Diet and Exercise: Major Factors Leading to Weight Gain in Refugees

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Introduction

Weight gain leading to obesity is a significant and common problem seen in the refugee population in America. Before coming to America, many refugees are thin and underweight from life in the refugee camps and in their home countries. However, upon arriving in America, refugees have often been found to gain weight and become obese throughout the next several years. The issue of weight gain has been especially prominent in refugee children. On my first day at the IFMC, one of my patients was a 10 year-old Nepali girl who had gained almost 40 pounds since her arrival in the United States. Her mom seemed unconcerned about her weight gain, but noted that her daughter did not eat a healthy diet and did not exercise. This case has led me to further explore the factors that have led to significant weight gain in the refugee population.

In 2011, a study was done that interviewed refugees, health care practitioners with many refugee patients, and representatives from refugee service organizations in San Diego County. San Diego County is the second largest refugee resettlement site in California, which is the state that accepted the most refugees and asylees in the U.S. The refugees had all been in America for one to five years prior to data collection, which was deemed a refugee's most vulnerable period due to the end of government aid, lack of financial establishment, and deficits in knowledge of their host country. These refugees were from the eight countries with the largest number of refugees in San Diego County—Afghanistan, Ethiopia, Iran, Iraq, Russia, Somalia, Sudan, and Vietnam—and were often leaders in their community who were knowledgeable about the health concerns of their fellow refugees. From these interviews, the nutrition-related health issue most commonly stated was unhealthy weight gain. The factors leading to weight gain were noted to be poor food choices, overeating, prior habits and acculturation, socioeconomic status, and lack of understanding of nutrition or foods available in America.[1]

In addition, a 2014 study looking at chronic disease burden in Bhutanese refugee women in Ohio found that 64.8% of the women were overweight or obese, and that weight gain is both unintentional and particularly prevalent among refugee women.[2] Furthermore, a study published in 2015 that looked at Iraqi refugees in Michigan showed a significant increase in refugees' BMIs during their first year in America. This study found no association between psychological stressors or mental health conditions with the increase in BMI, leading to the conclusion that the refugees' new diets and decreased physical activity are the major factors in weight gain in the refugee population.[3] Because of the findings from these studies, I will focus on diet and exercise as the primary causes of weight gain in refugees, and the factors that play a role in the development of these lifestyle patterns.

Diet

The major factors that have been found to affect the diet of refugees are overeating, prior habits and beliefs, acculturation, lack of understanding and nutritional knowledge leading to poor food choices, and socioeconomic status. Regarding the subject of overeating leading to weight gain, one of the refugee patients interviewed in San Diego County was quoted as saying: "Many of them are starved…in their past…so when they do have food, they will eat until they literally explode, not literally, figuratively of course." He further explains that in America, refugees have more access to food than they have ever had before, leading to an inability to control how much they eat.[1]

In a 2010 study of 133 Cambodian refugee females in Lowell, Massachusetts, refugees with previous food insecurity and deprivation in their home countries were more likely to be overweight or obese. The study measured food deprivation by looking at three periods in a typical Cambodian refugee's life: living under the Khmer Rouge, the Vietnamese invasion, and the refugee camps in Thailand. Under the Khmer Rouge, Cambodian refugees reported eating only rice soup twice a day, leading to many deaths from starvation and disease. Many also reported hunting for tadpoles, crickets, and frogs to eat, as well as eating grass and roots. The food scarcity was less severe during the Vietnamese invasion, but food and water were completely unavailable during the 2 to 3 day trip to the refugee camps in Thailand. In the refugee camps in Thailand, the study's participants reported that no one was starving, but food and water were still limited. After years of food deprivation, these Cambodian refugees were found to often binge-eat, and to prefer meats with high-fat content, as this had previously been a strategy to counteract starvation.[4]

This thought process can apply to other refugees, as many have had limited access to food throughout the years, causing them to overeat when food becomes more readily available upon resettlement in America, and to consequentially become obese. Furthermore, a

theoretical model has been proposed where refugee children may be metabolically predisposed towards energy conservation due to poor nutrition status. Because of constant starvation in their home country, refugees' bodies may adapt to this malnourished state by increasing their energy conservation. Therefore, when they are in a new environment with higher calorie foods, and increased access to food, refugee children may be predisposed to weight gain and thus, obesity.[1, 5] A 2009 study exploring this model highlights that nutrition education and prevention in the period where children are transitioning to a nutritionally abundant environment is crucial in preventing weight gain.[5]

Another important thing to keep in mind is that for some refugees, especially those from South Asia and sub-Saharan Africa, being overweight is a sign of wealth and success, while being thin is a sign of poverty and chronic illness.[6, 7] Thus, refugee parents may be unconcerned with their weight gain, such as the young Nepali girl and her mother. Some parents may even restrict their children's physical activity or tailor their food in order to promote weight gain in their children.

Methods of adjusting diet that refugee parents may use to promote weight gain in their children include increasing the dairy intake, eating take-out once or twice a week, and encouraging the increased consumption of meat, pasta, and sugary foods and drinks. Eating prepared foods and at restaurants is also associated with wealth and success in many cultures, which could lead to increased consumption of unhealthier, higher calorie foods. Another example is of an African refugee mother who bought her daughter McDonald's and stopped her daughter from attending school for an entire two weeks, in order to prevent her from losing more weight. This tailoring of their child's diet allowed parents to feel that they could maintain their cultural pride and expectations of traditional family members.

Furthermore, in Africa, a woman's size and shape is often linked to her prospect of getting married, as African men usually preferred to marry larger women. A thinner woman may not be able to marry her first choice, and even if she does marry, she may be expected to gain weight in order to fulfill her new husband's expectations. If she were unable to gain weight, her husband may divorce her for another woman or may marry a second wife. Thus, African refugees may prefer to be heavier, as it is more in line with their cultural standards.[7] Another factor noted by Moroccan refugee women resettled in Amsterdam was that many traditional clothing items look best on plumper, larger women, which encouraged women to gain weight and be bigger.[8]

An interesting thing to note is that even in industrialized countries, being overweight was viewed positively during the famine period after World War II, as those who were not wealthy lost weight due to food scarcity.[9] This further endorses the observation that refugees who come from less developed countries with less access to food view obesity as a positive trait, not a problem.

Acculturation also plays a role in weight gain in refugees, especially children and adolescents. When refugee children attend school or eat at their friends' homes, they are exposed to different types of food and may show preference for American foods due to a desire to assimilate. The American foods may be high-calorie and less healthy than the foods of their native culture that they would eat at home. Furthermore, the refugee children may reject traditional foods that their parents pack them for lunch, which eventually leads to their parents giving them money to buy lunch at school. The school lunch foods that children often buy may be high-calorie, but low-nutrition.[7] The Moroccan refugee women in Amsterdam noted that the dietary changes due to migration to a developed country were most prominent in children, who often abandoned traditional cuisine for Westernized foods, such as pizza and French fries. The children's preference for unhealthier Western foods led many mothers to serve these foods at dinner in order to accommodate their children.[8]

Additionally, because refugee children often learn English before their parents, they may have more input in what is bought at the grocery store than they would have in their home country, which can lead to the purchase of unhealthy foods, such as frozen pizzas and sugary cereals.[6] Furthermore, because of their ability to understand English and their attendance of English-speaking schools, parents may view their children as having more knowledge about healthy foods. This may lead to parents being more willing to accept their children's suggestions on what to eat, regardless of whether it is truly healthier or not.[7] Therefore, acculturation of children and adolescents can lead to a less healthy diet, resulting in weight gain in the refugee population.

In contrast, acculturation can also be a factor that leads refugees to try to lose weight. As the Western ideal body type is thin, the younger generations of refugees may be more inclined to lose weight, as it is more acceptable in Western culture. One of the factors noted by Moroccan refugee women in Amsterdam was that women would attempt to lose weight due to their desire to look better in Western clothing. Western social media largely fuels this desire, with television and movies broadcasting a thinner body as the ideal body type for women.[8] However, weight gain still seems to outweigh weight loss in the current refugee populations.

Many refugee cultures may also have a predisposition for poor diet choices, such as the Bhutanese using a significant amount of fat in their

cooking[2] or the Moroccans using greasy oils in their traditional dishes. When asked about their traditional cuisine, Moroccan refugee women in Amsterdam were proud of it and noted its importance to their culture. They also stated that their husbands often prefer traditional dishes and may pose resistance to their wives changing to healthier ingredients or preparation methods. While it may be difficult to make traditional cuisine healthier, participants of this study noted that they commonly snacked more on cookies, sweets, and crackers, as Western snacks were so readily available.[8] The increased amount of packed snacks in their diet could be a risk factor for weight gain in the refugee population.

However, in addition to cultural predisposition and prior habits, deficits in health literacy and knowledge are major factors in the poor food choices often seen in the refugee population after resettlement. Language and literacy have been found to play a role in the refugees' lack of understanding of nutrition and available foods. Refugees are often unfamiliar with the foods offered in their host country, leading to unfamiliarity with what foods are healthy and unhealthy. For example, the foods offered in a grocery store in America are often completely different from the food available in refugee camps in Nepal or Tanzania. This may be overwhelming for refugee families, which could cause them to eat fewer fruits and vegetables and more prepared foods due to familiarity, as well as cost and ease of preparation.[1]

Because many refugees are unable to read the food labels, they are unable to read what foods are and what they contain, in addition to already being unfamiliar with American foods. Furthermore, refugees who cannot read English may have trouble understanding handouts and educational pamphlets regarding diet, which are written in English. Lack of proper translation can also cause misunderstanding about diet and nutrition.[6] In the Bhutanese refugee population studied, the self-reported rate of being overweight and obese was only 7.8% compared to the BMI-measured rate of greater than 50%, indicating a lack of awareness in the population. This could be due to the aforementioned differences in body image perceptions, the lack of access to primary care, or low health literacy.[2] These deficits in comprehension, health literacy, and health knowledge may lead to poor food choices by the refugee populations in America.

Socioeconomic status is another important factor that leads to weight gain in refugees. Financial situation has a big influence on food choices, as refugees may have to pick between paying bills and rent versus paying for food. Often, refugees are forced to buy cheaper, energy-dense foods in order to be able to feed their families, rather than fresh produce. Many refugees must work multiple jobs in order to support themselves and their families, leaving less time for parents to be at home and prepare home-cooked meals. Many may not even have kitchens to cook meals in. Consequentially, this leads to refugee parents selecting fast foods, prepared foods, and overall, less healthy food choices that are high in calories, but are affordable and quick.[1, 6]

Morrocan refugees in Amsterdam also noticed that upon resettlement, there was a significant decrease in structure in their eating patterns, as different work schedules led to irregular meal times, with household members eating different things at different times. In addition, women who had previously not worked in their home countries were much busier, as they had to work upon resettlement, leading to less time to prepare healthy meals for their families. This was contrasted to their life in Morocco, where extended families lived close by and ate together and there was always at least one woman that would be home to cook for the family.[8] Their lack of time and money that is typical of their socioeconomic status upon resettlement is a significant barrier to a healthier diet in the refugee population.

In summary, overeating, cultural beliefs and habits, acculturation of the younger generations, poor food choices influenced by English proficiency, health literacy, and nutritional knowledge, and socioeconomic status have been identified as barriers to improving the diet of refugee populations, consequentially leading to unhealthy weight gain.

Fitness and Exercise

When advising the typical American patient on how to improve their overall health, physicians often use the phrase "diet and exercise." However, telling a refugee patient to exercise may not be as simple as telling them to go for a run outside, or to swim, or play a sport. In the Bhutanese female refugee population in Ohio, 73% of the participants reported having no regular physical activity, with only 25.7% of this group exercising for more than 20 minutes daily.[2] In many refugee populations, leisurely physical activity is not standard, especially for women; therefore, they may not perform any physical activity that is unrelated to daily living tasks. Many have little to no understanding of the concepts of fitness and sports, and may have had little to no exposure to any leisurely physical activities.[8]

An interesting point brought up by a 2001 study of Korean immigrant women in America was that they differentiate physical activity from exercise. Physical activity could include things like performing bodily functions, eating, or even just breathing. However, exercise was noted to be an intentional, conscious physical activity such as biking, swimming, tennis, or aerobic dance, and was regarded as a social activity and form of entertainment.[10] This differentiation between physical activity and exercise was also noted in a 2008

study that interviewed women from Chile, Iraq, and Turkey who had immigrated to Sweden. Here, the women stated that physical activity included any movement they did in their daily life, while exercise required arranging and more structure and was more physically demanding.[11] Therefore, it is important to understand as a health care provider that a refugee's definition of physical activity may be different from that of a provider. Furthermore, many cultures may view sports or exercise as a useless endeavor and a waste of time, as there is no concrete outcome like there is with farming or cleaning.[7]

Another important factor to think about is safety when encouraging refugee patients to walk or run outside. Due to often being resettled in disadvantaged neighborhoods with higher crime rates, parents may be concerned about both their child's and their own safety at a local public park, or even outside in their own neighborhoods.[7, 11] Cramped housing and parental concerns about crimes and gangs leads to a more sedentary lifestyle of the children, as they cannot just go outside and play by themselves.[1] Refugee parents have also been reported to restrict their children's participation in sports in order to promote weight gain. Fathers especially worried that playing sports may lead to weight loss and decreased softness of the body.[7]

In addition, many mothers may be far too busy with household chores, caring for their children, and working to participate in leisurely exercise.[12] Many refugee and immigrant women were housewives prior to coming to America, but upon resettlement, they must also work outside the home to help support their families. This leads many refugee women to be overworked, which does not leave them any time to exercise. Unless they have strong local social support from family and friends, they are often unable to find someone to provide childcare for their children, which is a barrier to exercise in this population. Most patriarchal cultures also believe that women should save their time and energy for childbearing and womanly and motherly duties, which discourages the participation of women in sports and exercise.[10] This belief was further endorsed by the 2008 Swedish study where the participants reported that it was not considered proper for married women and mothers to exercise because it reduced time for their home and family life, and could jeopardize their fertility.[11]

Refugee women in particular may not know how to bike or swim, as it was not custom in their country. For some, their culture does not endorse activities like fitness classes or swimming. Some also believe that their religion of Islam discourages the mixing of genders in fitness and sports facilities. As there are few female-exclusive activities in public fitness centers, options are limited for Islamic women who wish to participate in physical activity. Furthermore, in their home countries, they walked more and activities of daily living such as laundry required more physical labor; with easy access to cars, public transit, and washing machines in America, women do less physical activity in their chores and daily activities, leading to an increased need for exercise.[8]

A 2012 study looking at appropriate physical activity and nutritional education for refugee and immigrant women designed a program of two 90-minute classes a week for 6 weeks and included 45 refugee women of Hispanic, Somali, Cambodian, and African origin. Each class was divided into 60 minutes of a fitness activity and 30 minutes of nutrition education. In this program, the participants noted dance classes as the most appealing form of exercise, especially with music from different cultures at different sessions. The participants also noted that to be culturally sensitive, it was important that the exercise area was exclusive to only women, without men nearby, as that would deter many refugee women from attending. The women in this study demonstrated a significant amount of progress in their physical activity level, diet, and overall health, with improvement in weight, BMI, waist circumference, blood pressure, and self-efficacy. The study theorized that the social aspect of the program and the opportunity to connect with other immigrant and refugee women of low socioeconomic status with little English proficiency were major factors in the continued interest and participation. Another part of the program was that it provided childcare for the children of participants, which helped the women in two ways: taking the responsibility of childcare away for the 90 minutes, and the children would encourage their mothers to go in order to participate in the childcare activities such as soccer. The program was able to effectively improve the physical activity level of the participants by providing a safe, female-only space for women to exercise and free childcare that decreased the burden and stress of the women, allowing them to participate in leisurely physical activity. The main conclusion of this study was that fitness and nutrition interventions targeting specific groups, rather than general interventions, would be more successful.[12]

The model that was constructed from the 2008 Swedish study divided enabling exercise in the female immigrant population into two categories: arranging exercise and appropriate exercise. These were further divided into 3 subcategories, with arranging exercise including organizing, planning, and instructing, and appropriate exercise including suitable, pleasant, and proper exercise. The women in the study noted that they had tried to exercise on their own, but failed without an official, structured activity and without an instructor, as they were unfamiliar with how to exercise. When they were referred to exercise classes, some of the women did

not understand that their time was limited, and disliked that the arranged times conflicted with their duties at home. Furthermore, they noted that they were told by their doctor to swim, but they did not know how to swim and the public pools did not host any women-only hours. Therefore, the logistics and arrangement were major barriers for women in establishing regular exercise. Many of the women also felt that there was no appropriate exercise offered, as they did not feel comfortable going to a gym by themselves. Most of the women felt that biking, gymnastics, and swimming were suitable, pleasant, and appropriate for their culture. Another important note from the Iraqi women was that it was sinful for the women to work out with the men behind them watching. Therefore, in gender-mixed activities, it was important that the men were standing in front, and the women were in the back. Overall, the study concluded that if there was neither arranged nor appropriate exercise, the women usually abstained from exercising.[11]

Although there are many exercise and fitness centers in America, immigrant and refugee women often do not have access to these facilities due to being overworked, their busy daily lives, lack of childcare and social support, financial issues, and lack of English proficiency.[10] Furthermore, there is a lack of exercise options at these facilities that are culturally appropriate for many of the refugee populations, which is a significant barrier to regular exercise.

Conclusion

Diet and exercise have been shown to be two major factors in weight gain in the refugee population. This weight gain is significant due to its link to increasing rates of comorbid disease. Immigrants and refugees often arrive in America with healthier cardiovascular risk profiles than the general American population. However, the longer they live in the U.S., the more their profiles begin to resemble the general population, with increasing rates of obesity, hypertension, diabetes, hyperlipidemia, and cardiovascular disease.[12] Socioeconomic vulnerabilities and the high rates of obesity and cardiometabolic disease indicate that culturally and linguistically appropriate health interventions early in a refugee's resettlement are crucial.[2]

By intervening at the beginning of the refugees' resettlement period, health care providers will hopefully be able to improve their patients' diets and increase their level of physical activity. However, this is much more easily said than done with the refugee population, due to the need for both language-appropriate and culture-appropriate interventions. When addressing diet changes for refugees, it is important to be mindful of a patient's past. If they have been faced with starvation for long periods in their past, telling them that they need to eat less may not be the most effective way to prevent their overeating. Instead, it may be better to listen to and talk about their experiences, and sensitively explain that food is now more easily available and that some food choices are better than others.[4] Furthermore, it is crucial to not try to change their diet completely, as traditional foods are an important part of their culture and identity. Perhaps it would be more effective to suggest small ingredient changes that would make their traditional cuisine healthier,[12] such as substituting olive oil for fat when cooking. It may also be effective to highlight and compliment the healthy parts of their traditional diet and encourage them to eat more of those foods.[8] Lastly, it could be helpful to discuss portions and the suggested division of one's plate as suggested by the USDA Dietary Guidelines, using the help of visual aids specific to a patient's native language (Appendix). In order to effectively improve a refugee's diet, it is vital to be culturally sensitive and language appropriate as opposed to simply recommending the same dietary changes providers often recommend to English-speaking, American-born patients.

When addressing fitness and exercise, it is important to remember to recommend feasible, culturally sensitive exercise activities. It would be beneficial to know if a patient feels comfortable being in a bathing suit before recommending them to swim for exercise. When recommending a gym, providers should ask if the patient wants a gym that offers female-only classes or if they need free childcare or even what types of activities they view as interesting and appropriate. Lastly, if a patient returns to their follow-up without any progress in physical activity level, it is important to explore their barriers to exercise and to be understanding and sympathetic, as their financial situation, work life, and home life may be more difficult than perceived. In conclusion, fitness and nutrition interventions in the refugee population should be tailored to the patient's culture and language, as they will likely be more effective than interventions commonly given to the general American population.

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Appendix: Visual Aids in Spanish, French, Dari, Nepali, and Swahili for How to Eat Healthy: Portioning Your Plate

How to Eat Healthy: Portioning Your Plate

½ plate vegetables

¼ plate protein

¼ plate grains

Vegetables		Protein		Grains	
	Broccoli		Salmon		Whole wheat pasta
	Eggplant		Tofu		Brown rice
	Lettuce		Chicken		Wheat bread
	Carrots		Beans		Yams
	Asparagus		Eggs		Potatoes

Spanish/Espanol

Cómo comer sano: Porcionado su plato

½ plate vegetables (½ plato de verduras)

¼ plate protein (¼ plato de proteínas)

¼ plate grains (¼ plato de granos)

Vegetables/Vegetales	Protein/Proteína	Grains/Granos
 Broccoli **Brócoli**	 Salmon **Salmón**	 Whole wheat pasta **Pasta de trigo integral**
 Eggplant **Berenjena**	 Tofu **Tofu**	 Brown rice **Arroz integral**
 Lettuce **Lechuga**	 Chicken **Pollo**	 Wheat bread **Pan de trigo**
 Carrots **Zanahorias**	 Beans **Frijoles**	 Yams **Batatas**
 Asparagus **Espárragos**	 Eggs **Huevos**	 Potatoes **Patatas**

French/Français

Comment manger sain: Portionnement votre assiette

½ plate vegetables (½ assiette de légumes)

¼ plate protein (¼ plaque de protéines)

¼ plate grains (¼ plaque de grains)

Vegetables/Les Légume

Broccoli
Brocoli

Eggplant
Aubergine

Lettuce
Salade

Carrots
Carottes

Asparagus
Asperges

Protein/Protéine

Salmon
Saumon

Tofu
Tofu

Chicken
Poulet

Beans
des haricots

Eggs
des oeufs

Grains/Les grains

Whole wheat pasta
Pâte de blé complet

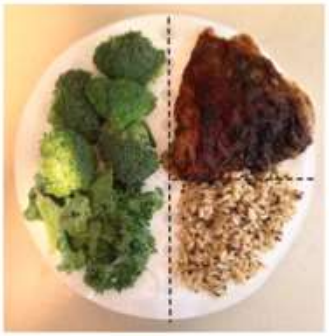
Brown rice
Riz brun

Wheat bread
Pain de blé

Yams
Ignames

Potatoes
Patates

را خود صفحه بندی بخش :سالم خوردن به چگونه



½ plate vegetables (½ باقی بخش جات بزی س)

¼ plate protein (¼ حه صف نی ئی تو پر)

¼ plate grains (¼ باقی بخش دانه)

Vegetables/س بزی جات	Protein/پروتی ئی ین	Grains/دا دانه
 Broccoli بروکلی کلم	 Salmon سالمون ماهی	 Whole wheat pasta کامل گندم ماکارونی
 Eggplant بادمجان	 Tofu توفو	 Brown rice ای قهوه برنج
 Lettuce کاهو	 Chicken چوجه مرغ	 Wheat bread نان گندم
 Carrots هویج ها	 Beans سیب لوبیا	 Yams شیرین زمینی
 Asparagus مارچوبه	 Eggs تخم مرغ	 Potatoes زمینی سیب

Nepali/ **नेपाली**

कसरी स्वस्थ खान: तपाईको प्लेट वभिाजन

½ plate vegetables (½ तरकारी को प्लेट)

¼ plate protein (¼ प्रोटनिको प्लेट)

¼ plate grains (¼ अनाज को प्लेट)

Vegetables/तरकारी		Protein/प्रोटनि		Grains/अनाज	
	Broccoli ब्रोकोली		Salmon माछा		Whole wheat pasta सारा गहुँ चाउचाउ
	Eggplant बैगुन		Tofu टोफु		Brown rice खैरो चामल
	Lettuce सलाद		Chicken चकिन		Wheat bread गहुँ रोटी
	Carrots गाजर		Beans सर्मी		Yams मीठो आलु
	Asparagus नगिालो		Eggs अन्डा		Potatoes आलु

Swahili/Swahili

Jinsi ya kula afya: Kugawa sahani yako

½ plate vegetables (½ sahani ya mboga mboga)

¼ plate protein (¼ sahani ya protini)

¼ plate grains (¼ sahani ya nafaka)

Vegetables/Mboga	Protein/Protini	Grains/Nafaka
 Broccoli **Broccoli**	 Salmon **Samaki**	 Whole wheat pasta **Ngano nzima pasta**
 Eggplant **Mbilingani**	 Tofu **Tofu**	 Brown rice **Pilau**
 Lettuce **Saladi**	 Chicken **Kuku**	 Wheat bread **Mkate wa ngano**
 Carrots **Karoti**	 Beans **Maharage**	 Yams **Viazi vitamu**
 Asparagus **Asparaga**	 Eggs **Mayai**	 Potatoes **Viazi**