice.

R? avoids spicy foods and eats noodles, snacks (bread), or cheese pizza. She does not exercise or use Burmese remedies. As a treatment, R? takes her prescribed medications, because she feels that they work best.

Food and Health

DH believes that his food choices affect his health; he felt that vegetables helped with his blood sugar levels. He also thought that what he ate would affect his diabetes and hypertension. If he

eats vegetables all week, he will wake up feeling well and will experience fewer health problems. H also saw a connection between her diet and her health; she felt that a food commonly eaten in Burma (not identified) was the cause of her illness. R? said that what she ate affected her health, but did not see a relationship between food and the health of her children. R? claimed that certain foods affect her hypertension by making her stomach hurt. Approaches to cooking varied among the respondents. DH boils his food in water or grills it. H boils her food (about half the time); however she also fries her food. R? fries the food initially, and then makes it into a soup with rice.

Hypertension and Diabetes Specific Questions

We were informed that all three participants were diagnosed with hypertension. We asked about consumption of specific foods in relation to their condition (beef, pork, fish paste (sauce) [both high in salt], and fruits and vegetables). DH had completely cut pork out of his diet when he was diagnosed, but continues to eat beef approximately once a month. H and R? did not eat beef at all. H eats pork 1-3 days a week, and R? eats pork twice a week. DH eats fish paste 1-3 days a week, whereas participant R? only consumes it once a year, and H never consumes fish paste. All eat vegetables every day. DH and R? also include fruit in their daily diet, while H eats fruits occasionally.

DH is the only participant diagnosed with diabetes. He was asked questions regarding how his diet affects his diabetes. DH said he only eats sweets (cookies, cakes, etc.) once a month. He usually has 1-2 meals daily. When asked if he thought he overate, ate just enough to take the hunger away, or ate just because they have to, DH responded that he ate just enough to take the hunger away. He does not drink soda or "pre-made" juices, but once a week squeezes lemon juice and adds one teaspoon of sugar.

Focus Groups

There were four males in the male focus group and ten females in the female focus group. On average the women have lived in the United States, specifically the Tampa area, for 3.5 years; those in the men's focus group have lived in the United States between two to four years.

When asked what a parent should do so his/her children grow up strong and healthy, the men and women had different responses. The women's responses emphasized the importance of American food for children, as well as breast and bottle feeding for infants. When the children begin school they begin to select foods based on what the schools provide and what they see their peers consuming. This includes pizza, hamburgers, and snacks (sweets, such as doughnuts). The women considered American food to be higher quality compared to their own traditional food. For example, one woman stated, "American food will make you fat (bigger), Burmese food will keep you skinny." The mothers indicated that they prefer their children to not be too skinny, but they do not want them to be overweight either. They feel that American food will help their children grow in physical stature, something they feel a Burmese diet cannot achieve. But, they were not sure why American food "makes you overly fat," and they felt their children should be eating more fruits, vegetables and rice. Though they did not recognize a relationship between health and food, women wanted their children to be "not too fat, not too skinny," preferring a plump physique, associated with being well fed. Given that some of the Burmese refugees demonstrate degrees of stunted growth and are very thin, it is understandable that the Burmese women want their children to be larger.

In contrast, the men presented a more reserved perspective about the addition of American foods to their children's diets, specifically expressing distaste for sweet foods like sodas and candies, preferring rice and vegetables. For example, one male participant stated, "I don't want my kids

to eat cheese or candy or sweets. The sweetness, the candy, is not good for their teeth." The men wanted their children to eat more traditional foods like soup, fish sauce, rice, and bamboo shoots. For the younger children, the women advocated feeding their babies formula, while the fathers favored the more traditional homemade Burmese drink of rice-water and honey.

Despite wanting their children to have a more Americanized diet, the women do not want their children to overindulge in processed foods such as fatty meats and cheeses. They emphasized cheese as being particularly fattening, exclaiming "if you don't believe us, eat it for three months." The men agreed with the sentiment, but extended it to sodas and candy as well, expressing a fear that their children would develop diabetes. It was continuously highlighted by both focus groups that cheese was the food they most wished to restrict from their diet. The adults tended to show extreme dislike for it and repudiation of the notion of their children eating it. Both the male and female focus groups agreed that consuming American foods could cause a person to become fat. When asked what it was about American food that caused weight gain, the Burmese focused on cheese as an unhealthy and fattening food choice.

The men had additional thoughts on what causes people to become fat. For example, one participant explained, "Some people are skinny; we eat the same food, but I get fat and he stays skinny, it is a genetics thing." Another participant stated, "I eat fish paste and I get fat and other people eat a lot and don't get fat. My wife and I eat the same thing and I get fat and she doesn't! Genetics!" They also felt that "milk, cheese, cake, and soda make you fat." In answer to the question, "Does American food make you fat?" participants responded, "Yes, look at the African Americans." When asked, "Does Burmese food make you fat?," they replied, "No, only 1 in 100 Burmese are fat; we don't get fat."

The male focus group acknowledged the allure of American foods to the younger generations, pointing out that "sweet and fried" foods are very appealing to children, but they thought the children should be eating more rice and fish. One man noted that his two year old liked peanut butter, although he did not. The men would also like to see the children drinking less soda. The older generations struggles with adopting an Americanized diet. The men claimed to dislike American food, only indulging in an occasional cheese-less hamburger as a snack once in a while; "I eat a hamburger with no cheese, only with lettuce and ketchup. To avoid eating out when at work, I bring a lunch box with rice, fish paste and vegetables." One man stated, "I can only eat American food once a day." The men also felt that it was very important to eat vegetables. They said they grew up in rural areas and were used to eating a basic Burmese diet, which includes many vegetables. In the more mountainous areas where rice could not be grown, bananas were the alternative starch.

Participants in the focus groups were then asked what they would do if they had more money to spend. Men said they would spend additional money on clothes, furniture, and a house. In contrast, women spoke of purchasing more food, specifically, pork, fish, and chicken. They also said that they would save some money for the future. Both men and women agreed they would put money away for their children's educations. One woman said that she would save money for when she is "broke again," reflecting the uncertain economic status of this population.

Men and women agreed that if they had more money to spend on food, they would purchase more of traditional Burmese foods. The men focused on meats, fruits, and vegetables, all foods they considered to be delicious and healthy. The women noted flavorings, such as fish sauce, chili

paste, and salt. However, women unanimously agreed that the fish paste available to them in this part of Florida is not the right kind of fish paste. Despite the wide assortment of fish pastes found in local Asian markets, the women have been unable to locate a particular brand of fish paste that they liked. They dislike the available varieties of fish paste because they believe they have high sugar and salt content. They have resorted to altering store bought fish pastes or fish sauces to satisfy their desire for fish paste, a key Burmese flavoring. Despite the alterations, the women noted the available fish pastes are still not quite right. Women also said they would use additional money to purchase a larger variety of meats, such as chicken, pork, and a diverse range of fish.

When asked what they would purchase if they had less money, women agreed that they would find ways to save money by purchasing items that were less expensive. They would hope to be able to continue to buy fish, but if they had limited funds, the women agreed they would settle for chicken instead. In such circumstances, their goal would be to purchase less of everything, rather than give up specific foods. Women focused on comparing prices on food items to determine which items would provide the most food for their money. In contrast, men focused on what they could not live without: rice, fish, and salt. Men would give up meat and vegetables, but they specifically noted that they could not give up rice.

The Burmese refugees would never forgo rice in any situation. They would buy rice whether they had little money or more money. If they had a limited income they preferred to reduce purchasing expensive items to maintain their intake of rice; if they had more money, they would incorporate more meats and vegetables into their rice-based diets. The respondents of both focus groups said that they "would die without rice." When asked why rice was so important, they reported that rice is the main dish of all meals in Burma and likened it to bread for Americans. As a major staple in the Burmese diet, rice is consumed in Burmese households two to four times per day. The women said that rice is the only thing you can eat to properly feel full, and in contrast

they do not find American snacks filling.

Additionally, the Burmese identified chilies and bananas as important to their diets. Snacks are not a large part of Burmese culinary culture, but during their time in the Thai refugee camps, they enjoyed the Thai snacks provided. These snacks, however, are not comparable to the sweet and salty snacks here in America which tend not to fill them up, and are a poor substitute for the staple of rice. Burmese adults considered American snacks a children's food that neither the men nor the women were interested in eating regularly.

When asked if they had explored making new foods outside of traditional fare, the general interpretation of the term "new foods" was associated with American staples such as hamburgers. One woman said that she makes turkey sandwiches, while another makes hot dogs with bread because her family enjoys eating them. The women were interested in learning to make American foods they enjoyed, if they could identify those foods. It seems that they do not know how or where to start. "We only cook what our parents taught us." One man reported that his wife had tried to make French toast; another tried to recreate stir fried restaurant recipes. There seemed to be a general lack of enthusiasm for experimenting with making new foods at home. When the focus groups discussed making new foods, participants indicated that not everyone in the home enjoyed the additions, and most preferred traditional food. Women are the primary cooks in the households participating in this research, and the men seemed willing to try new foods if their wives wanted to cook them. However, their wives typically only cooked traditional Burmese food. One man commented that, "I am the only one who likes to try new things, my family doesn't like to." Other participants in the male focus group shared this sentiment. The men also said they were particularly interested in trying an American buffet restaurant.

The next topic discussed with the men was foods associated with the rich and with the poor. The men believed that, in America, rich people eat pizza, hamburgers, cake, fish, and lots of meat, while poor people ate plain bread and milk. In Burma, the men said that the wealthy Burmese eat good meats, such as duck and choice cuts of chicken and beef, and jasmine or coconut rice. The poor people of Burma eat very poor quality rice with chilies and salt.

The respondents were asked what kinds of foods they would serve to a prospective diner guest. For a special American guest, the Burmese would try to accommodate with foods they consider to have prestige. The women said they would make traditional Burmese fare; if the guest did not like it, then they would go out to eat. They also added that an American guest would probably prefer to eat Burmese food if it was served with noodles instead of rice; this was based on the unanimous agreement that they had all seen Americans eat noodles. The men said they would first give their American guest a soda or lime juice, then make their guest a curry dish or a sandwich of fried egg and beef. For a special Burmese guest, however, a far more traditional spread would be laid. The men said they would serve a tea-leaf salad to their guest, as well as rice and eggs seasoned with chilies, vegetables, fish-sauce, and a beverage of green tea or a traditional wine. The women had similar answers, agreeing with the concept of a well-rounded Burmese feast that includes a wide variety of meats, as well as traditional soups to accompany the meal.

The men and women, respectively, were asked about body images and other attributes associated with desirability of the opposite sex. There was consensus among both the men and the women that in order for men to be considered desirable to women, the man should be hard working. Physical appearance was reported by both sexes to be of less importance in a man's desirability. Personality is given priority in romantic relationships. One woman said, "I was skinny when I

married my husband and I got bigger over time and he still likes me." The men felt that a woman would not want a man that smoked or drank too much alcohol. However, when men were asked if a hardworking man with muscles, but who is considered to have unattractive facial features, is good marriage material, they said he was not. This shows that even though Burmese men expressed that personality and work ethic are the most important aspects for attracting a Burmese woman, they still believe physical appearance is important as well. Both the men and the women felt that a Burmese woman should have very long hair to attract a mate, preferably "down to her ankles." Men also agreed that fair-skinned women who do not talk a great deal are attractive. Similarly, both the men and the women agreed that neither man nor woman should be too thin or too fat in order to attract a mate.

In the future, the Burmese participants in this project plan to continue expanding on the Tampa Bay Gardens acreage they have for both personal and commercial use. For their own consumption, the women would like to grow chili peppers, papayas, beans, tomatoes, eggplant, broccoli (this term refers to broccoli, cauliflower, cabbage and kale), squash, zucchini, cucumbers, pumpkin, chickens, eggs, and fish. Foods that would be acceptable to sell include: broccoli, tomatoes, cucumbers, chicken, eggs, and fish. Chili peppers were considered the most important item to be grown and kept for Burmese use. One woman noted that Americans would not like Burmese food made with peppers because it would be too spicy for them. Papayas were also noted by the men as a Burmese only food for their personal use and not sold. "I don't think anyone other than Burmese would buy them." Participants showed reluctance to selling food from the garden. Most of the participants receive food stamps and feel their families need all the food their efforts in the garden can produce.

The men focused on growing green beans (long beans), onions, cilantro, Chinese broccoli, chickens and eggs for home consumption. Cabbage and bok choy could be sold, and

cucumbers, lettuce, arugula, roselle leaf and chilies were thought to have a good market among other Burmese families. Roselle leaf is an important food for the Burmese and is challenging to find outside the garden. Because of this, they believe there is a potential market for it both within the Burmese refugee community as well as the established Burmese community at large. They have not had good luck with tomatoes, however, citing problems with cold and pests. They are also interested in raising pigs and goats, but acknowledge the need to balance livestock and garden space.

At the conclusion of each focus group, we asked the participants if they had questions for us. The women wanted to know why American food tends to make you fat, while the men had questions concerning how to approach marketing goods produced in the garden.

Garden Plant Interviews

Medicinal plants and food plants often overlapped, as many parts of the same plant have different uses. Most of the medicinal plants described by the Karen and Kayah were used to treat a few specific illnesses, such as high blood pressure, diabetes, and intestinal ailments. For example, one participant described how, "If a person has too much blood" consuming specific plants will take some of the blood away."

There are no major differences between the Karen and Kayah in the use of plants, and families use these plants for both nutritional and medicinal purposes. Some of the plants are also used as pesticides. Of the plants in the garden during the spring of 2014, 17 have medicinal uses, 13 are vegetables, 15 are fruits, 7 are herbs, and 2 are carbohydrates (Appendix 4). An understanding of the Burmese uses of medicinal plants and descriptions of illnesses could assist with healthcare for the Burmese.

Summary of themes

Presently there is considerable concern among the Burmese community about body size. They live in a low income housing complex and they observe that many of their African American neighbors are overweight. In addition, some of the Burmese children are becoming fat; one mother showed us a photo of her daughter in the refugee camp. The mother noted that the girl had been thin then, and she was sure it was the food her daughter was currently eating at school that was responsible for the girl's excess weight gain. For the Burmese, ideal body images favor slightly "chubby" women and "regular" sized men. Adult Burmese men and women have clearly established a link between being fat and American food. At the same time, a certain amount of weight gain from an integrated diet of American and Burmese food is considered desirable by the women, particularly for those children who they consider short and thin. Many of the Burmese, notably the men and women who spent significant time in the refugee camps of Thailand, are significantly stunted in growth from insufficient nutrition. Now living in America, it is not surprising to find that they partially embrace the fattening effects of American food to achieve Burmese ideals of body size.

Exposure to American food and culture, however, has led to a shift in prestige foods. While traditional Burmese fare is preferred by adults, American food tends to be viewed by them as having higher status and prestige value. The American foods they identify as prestigious, such as hamburgers, pizza, and soda, are, within the context of American culture, in fact considered relatively low prestige due to their accessibility and low cost. To the Burmese, this food is associated with American culture, and therefore is desired for its ability to make them feel included in their new country.

The idea that consuming American foods is desirable extends to the younger generations, but with the addendum that the younger Burmese enjoy eating American food for full meals whereas their parents consider American food to fall within the snack category, due to the absence of rice. For the younger Burmese, the connection they develop with American food to identify with American culture becomes a balancing act. While traditional food and language are predominantly experienced at home, they must also develop new cultural relationships with American culture, food, and language at school. This research shows that the Burmese children may be switching to not only a pattern of American food consumption, but also the American pattern of three meals a day, versus the traditional Burmese pattern of two meals a day. The switch can potentially influence weight gain, due to the types of foods consumed as well as the increase in number of daily meals.

Constraints and Limitations

A key constraint is the limited data on dietary intakes. Optimally, 3 days of data would have been collected. We did, however, collect more data from two of the teenagers, and supplemented dietary recalls with participant observation and focus groups. Another constraint was what was missed in translation in the multi-lingual focus groups. Given the variety of languages spoken by the research participants and the researcher's limited understanding of those languages, we feel the research findings are relevant to a preliminary understanding of the research questions.

Conclusions and Recommendations

1. American school lunches: The differences for the children between weekend and week-day foods are striking. American food, in the form of school lunches--consisting of American fast food type items--is most of what is being eaten. Otherwise, outside of

the school setting, American items appear only as occasional breakfast foods. While the adult men and women differed on how they valued American food within their traditional diets, the overall consensus was that Burmese foods should primarily be consumed at home.

□ Recommendation--Children should be taught to make better food choices at school.

2. Junk food, healthy snacks, liquid calories: All Burmese have begun to eat American junk food snacks, including adopting the pattern of consuming calories in the form of liquids. As age increases we see fewer junk food snacks consumed and more healthy snacks are eaten. The Kayah, particularly the Kayah women in this sample, eat the most junk food.

□ Recommendation--Education should focus on the impact of these choices--especially liquid calories--on body size.

3. Treatment of chronic illnesses: A mix of Burmese and biomedical treatments are used.

□ Recommendation--Evaluation of these Burmese plant and foods based therapies would be appropriate.

4. Food and health: Other than those with chronic illnesses, for most people, there is not a clear relationship between food and health.

□ Recommendation--Nutrition education should not assume understanding of, or focus on, the relationship between food and health.

5. Body Image: The Burmese do not want to be too fat or too thin. Many are short and thin, probably related to experiences in the refugee camps. Parents recognize that American food makes their children gain weight, so encourage its consumption--to a point. Additionally, the men are concerned about children's consumption of soda and candy, and worry about potential disease, such as diabetes.

□ Recommendation--Stress the consumption of healthy American food that will not make you (too) fat. Discourage consumption of soda and sweets. Promote consumption of fruit.

6. Foods to avoid: Adults note foods they consider to be fattening, particularly cheese.

□ Recommendation--Most of this population is lactose intolerant, so nutrition education should be based around this fact-and their objections to cheese.

7. Household needs: More, or different food is not first on the list of what would be done with additional household funds. This is a low-income population with many unmet needs.

□ Recommendation--Promote the garden as a way to have money for non-food household needs.

8. Greater expenditures for food: Additional funds would be spent on foods traditional to the Burmese diet--more meat and more vegetables.

□ Recommendation--The garden should produce these

items.

9. Rice: Rice is the basis of the diet.

□ Recommendation--Do not discourage rice

consumption.

10. American food/snacks: These are not considered filling by the adults, nor appropriate for regular consumption.

□ Recommendation--Teach some spicy rice based dishes (ex. Cajun foods) that may be more palatable alternatives for Burmese adults.

11. New foods: there was an interest in trying new foods.

□ Recommendation--Foods that the Burmese are interested in eating should be identified, and healthy and appropriate ways of cooking these should be demonstrated.

12. Prestige: A number of American foods have come to represent high prestige-soda, pizza, and hamburgers.

□ Recommendation--Introduce the Burmese to other healthy American status foods, such as fish, smoothies, etc. Stress the prestige value of the organic food grown in the garden.

13. Future issues for the garden: The refugees are unsure of what items can be marketed outside the

Burmese community and how to go about doing so.

□ Recommendation--Conduct trainings on these topics.

14. Health issues: While there is little current chronic disease in this population, the dietary acculturation patterns present are of concern.

□ Recommendation--Record and analyze additional information on weekday food consumption of adults and children, as well as focus group data on children's ideas about diet, health and body image. Switches to American high calorie, low nutrient foods/drinks need to be determined, as well as any increases in overall consumption related to a change from two to three meals a day.

Conduct health screenings for all adults, including HbA1c and fasting cholesterol, and heights and weights on adults and children.

□ Recommendation--Culturally appropriate health and nutrition education programs to include:

1. Cultural focus--The healthy plate approach is not useful for a population which eats mixed dishes from bowls. Additionally, diagrams which devote 1/5 of suggested consumption to dairy products are not useful. It should also be noted that the traditional meal pattern is 2 meals a day. Programs should be adapted to cultural aspects of meal patterns.
2. Appropriate terms need to be used in nutrition education--Words such as calories, fiber, iron, calcium, etc. are not familiar to this population.

3. An initial focus should be on the question posed to us: why does American food make you fat?
4. Tips for eating better when eating out, healthy snacks.
5. Information on high prestige healthy foods that are consumed by "Americans."

□ Recommendation--Promote pride in Burmese food and identity:

1. Continue the annual festival--less emphasis on serving soda.
2. Consider Burmese meals for the public--one day a month, using garden produce, to demonstrate the appeal of Burmese food to Americans, and raise money for the community.

□ Recommendation--The garden should focus on those foods necessary for good health that are the most expensive: vegetables, fruits (expand fruit production to cater to desires for "sweets"), and high quality proteins (such as fish, chicken, and eggs).

□ Recommendation--The population should be further introduced to u-pick farms, and methods of food preservation, such as freezing and canning. The garden might purchase a large freezer where participants can store u-picked food.

Appendix 2 Health Interview

I would also like to ask you a few questions about your health.

I understand you have diabetes _____ High blood pressure _____

How did you find out you had this problem?

How serious a problem is it?

What do you think caused it?

What problems does it cause you?

What are the symptoms of this problem?

What do you have to do to treat it?

Do you have to eat special foods? Which?

Do you have to avoid any foods? Which?

Do you have to exercise? What kinds of exercise? For how long? How often?

Do you take any medications from the doctor? Which?

Do you use any Burmese medicines/herbs? Which?

Which things that you do are helpful? Why?

Does what you eat affect your health? Explain.

Does what you eat affect your diabetes/high blood pressure? Explain.

- How is your food usually cooked?

_____ Boiled in water

_____ Fried in oil

_____ Other

Hypertension specific questions

- How often do you eat beef or pork?

- Everyday
- 4 – 6 days a week
- 1 -- 3 days a week
- Never

- How often do you eat fish paste/fish sauce?

- Everyday
- 4 – 6 days a week
- 1 -- 3 days a week
- Never

-How often do you eat fruits and vegetables?

- Everyday
- 4 – 6 days a week
- 1 -- 3 days a week
- Never

Diabetes specific questions

- How often do you eat sweets (cookies, cakes, etc.)

- Everyday
- 4 – 6 days a week
- 1 -- 3 days a week
- Never

-How many times a day do you eat?

- 3 or more times a day
- 1 – 2 times a day

-Do you think you:

- overeat
- eat just enough to take away the hunger
- eat just because you have too.

-How often do you drink sodas or juices?

- Everyday
- 4 – 6 days a week
- 1 -- 3 days a week
- Never

Appendix 3 Focus Group Guide

1. How long have you lived in the US? In Tampa?
2. What should a mother/father do so her/his children grow up strong and healthy?
3. If your family had more money, what would you spend it on?
4. If you were going to spend more money on food, what would you buy?
5. If you were going to spend less money on food, what would you buy?
6. What foods would you like to eat more of? Less of?
7. What foods would you like your children to eat more of? Less of?
8. What do rich people eat? Poor people?
9. What foods make you fat? What foods make children fat? Why does American food make you fat?
10. Why do the children like American food?
11. How do Burmese men like their women to look?
12. How do Burmese women like their men to look?
13. What do you eat when you go to work?
14. Is it important to eat rice? Why? How often do you eat rice?
15. What other foods is it important to eat? Why?
16. Who does the cooking in your house?
17. Does your wife ever try to cook new foods? Which? Why?
18. Are there other new foods you would like your wife to learn how to cook? Which? Why?
19. If you had a special Burmese guest, what would you serve them? Why?
20. If you had a special American guest, what would you serve for them? Why?
21. What is it most important for the garden to grow for use--Vegetables? Fruits? Eggs? Fish? Specific ones?
22. What should the garden sell?

Appendix 4 Plants in the Garden—Spring 2014

Tampa Bay Gardens- Refugee Agricultural Partnership

Information compiled by USF class,
Anthropology of Food, taught by
Roberta D. Baer.



Photo taken at Tampa Bay Gardens

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The students enrolled in the class were: Graduate students—Jerusalem Bereket, Jose Pena, Justin Shriver, Susan Tyler; Undergraduate students—Yaroslav Abramenko, Dianna Andrews, Carl Baab, Brittany Boyette, Jennifer Briggs, Michele Bryant, Chelsea Buckley, Ashley Byrne, Juliana Pena, Preston Cain, Madeleine Dearth, Brittany George, Ivan Gortinskiy, Helchi Hindert, Cheree Kelley, Kaitlyn Krinsky, Todd Langel, Diandra Latibeaudiere, Margaret Manthey, Devon Mitchell, Brittany Nooney, Walter Ostarly, Vanessa Pazmino, Samantha Restivo, Thabatta Rivera, Sarah Sharfstein, Chloe Sweetman, Jordan Washer, Vera Wiggins.

Introduction

- The Tampa Bay Gardens-Refugee Agricultural Partnership was founded 3 years ago and serves Kayah, Shan, and Karen families
- The garden is a space for Burmese refugees to grow food and medicinal plants
- Many of these families farmed in their country

Project Goals

- To document food and medicinal plants grown in the garden, and their uses.
- To help the larger community understand the Burmese knowledge of plants and growing food.
- To create a record for the Burmese community and their children of how they grow and use plants.

Methods

- Participant Observation
 - Attended a community event at the garden
 - Two garden walk throughs with gardeners
 - Kayah, Karen, and Burmese Translators
 - Took notes on names and uses of plants
 - Written in Karen, Kayah, Burmese, and English
- Sorted notes to ensure complete plant profiles
- Analyzed notes

Food plants

- Both Kayah and Karen identified a number of plants used only for food
- The majority of these foods include a smaller number of main plants, e.g., “cabbage” and “broccoli”. The Kayah and Karen used these words to identify a number of different plant species

<h1>Cabbage</h1>	Burmese:	Kayah / Kayan:
	ခရမ်းပင်	ခရမ်းပင်

Photo taken at Tampa Bay Gardens

Source: Kayah

Food

- Used in stir fries, curries, and salads

<h1>Chinese Cabbage</h1>	Burmese:	Kayah / Kayan:
	ခရမ်းပင်	ခရမ်းပင်

Photo retrieved from <http://www.podgardening.co.nz/chinese-cabbage.html>

Source: Kayah

Food

- Specifically use the leaves and the flowers
- The root is not used
- "You get healthy when this is eaten"

Chinese Onion

Burmese:	Kayah: Karen ✓
	



Photo taken at Tampa Bay Gardens

Source: Karen

Food

- Used like a normal onion

Green Beans

Burmese:	Kayah: Karen ✓
	



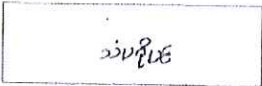
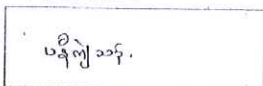
Photo taken at Tampa Bay Gardens

Source: Karen

Food

- Only the “fruit” is eaten

Lemon

Burmese:	Kayah: <input checked="" type="checkbox"/> Karen: <input checked="" type="checkbox"/>
	




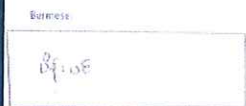
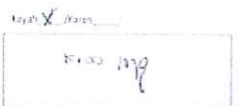
Photo taken at Tampa Bay Gardens

Source: Karen

Food

- The fruit may be eaten after peeling

Elephant Ears

Burmese:	Kayah: <input checked="" type="checkbox"/> Karen: <input type="checkbox"/>
	




Photo retrieved from <http://www.caladiumsflorida.com/elephant.html>


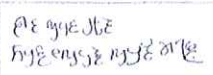

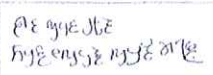

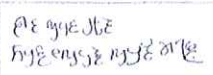
Source: Kayah

Food

- The fruit is eaten with meat
- You can also fry the fruit

Additional Information

- Does not have flavor on its own, but takes on the flavor of what it is cooked with

<h1 style="margin: 0;">Lettuce</h1>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Burmese:</td> <td style="padding: 2px;">Kayah / Karen:</td> </tr> <tr> <td style="padding: 2px; text-align: center;">  </td> <td style="padding: 2px; text-align: center;">  </td> </tr> </table>	Burmese:	Kayah / Karen:		
Burmese:	Kayah / Karen:				
					










Photo taken at Tampa Bay Gardens

Source: Kayah

- Only used as a food

<h1 style="margin: 0;">Corn</h1>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Burmese:</td> <td style="padding: 2px;">Kayah / Karen:</td> </tr> <tr> <td style="padding: 2px; text-align: center;">  </td> <td style="padding: 2px; text-align: center;">  </td> </tr> </table>	Burmese:	Kayah / Karen:		
Burmese:	Kayah / Karen:				
					




Photo retrieved from <http://www.motherearthliving.com/natural-health/zea-mays-grow-corn-silk-for-better-health.aspx#axzz32lgX3RwC>

Source: Karen

Food

- The kernels can be fried
- The young kernels are utilized

Other information

- “Was grown in big fields in Burma as a job.” Temporary farmworkers are hired to grow large amounts of corn in Burma.

<h1>Scallion</h1>	Burmese: မြင်းခင်း	Kayah / Karen: ကျွန်းကျွန်း
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Photo taken at Tampa Bay Gardens

Source: Kayah

Food

- Goes well with cilantro and is a “perfume” plant
- Often used in cooking for flavor

<h1>Sweet Potato</h1>	Burmese: မြေခင်း	Kayah / Karen: <input checked="" type="checkbox"/> ခင်းခင်း၊ ခင်းခင်း
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Photo taken at Tampa Bay Gardens

Source: Karen

Food

- Boiled or Fried
- Can be used as a dessert food

Other information

- Soil in Florida is bad for the sweet potato's growth because the soil does not absorb water

Bok Choy

Burmese:

ဟိန်ဒု

Kayah: Karen:

ပဲခူးစား



Photo taken at Tampa Bay Gardens

Source: Kayah

- Only used for food

Eggplant

Burmese:

ပဲခူးစား

Kayah: Karen:

ပဲခူးစား



Photo taken at Tampa Bay Gardens

Source: Kayah

- Only used for food

Potato

Burmese:	Kayah Name:
ပဲခူး	ကယား ပဲခူး




Photo taken at Tampa Bay Gardens

Source: Kayah

- Only used for food

Chile

Burmese:	Kayah Name:
ငှက် ချစ်	ကျား ချစ်





Photo taken at Tampa Bay Gardens

Source: Kayah

Food

- Used as a spice for Kayah and Burmese
- Spicy
- Can be cooked with garlic, fish sauce, or made into a paste
- Leaves are also used as a seasoning

<h1>Mango</h1>	Burmese:	Kayah /Karen ✓
	သရက်သီး	တၢ်ခဲးသီး




Source: Karen

Food

- Young leaves are eaten

Photo retrieved from <http://en.wikipedia.org/wiki/Mango>







<h1>Avocado</h1>	Burmese:	Kayah /Karen ✓
	ဆေးလှော်သီး	တၢ်ကဲးသီး



Source: Karen

- Only consumed as food

Photo retrieved from <http://www.lampabay.com/news/humaninterest/avocado-tree-bears-heavy-fruit-after-all-these-years/1247022>

<h1>Pepper</h1>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">  </td> <td style="width: 50%; padding: 5px;">  </td> </tr> </table>		
			




Photo taken at Tampa Bay Gardens

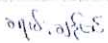
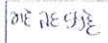
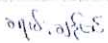
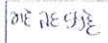
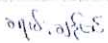
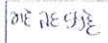
Source: Karen

Food

- Used as seasoning
- Added to soups and pork
- "If [the food is] not spicy we can't eat [it]"

Other information

- Pregnant women should not eat pepper because it will cause a baby to not have hair or skin
- Can cause a rash

<h1>Tomato</h1>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">  </td> <td style="width: 50%; padding: 5px;">  </td> </tr> </table>		
			






Photo taken at Tampa Bay Gardens

Source: Kayah

Food

- Added to stir fries
- Eaten raw

<h1>Peas</h1>	Burmese:	Kayah / Karen ✓:
		






Photo taken at Tampa Bay Gardens

Source: Karen

Food

- Fruit, young leaves, and peas are consumed

<h1>Cilantro</h1>	Burmese:	Kayah / Karen ✓:
		




Photo taken at Tampa Bay Gardens

Source: Kayah and Karen

Food

- Kayah: Used as a seasoning
- Karen: Eat the young seedlings (unlike Americans who eat the adult leaves of the plant)

Basil

Burmese:

Kayah: Karen ✓

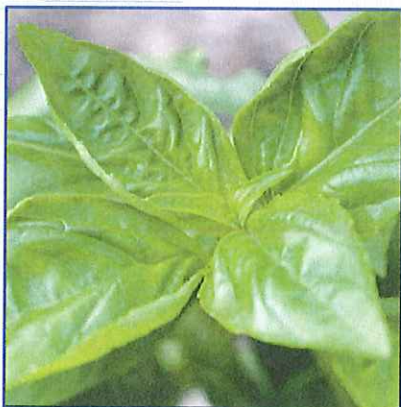


Photo retrieved from <http://www.organicgardening.com/learn-and-grow/basil-growing-guide>

Source: Karen

Food

- Only the leaf is eaten
- Cooked with bamboo

Food/Medicinal Plants

- Medicinal plants and food plants often overlapped, as many parts of the same plant have different uses
- Most of the medicinal plants described by the Karen and Kayah were to treat a few specific illnesses, such as high blood pressure, diabetes, and intestinal ailments.
 - For example, one participant described, "*If a person has too much blood*" consuming specific plants will take some of the blood away
- The Burmese descriptions offer insight into how these illnesses are described and treated among the Kayah and Karen

Pumpkin	Burmese: <input type="checkbox"/> <i>ကန်ပွတ်</i>	Kayah <input type="checkbox"/> Karen <input checked="" type="checkbox"/>
	<input type="checkbox"/> <i>ကန်ပွတ်</i>	<input type="checkbox"/> <i>ကန်ပွတ်</i>




Photo taken at Tampa Bay Gardens

Source: Karen

Food

- Cooked with chicken
- Can be used for soup
- The stem and leaves can be used in soup as well as the fruit

Medicinal

- Good for the brain
- Can make you "feel smart"

Guava	Burmese: <input type="checkbox"/>	Kayah <input type="checkbox"/> Karen <input checked="" type="checkbox"/>
	<input type="checkbox"/> <i>ကန်ပွတ်</i>	<input type="checkbox"/> <i>ကန်ပွတ်</i>




Photo retrieved from <http://www.gardenguides.com/69746-grow-guava.html>

Source: Karen

Food

- The fruit is consumed raw
- The leaves may be eaten (with water)

Medicinal

- Used for stomach problems; helps with blood in stool
- Good for pregnant women

Clover

Burmese: ကလေးပင်	Kayah / Karen <input checked="" type="checkbox"/> ကလေးပင်
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Photo taken at Tampa Bay Gardens

Source: Karen

Food


- Used in Soup

Medicinal

- Good for kidneys
- Believed to break up kidney stones

Neem

Burmese: ကလေးပင်	Kayah / Karen <input checked="" type="checkbox"/> ကလေးပင်
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Photos taken at Tampa Bay Gardens

Source: Karen

Food

- Pickled or mixed with salad
- Eaten with rice and fish sauce/paste

Medicinal

- Helps with eczema
- Eating once a week can help diabetes

Other information

- Teeth can be cleaned with paste made from the trunk
- The sap can be used as a glue
- Acts as a pesticide

Chinese Broccoli	Burmese: <i>အရှေ့ ဇာပွား</i>	Kayah / Karen: <i>ပိရဲလ</i>
	<i>အရှေ့ဇာပွား</i>	<i>ပိရဲလ</i>

Photos taken at Tampa Bay Gardens

Source: Karen

Food

- The leaves can be boiled and eaten
- Used in soups and other foods
- The flower is “better food” than the leaves
- Helps make rice taste better

Medicinal

- Good for blood

Banana Tree	Burmese: <i>မုတ်မုတ်</i>	Kayah / Karen: <i>ဝါး</i>
	<i>မုတ်မုတ်</i>	<i>ဝါး</i>

Photo taken at Tampa Bay Gardens

Source: Karen

Food

- Tree leaves can be used to wrap up rice for a dessert
- The trunk can be boiled with fish paste to make fish soup
- The root of the tree can be mixed with brown sugar and yeast

Medicinal

- Pieces of the trunk can be used to help burns

Peppermint Plant

Burmese:

ပိရာဂျက်

Karen:

ပိသံလှ်မးဒိန်



Photo taken at Tampa Bay Gardens

Source: Karen

Medicinal

- Used as a cough medicine

Preparation

- Mash leaves and mix with salt
- Push toward the back of the throat for 5-10 minutes

Lemongrass

Burmese:

လှော်

Karen:

ပိရော်

Source: Karen



Photo taken at Tampa Bay Gardens

Food

- Used as seasoning for beef curry
- Added to soups with animal bones

Medicinal

- Kills bacteria
- Relieves pain if rubbed on skin


Other Information

- Natural Pesticide



Burmese:	Kayah / Karen:
၈၆၆၆၆၆	၆၆၆၆၆

Sage



Source: Karen


Medicinal

- After rubbing sage together with your hands, a liquid will be produced that can be drunk to improve coughing

Photo retrieved from <http://hermionegarden.blogspot.com/2011/05/salvia-officinalis-sage.html>

Burmese:	Kayah / Karen:
၆၆၆၆၆၆	၆၆၆၆၆

Katuk "Star Gooseberry"



Source: Karen

Food

- Entire plant is used
- Used to flavor meat dishes
 - Small fruit, whole or chopped-small, green, and tangy

Medicinal

- Used to help regulate diabetes

Other Uses

- Also used as a shampoo

Retrieved photo from <http://easytothefood.blogspot.com/2012/06/star-gooseberry-drink.html>

<h1 style="margin: 0;">Lime</h1>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Burmese:</td> <td style="width: 50%; padding: 5px;">Karen:</td> </tr> <tr> <td style="text-align: center; padding: 5px;">သံပရာသီး</td> <td style="text-align: center; padding: 5px;">သံပရာသီး</td> </tr> </table>	Burmese:	Karen:	သံပရာသီး	သံပရာသီး
Burmese:	Karen:				
သံပရာသီး	သံပရာသီး				




Photo retrieved from <http://www.groworganic.com/bears-lime-tree-potted.html>

Source: Karen

Food

- Eaten with rice
- Used in soups
- The root, stem, and leaves are all used


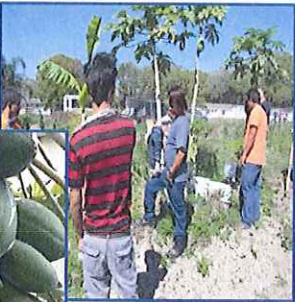
Medicinal

- The roots are mixed with salt and used as a cough suppressant
- Lowers blood pressure

Other Information

- Considered a traditional medicinal method
- Used in refugee camps

<h1 style="margin: 0;">Papaya</h1>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Burmese:</td> <td style="width: 50%; padding: 5px;">Karen:</td> </tr> <tr> <td style="text-align: center; padding: 5px;">သံပရာသီး</td> <td style="text-align: center; padding: 5px;">သံပရာသီး</td> </tr> </table>	Burmese:	Karen:	သံပရာသီး	သံပရာသီး
Burmese:	Karen:				
သံပရာသီး	သံပရာသီး				

Photos taken at Tampa Bay Gardens

Source: Karen

Food

- Green papaya is cooked/fried with rice; used in salads
- Young papaya is a meat tenderizer
- Yellow when ripe
- Leaves are baked in the oven and eaten with fish sauce, chilis, or garlic

Medicinal

- Relieves constipation
- Seeds can be mixed with tea leaves and water which lowers blood sugar
- The leaves of the papaya can also aid in controlling blood sugar levels and diarrhea

Moringa

Burmese

Karyn / Karen V.

မုခ်တီး

မုခ်တီး



Photo taken at Tampa Bay Gardens

Source: Karen

Food

- Eaten in chicken soup

Medicinal

- Used for stomach aches and helps control blood sugar
- Leaves are mashed and diluted with lime and water to drink. This mixture is consumed once a week.
- Juice from the leaves are also mixed with sugar and consumed to help control high blood pressure.
- Juice from mashed leaves are applied to eyes to reduce high fevers. This is very painful and burns, but works well.

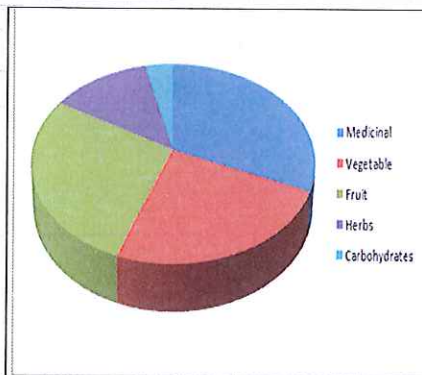
Other Information

Has the potential to be used as biodiesel

Pesticides Used in the Garden

- Neem, lemongrass, and ginger are mixed with water and soap to repel and kill the bugs in the garden

Composition of Garden



- Medicinal: 17*
- Vegetable: 13
- Fruit: 15
- Herbs: 7
- Carbohydrates: 2

*The medicinal quantity is a sum of all plants that are medicinal. These include fruits, herbs, and vegetables.

Conclusions

- There are no major differences between the Karen and Kayah in the use of plants
- This project shows that families use these plants for both their nutritional and medicinal value
- The Burmese uses of medicinal plants and descriptions of illnesses will help us understand how to create better healthcare for the Burmese.