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Robert William Contino Date

Perceptions of Diabetes, Hypertension, Healthy Eating, and Physical Activity within the Bhutanese Refugee Community Living In Metro Atlanta

By

Robert William Contino
Degree to be awarded: Master of Public Health

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# Perceptions of Diabetes, Hypertension, Healthy Eating, and Physical Activity within the Bhutanese Refugee Community Living In Metro Atlanta

By

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B.S.
University of Richmond
2007

Thesis Committee Chair: Monique Hennink, Ph.D.

An abstract of
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# Abstract


Perceptions of Diabetes, Hypertension, Healthy Eating, and Physical Activity within the Bhutanese Refugee Community Living In Metro Atlanta

By Robert William Contino

**Background:** In 2006 the U.S. government agreed to the resettlement of 60 of the 107 thousand Bhutanese refugees living in UN refugee camps in Nepal. As of 2011, over five thousand have resettled in Metro Atlanta. A recent retrospective chart review of Bhutanese patients from an Atlanta-based primary care clinic demonstrated a high prevalence of chronic diseases. This finding, paired with the expressed concerns from a group of Bhutanese community leaders living in Atlanta about this issue provides the motivation for a community-based chronic disease prevention initiative. However, to be effective, health promotion activities and messages must be culturally tailored, done with an understanding of the meaning attached to certain behaviors and conditions, and congruent with community norms, understanding, and values.

**Purpose**: The purpose of this study was to explore the beliefs and perceptions of diabetes, hypertension, healthy eating, and physical activity among the Bhutanese refugee community living in Metro Atlanta with the plan to use this information to design future chronic disease prevention initiatives.

**Methods:** We performed a qualitative study using focus groups and key informant interviews.

**Results:** We found that younger individuals had a basic understanding of diabetes and hypertension, while older refugees expressed knowing little about these diseases. All participants emphasized the acute symptoms associated with each illness, however had poor understanding of the insidious nature of diabetes and hypertension. Bitter foods (e.g. bitter gourd) was a commonly cited treatment for both diabetes and hypertension. Beliefs about what constitutes healthy eating and physical activity were generally consistent with the biomedical understanding. Numerous barriers to healthy eating and physical activity, however, were described, including: time, family tradition, social motivation, and neighborhood safety.

**Public Health Implications:** Future public health initiatives within this community should take into consideration the unique refugee experience of the Bhutanese people, their collectivistic values, their use of herbal preparations, belief about importance of traditional eating habits, and unfamiliarity with the paradigm of chronic disease.

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**Table of Contents**

# Chapter 1: Introduction

*Problem Statement*

In 2006 the United States government agreed to the resettlement of 60,000 of the 107,000 Bhutanese refugees living in UN refugee camps in Nepal. As of 2009, 18,772 Bhutanese refugees have arrived in the United States, resettling in areas such as Texas, New York, Georgia, Arizona, Pennsylvania, and California (United States Department of Homeland Security, 2010)); (United Nations High Commissioner for Refugees, 2009). Approximately 5,500 have resettled in Georgia, the majority taking residence in communities in and around Metro Atlanta (U.S. Department of Health and Human Services, 2010); (BCG, 2011) .

The majority of Bhutanese refugees belong to an ethnic Nepalese minority group, known as the Lhotsampas ("People of the South)." In the late 19th century, the Lhotsampa people emigrated from Nepal to Southern Bhutan bringing with them a culture, language and Hindu faith that differed markedly from the politically dominant Buddhist Drukpa majority. Nearly a century after their arrival, due to concerns that their growing number and influence presented a threat to the nation's Bhuddhist identity, the Lhotsampas were forcibly expelled from Bhutan by the ruling monarchy in 1990. Over 20 years later the conflict remains unresolved, making it one of the most protracted refugee situations in the world (U.S. Bureau of Population Refugees and Migration, 2011)

With the inability to leave camps to search for work, the Lhotsampa people were forced into a state of dependence upon the international community for food, shelter,

clothing, medical care, and education. Conditions in the refugee camps, however, were reportedly poor. A recent joint WHO-UNHCR evaluation of the Nepali camps revealed a high prevalence of food insecurity, sexual and gender-related violence, mental illness, micronutrient deficiencies, and infectious diseases. Access to quality health care was also severely limited (Brennan, Bilukha, Bosmans, Dahal, & Jha, 2005).

Data concerning the current health status of recently resettled Bhutanese refugees is sparse. However, a recent retrospective study of Bhutanese patients receiving care at outpatient clinic in Atlanta demonstrated a relatively high prevalence of chronic diseases (Kumar et al., 2011). Of the 66 medical charts reviewed, 59% of patients had at least one of the following: diabetes, overweight, obesity, and hypertension. Specifically, 42% of patients were overweight, 9% were obese, 23% had hypertension, and 14% had diabetes. The prevalence of overweight, obesity and diabetes was significantly greater than that of their host Nepalese population.

The relatively high prevalence of chronic diseases among resettled Bhutanese refugees is likely the result of the mixing of genetics (Misra and Khurana, 2009), camp conditions and traditional Lhotsampa culture. As evidenced by the common Nepali greeting "*Bhaat khaayo"* ("Have you eaten rice?"), rice is a fundamental component of Nepali culture. Children are introduced to solid foods at the age of 6 months with an official rice eating ceremony, known as *Pasne*. Due to its cultural meaning and relative abundance, the Lhotsampa diet in Bhutan consisted mainly of this staple food. However, meals also contained a rich diversity of homegrown fruits, vegetables, and dairy products. As Lhotsampa society was largely agrarian, this high calorie, high starch diet was met

with the appropriate level of physical activity to prevent weight gain and consequent disease.

Due to limited resources and the inability to work, Lhotsampa refugees living in Nepali camps relied on food rations consisting mainly of rice and lentils. Fruits and vegetables were supplied on an inconsistent basis, while eggs and dairy products were largely unavailable due to their high costs in nearby Nepali markets. The limited food diversity paired with the cultural significance of rice, resulted in high calorie diets containing limited amounts of micronutrients. Moreover, refugee camps were reportedly overcrowded, providing little opportunity for significant physical activity (Brennan, et al., 2005).

In addition to environmental change and cultural practices, previous work suggests that the metabolic profile of Bhutanese refugees places them at higher risk of developing chronic diseases. Research has demonstrated, for example, that South Asians are at higher risk of developing diabetes and cardiovascular disease at lower body mass indices compared to other ethnic groups. Evidence suggests that this phenomenon is due to the metabolic tendency of South Asians to distribute fat within the liver and along truncal subcutaneous areas, both of which are associated with a higher risk of insulin resistance and pro-inflammatory states that elevate cardiovascular risk (Misra & Khurana, 2009). In addition to being at a higher risk for diabetes, South Asians with diabetes are more likely, compared to other ethnic groups, to develop complications from this illness, particularly cardiovascular disease and renal disease (Mather, Chatuvedi, & Fuller, 1998); (Burden, McNally, Feehally, & Wallis, 1992). Therefore, the manner in which Bhutanese refugees process and distribute calories that accumulate due to

excessive rice consumption with limited opportunities for physical activity appears to constitutes another factor contributing to the high prevalence of chronic diseases among this population.

This high prevalence of chronic disease has been reported among other refugee populations that have resettled in the United States—specifically, those from Somalia, Cuba, Burma, Bosnia, Cambodia, Vietnam and Hmong Shamans. Some of this is thought to be due to the high rates of chronic diseases in the refugees' country of origin (Dookeran, Battaglia, Cochran, & Geltman, 2010), which is likely explained by the well-described epidemiologic transition occurring in both the developed and the undeveloped world (Omran, 1971). Behavioral risk factors for chronic diseases, such as physical inactivity, smoking, and alcohol consumption are also reportedly high among recently resettled refugee populations (Barnes, Harrison, & Heneghan, 2004). Acting via multiple mechanisms, the process of immigrant acculturation to the values and behaviors of Western society is associated with an increased prevalence of chronic illnesses (Palinkas & Pickwell, 1995); (Kandula et al., 2008); (Mooteri, Petersen, Dagubati, & Pai, 2004). Additionally, low socioeconomic status, a situation experienced by most refugee families, is independently associated with higher rates of chronic illness (Robert, 1998); (Freedman, Grafova, & Rogowski, 2011).

Refugee groups may also be especially vulnerable to the development of chronic diseases due to the relatively high prevalence of mental illness within these communities. Past experiences of war, socioeconomic marginalization, trauma and/or torture, as well as the current stressors of adjusting to life in a new culture with limited social support and high rates of unemployment, all contribute to the high rate of mental illness among

refugees (Kinzie et al., 2008). A survey of mental health among Bhutanese refugees in Nepal demonstrated a 31% prevalence rate of somatoform/pain disorders, 25% prevalence of PTSD, 8% prevalence of dissociative disorders, 4% prevalence of anxiety disorders, and 2% prevalence of depression (Mills, Singh, Roach, & Chong, 2008). Mental illness is associated with an increased prevalence of chronic diseases. Evidence supports that such disorders precipitate chronic disease, and that chronic disease exacerbates the symptoms of mental illness (Chapman, Perry, & Strine, 2005). Thus, a dangerous cycle initiated by the refugee experience exists also helps to explain the relatively high prevalence of chronic disease among these groups.

In sum, the health of Bhutanese refugees that have recently resettled in the United States is particularly vulnerable, in part due to the high prevalence of chronic disease among this population. The collision between the conditions under which refugees have lived for the past 20 years with deeply rooted cultural practices and metabolic tendencies somewhat responsible for the problem. Given the evidence from other refugee and immigrant groups and the increased susceptibility of South Asians to develop diabetes and complications from the illness, the problem is projected to worsen without any intervention. This provides the motivation for a community-based chronic disease preventative initiative among this group of newly resettled refugees in the US.

Similar chronic disease prevention efforts have been undertaken in other immigrant communities living in the United States. One of the lessons that can be learned from these prior initiatives is that, to be effective, health promotion activities and messages must be culturally tailored, done with an understanding of the meaning attached to certain behaviors and conditions, and congruent with community norms,

understanding, and values. As many of these communities do not view health and illness through the lens of Western biomedicine, others have emphasized that culturally relevant services must "rest on an understanding of the cultural group's worldview, communication patterns, family dynamics, support networks, rules that govern behavior, including help seeking, the meaning of religious rites, gender roles, and roles assumed in times of trouble" (Leigh 1998, as cited in Grigg-Saito et al. 2008).

Parry (1985) asserts that culture determines what people perceive to be an illness and the remedy they seek in response. Likewise, ideas concerning health promotion and illness prevention, including the roles of dietary habits and physical activity, are also defined and understood within a specific cultural framework. For constructive health promotion communication to occur within the Bhutanese community, the *emic* (i.e. "cultural insider[1]") perspective on illness and health promotion must first be understood.

*Purpose Statement*

The purpose of this study is to explore the health and illness beliefs, specifically focusing on beliefs about diabetes and hypertension, among Bhutanese refugees in the US. Additionally, this study will develop our understanding of what this group believes as being healthy eating and physical activity habits, including perceived benefits and barriers to eating healthy foods and achieving routine physical activity.

[1] For further discussion about the emic perspective see Headland, 1990)

*Research Questions*

The questions driving the current investigation are as follows:

1. What do Bhutanese immigrants in the U.S. understand and believe about diabetes and hypertension?
2. What do Bhutanese immigrants living in the U.S. perceive as a healthy diet and level of physical activity?
3. What do Bhutanese immigrants living in the U.S. perceive as the benefits and barriers to healthy eating and routine physical activity?

*Significance Statement*

The findings from this investigation will be used to develop a culturally relevant chronic disease prevention initiative. The results will also be used to inform health care providers caring for Bhutanese patients both within the Grady Health System in Atlanta and in other settings around the world of specific beliefs, practices, traditions, and structural challenges that, taken together, influence the well-being of this particular community.

*Definition of Terms*

1. Bhutanese refugee- A former resident of Bhutan forced to flee his or her country out of a well-founded fear of persecution on the account of race, religion, nationality, or political opinion.
2. Diabetes- A chronic metabolic disease resulting in consistently elevated blood glucose due to insulin resistance.
3. Hypertension-A chronic medical disease characterized by a persistent elevation in systolic and/or diastolic blood pressure, often of unknown origin.
4. Healthy eating-A well-balanced diet of appropriate caloric value, rich in vegetables, fruit, fiber, and low-fat dairy products, and low in *trans* fats, saturated fats, and cholesterol.
5. Routine physical activity- 75 to 150 minuets of moderate-vigorous aerobic activity per week with concomitant muscle-strengthening activities on 2 or more days per week.

## Chapter 2: Literature Review

The literature is rich with studies that have explored the perceptions, beliefs and understandings of diabetes and hypertension, healthy eating and physical activity practices amongst various Western and non-Western ethnic groups. As the subject is currently unexplored within the Bhutanese refugee community, this chapter will focus on reviewing studies that have investigated either illness beliefs regarding diabetes and hypertension, or perceptions of healthy eating and physical activities within populations that are similar to Bhutanese refugees—that being studies that have been performed among immigrants of Asian descent and/or among resettled refugee communities.

Studies that have explored illness beliefs about diabetes among immigrants of Asian descent will be presented first and followed by those that have explored beliefs about hypertension among this ethnic group. To provide a more complete review, for both diabetes and hypertension one study that has explored illness beliefs in a well-defined ethnic group from North America is also included. Next, research that has examined beliefs about healthy eating and physical activity, including their perceived benefits and their barriers, will be presented. As a number of these investigations have been completed among refugee communities they will be reviewed first and followed by similar studies done among groups of Asian descent.

*Diabetes Illness Beliefs*

Our literature search identified five studies (Washington & Wang-Letzkus, 2009); (Jayne & Rankin, 2001); (Meetoo & Meetoo, 2005); (Helsel, Mochel, & Bauer, 2005); (Greenhalgh, Helman, & Chowdhury, 1998) that investigated the topic of diabetes illness beliefs among Asian immigrants living in Western countries, and one review paper (Hatcher & Whittemore, 2006) of 15 studies that explored this topic among Hispanic adults living in the United States. Two studies (Washington & Wang-Letzkus, 2009); (Jayne & Rankin, 2001) were performed within two different Chinese immigrant communities living in California and utilized in-depth interviews among people living with diabetes to understand their illness beliefs. Two other studies, both using semi-structured interviews, were performed in the United Kingdom—one among a diverse group of immigrants with diabetes from South East Asia (Meetoo & Meetoo, 2005) and another among immigrants with diabetes from Bangladesh (Greenhalgh, et al., 1998). The final study (Helsel, et al., 2005) used in-depth-interviews to explore the illness beliefs among Hmong shamans with diabetes living in California.

It is important to note that all six studies were performed among groups with diabetes. Only three of the studies (Washington & Wang-Letzkus, 2009); (Jayne & Rankin, 2001); (Greenhalgh, et al., 1998) provided details regarding the length of time participants had been in the Western country and/or some indication about their level of acculturation to Western culture. This is an important detail given the known positive association between the length of time since immigration and level of acculturation to

Western culture with health-related behaviors (Koya & Egede, 2007) and risk of diabetes (Kandula, et al., 2008). Participants in these three studies were all first generation immigrants and deemed to be relatively unacculturated to life in Western culture.

When these six studies of diabetes beliefs are considered in aggregate, the following themes emerge: risk factor beliefs, etiologic beliefs, pathophysiologic beliefs, expected course/outcomes, and beliefs about effective treatments.

*Risk Factors*

All six studies identified poor dietary habits as an important risk factor for diabetes. However, there were a variety of opinions about what specifically constitutes poor dietary habits. Hispanic Americans (Hatcher & Whittemore, 2006) referred to diets high in fat as an important risk factor. Chinese immigrants in Washington and Wang-Letzkus (2009) and Bangladeshi participants (Greenhalgh, et al., 1998) both identified high sugar diets as a risk factor, and consuming too much food was cited by Chinese participants in Jayne and Rankin (2001). Chinese participants in this study also voiced that eating foods at irregular time intervals increased one's risk of developing diabetes. Hmong Shamens (Helsel, et al., 2005) were unique in their opinion that eating foods containing pesticides as an important risk factor for the illness. Notably, no participants explicitly identified physical inactivity as a risk factor for diabetes.

Perhaps more important than dietary habits, however, was the perceived causal role of stress, noted in five of the six studies reviewed here. Hispanic patients pointed to the ability of *susto*, or well-defined, strong emotional experiences. The diverse group of South Asians in Meetoo and Meetoo (2005) referred to the stressors of immigration, employment, and living with limited familial and communal support in a new culture as

causes of diabetes. Similarly, Bangladeshi patients cited the stressors of poor housing, economic difficulties and crime as causes of their disease.

Heredity was also an important cause described by most participants. However, as revealed by Hatcher and Whitemorre (2006), there is often some variability in how participants understand heredity. In their review of Hispanic patients, for example, they found that many believed that their children's risk of developing diabetes was linked to how well they, as parents, controlled their own disease. Although such notions were unexplored among Chinese and South Asian participants, it is possible that similar views exist. Other less commonly mentioned causes of diabetes identified were previous medications (Helsel, et al., 2005), viral infection (Meetoo & Meetoo, 2005), and pregnancy (Meetoo & Meetoo, 2005); (Helsel, et al., 2005).

*Pathophysiology*

Only Bangledeshi participants offered a pathophysiologic explanation of diabetes, which centered on the idea of balancing food intake with the emission of bodily fluids, such as sweat and urine. The excessive loss of bodily fluids, they reasoned, results in the weakening of the body and the development of diabetes. This led to the belief that to control diabetes, one should eat small frequent meals of rice and biscuits, and reduce bodily emissions, such as through the prevention of sweating by avoiding physical activity.

*Expected Course*

Hispanic and South Asian participants in Meetoo and Meetoo (2005) discussed the role of divine influence in determining course of their illness. However, the

implications of this varied—in the former, this belief lead to fatalistic notions of health, while in the latter it provided a sense of hope.

Hispanic, South Asian, and Bangladeshi participants also discussed concern about the complications of poorly controlled diabetes, specifically mentioning blindness, kidney disease and limb amputations as feared sequela. Chinese immigrants in both studies (Washington & Wang-Letzkus, 2009); (Jayne & Rankin, 2001), alternatively, did not view diabetes as something to be feared because of the little effect the illness had on their perceived state of well-being.

*Treatment*

Ideas about effective treatments also contained many similarities. Most groups (Hatcher & Whittemore, 2006); (Washington & Wang-Letzkus, 2009); (Jayne & Rankin, 2001) considered medications to be important, with particular emphasis placed on home, herbal-based remedies. Beliefs about the importance of herbal medicines was described in all studies study with the exception of that of Bangladeshi participants (Greenlaugh et al. 1998). In particular, Chinese participants in Washington and Wang-Letzkus (2009) were able to identify 21 different herbal preparations effective in controlling blood glucose. Southeast Asian (Meetoo & Meetoo, 2005) specifically identified *karella* (bitter gourd), grapefruit juice, and okra as effective in controlling diabetes. Although Hmong Shamans (Helsel, et al., 2005) viewed herbal preparations as important in the management of their illness, they noted that such medications were only necessary when someone felt sick.

The importance of Western medicine in the management of diabetes varied according to ethnic group. Hispanic Americans (Hatcher & Whittemore, 2006) and

Southeast Asian immigrants (Meetoo & Meetoo, 2005) described the importance of physician prescribed medicines and routine visits to the doctor for the management of diabetes. Alternatively, Hmong Shamans viewed western medicine as unnecessary as long as they were not feeling ill (Helsel et al. 2005). Western medications were mentioned as important only briefly among Chinese immigrants (Jayne and Rankin, 2001); (Washington and Wang-Letzkus's, 2009), and not mentioned in Greenhalgh and colleagues' (1998) study of Bangladeshi immigrants.

*Hypertension Illness Beliefs*

Our literature review identified six studies that investigated hypertension beliefs among South Asian immigrant communities living in Western countries (Ton et al., 2011); (dela Cruz & Galang, 2008); (Pham, Rosenthal, & Diamond, 1999); (Changrani et al., 2011); (Wong, Mouanoutoua, Chen, Gray, & Tseng, 2005); (Han, Kim, Kang, Jeong, & Kim, 2007). One additional study of hypertension beliefs completed among an African American community living in New Orleans was also found (Hueurtin-Roberts & Reisin, 1990). All studies performed among South Asian communities with the exception of two (Wong, et al., 2005); (Han, et al., 2007) utilized focus groups to elicit illness beliefs. The study performed among African Americans (Hueurtin-Roberts & Reisin, 1990) used personal interviews with a standardized questionnaire. Like the above review of diabetes illness beliefs, four of the seven investigations (Hueurtin-Roberts & Reisin, 1990); (dela Cruz & Galang, 2008); (Wong, et al., 2005); (Han, et al., 2007) included only participants that had been diagnosed with hypertension.

Similar to the above review of diabetes beliefs, when these seven studies of hypertension beliefs are considered in aggregate, the following themes emerge: risk factor/etiologic beliefs, pathophysiologic beliefs, prevention, expected course/outcomes, and beliefs about effective treatments.

*Risk Factors/Etiology*

Participants in all studies with the exception of Wong et al. (2005) describe high fat, high salt diets and limited physical activity as important risk factors for the development of hypertension. Filipino Americans (dela Cruz & Galang, 2008) further described the use to alcohol, tobacco, and a strong family history as key risk factors. Hmong immigrants were unique in their identification of pesticides in food as a risk factor for hypertension (Wong, et al., 2005). Stress was mentioned as a direct cause of hypertension in four studies (Hueurtin-Roberts & Reisin, 1990); (Ton, et al., 2011); (dela Cruz & Galang, 2008); (Changrani, et al., 2011), with most of the specific stressors identified having to do with the immigration process, including adjusting to life in a new culture, the disruption of traditional value systems, experienced discrimination, and the need to work multiple, low-paying jobs. Along similar lines, the inability to express one's own opinions and feelings was cited by Chinese, Korean, and Vietnamese immigrants as a cause of hypertension (Ton, et al., 2011).

*Pathophysiology*

Multiple groups offered pathophysiologic explanations for how high blood pressure develops over time. Vietnamese participants believed hypertension to be the result of frozen blood, specifically "fat that freezes [can] surround the heart [and] affect the blood vessels" resulting in disease (Ton, et al., 2011). Korean groups mentioned that

introverted personalities, poor motivation, and the inability to express one's feelings cause the heart to beat irregularly and thereby lead to elevated blood pressure (Ton, et al., 2011). Filipino immigrant (dela Cruz & Galang, 2008)s contributed the following pathophysiologic explanation which combines the medical understanding of osmosis with the Eastern concepts of *ying-yang* (balance) and *qi* (vital energy flow) notions of proper balance:

> "Salt attracts water and you do not sweat here [in the U.S.]. In the Philippines, we eat salt but we sweat there because of the weather. In the U.S., you eat salty foods, stay in air-conditioned room, do not exercise, and you work in a sedentary job. You don't sweat so the salt keeps on retaining water [contributing to hypertension]" (p.122).

*Prevention*

The concept of prevention was explicitly explored among Chinese, Korean, Vietnamese (Ton et al. 2011), Bangladeshi, Pakistani (Changrani et al. 2011) and Hmong participants (Wong et al. 2005). Chinese, Korean, and Vietnamese immigrants all held that diet and exercise could prevent illness. Similarly, Bangladeshi participants identified that diets low in fats and sweets can prevent the illness. Pakistani and Hmong immigrants, alternatively, viewed hypertension as unavoidable if it was a part of one's personal destiny.

*Expected Course/Outcomes*

Three of the studies identified hypertension as a chronic, life-long illness that often exists without overt signs and symptoms (dela Cruz & Galang, 2008); (Wong, et al., 2005); (Han, et al., 2007). Blurry vision, generalized discomfort, dizziness (Ton, et

al., 2011), kidney disease, coma (dela Cruz & Galang, 2008), blood vessel damage (Han, et al., 2007), stroke and heart attack (Wong, et al., 2005) were all mentioned as consequences of high blood pressure.

*Treatments*

The treatments sought were generally related to beliefs about causality. African Americans viewing high blood pressure as the result of stress or tension, for example, sought relaxation techniques as a remedy (Hueurtin-Roberts & Reisin, 1990). Most participants with hypertension, however, used a combination of prescription drugs and traditional folk medicine, that included lemon juice, vinegar, garlic water (Hueurtin-Roberts & Reisin, 1990), herbal teas to acupuncture and whole body massage. Vietnamese (Pham et al. 1999) and Hmong (Wong et al. 2005) participants noted that Western medicines are "strong" compared to traditional herbal remedies. Beliefs about consequences of this strength, however, differed between the two groups. The former cited this strength as necessary for cure, while the latter noted that this quality resulted in more harmful side effects.

*Beliefs Regarding Healthy Eating and Physical Activity*

This review identified five studies that investigated healthy eating and physical activity beliefs. Three of these studies were performed among refugee groups that had recently settled in Western countries (Barnes & Almasy, 2005); (Drummond, Mizan, Burgoyne, & Wright, 2011); (McEwen, Straus, & Ussher, 2008); (McEwen, Straus, & Croker, 2009), while the remaining two studies were conducted among South Asian

immigrants living in the United States (Kim, Harrison, & Kagawa-Singer, 2007); (Harrison et al., 2005). With the exception of one study (Drummond, et al., 2011) each investigation utilized focus group discussions and/or in-depth-interviews to elicit participant beliefs and cultural norms. For a summary of the specific ethnic groups and the methods used in each study please see Table 1.

*Healthy Eating*

There was a wide consensus in four of the five studies that a healthy diet consists of fruits and vegetables. However, as demonstrated by Harrison et al.'s (2005) investigation of Chinese and Vietnamese immigrants, fruits and vegetables are not always conceptually linked, as they are in the Western paradigm. Instead of considering them together, particpants emphasied the importance of cooked vegetables in traditional Asian dishes, while noting that fruits are often eaten raw and only after meals or as snacks. Furthermore, eating too much fruit was described as unhealty, whereas the no such limits for vegetable consumption were mentioned.

Another commonality between most studies was that foods high in fat and sugar content were considered to be detrimental to one's health. Freshness was an important quality of food among all Asian groups included in this review, which generated the belief that frozen, dried and canned foods, and foods "contaminated" with pesticides, were unhealthy. Only the Somali participants in McEwen et al. (2009) reported not knowing what foods were either healthy or unhealthy.

Of all five studies, only Kim and colleague's (2007) report of Hmong beliefs clearly elicited participants' views of the specific benefits to healthy eating. These included lower cholesterol and reduced risk of diabetes, stroke, hypertension and mental

illness. West African refugees in Drummond et al. (2011) and Somali refugees in McEwen et al. (2009) clearly reported not being aware of any connection between diet and health. It is unknown if the absence of any description in the remaining two studies (Barnes and Almasy, 2005; Harrison et al. 2005) is from a lack of participant knowledge, or an omission on the part of the investigators. Regardless of its cause, this lack of detail stands in stark contrast to participants' sundry beliefs about the benefits to routine physical activity, described below.

Participants in four of the five studies readily identified a number of important barriers to healthy eating. The most commonly identified barriers were the relatively high cost of fruits and vegetables (Barnes and Almasy, 2005); (McEwen et al. 2009); (Kim et al. 2007); (Harrison et al. 2005), and the length of time it takes to prepare nutritious home-cooked meals (Barnes and Almasy, 2005); (Kim et al. 2007); (Harrison et al. 2005). Bosnian and Iranian refugees' view that not having a home garden to provide access to fresh vegetables was similar to aversion of Somali refugees to fruits and vegetables that had been "contaminated" with fertilizers and pesticides. Likewise, the Somali association of fatty foods with wealth, and therefore desirable (McEwen, et al., 2009), was similar to the challenge voiced by Cuban refugees of resisting delectable fast foods after having lived in a setting of food insecurity (Barnes & Almasy, 2005). The powerful influence of American culture, cited by Hmong participants, was another obstacle to healthy eating identified in the review.

*Physical Activity*

The immigrant groups covered in this review had similar beliefs regarding what behaviors constitute exercise. Cuban, Iranian and Bosnian refugees (Barnes and Almasy,

2005), and Chinese and Vietnamese immigrants (Harrison et al. 2005) explicitly distinguished a difference between physical activity that was job-related and leisure-related. In the former study, stocking shelves and housework were the main job-related physical activities, performed more commonly by men and women, respectively. Specific leisure-time activities included basketball and swimming. Hmong immigrants described any activity that "makes the heat pump faster" as being exercise, citing Thi Chi, basketball, soccer, tennis, and dancing as examples.

All five studies report a number of specific benefits to exercise. However, none of these studies investigated immigrant beliefs regarding how much exercise is necessary to achieve these benefits. The majority of West African refugees (Drummond et al. 2011) agreed that exercise can prevent strokes and heart attacks, and increase bone strength. Hmong immigrants (Kim et al. 2007) stated that exercise improves one's energy level, increases strength and flexibility, and helps to maintain functional as one ages. Somali refugees described that a lack of exercise increases one's risk of diabetes and obesity. Harrison and colleagues (2005) report the more general beliefs of Chinese and Vietnamese immigrants that exercise can prevent both physical and mental illness.

Immigrants cited a diverse array of barriers to physical activity. Similar to healthy eating, lack of time (Drummond et al. 2011); (Kim et al. 2007); (Harrison et al. 2005) and money (Drummond et al. 2011); (Kim et al. 2007); (Harrison et al. 2005) were the two most commonly mentioned obstacles. The use of cars in the immigrants' country of resettlement was mentioned by Bosnian, Iranian, Cuban (Barnes and Almasy 2005) and Somali refugees (McEwen et al. 2008) as the primary barrier to physical activity. This is suggestive that while living in their home country, physical activity was

predominantly achieved through routine everyday activities, such as walking. Due to this former way of life, immigrants may be largely unaccustomed to the concept of "exercise" as a discrete set of activities performed with the intent to maintain or improve health. This may be related to the claim made by many groups captured in this review that a lack of proper facilities and exercise equipment are other key obstacles to physical activity. Although not explored in the focus groups, this unfamiliarity with "exercise" may have bred the idea that specific equipment—and therefore certain facilities and money—are necessary to achieve meaningful exercise in the Western context.

Iranian, Bosnian, Cuban (Barnes and Almasy, 2005), Hmong (Kim et al. 2007), Chinese and Vietnamese (Harrison et al. 2005) immigrants all mentioned the unsafe environment in which live to be a significant barrier to physical activity. Other impediments to exercise mentioned included pain after exercise (Drummond et al. 2011), lack of knowledge about exercise opportunities (Kim et al. 2007), limited social support (Drummond et al. 2011), and uncomfortable weather conditions (McEwen et al. 2008).

Alone, these five studies done among refugee and Asian immigrant communities demonstrate that barriers to achieving routine physical activity among different ethnic groups often vary and are unique. Caperchione and colleagues (2009) provide a review of 10 studies that examined the barriers to physical activity among immigrant communities living in New Zealand, the United Kingdom, and the United States. From their synthesis, hindrances to physical activity among these groups can be divided into the following categories: cultural-religious, social-relational, socioeconomic, weather, and concerns for harm/injury.

Among Muslim groups, cultural-religious barriers include the potential that physical activity could interfere with important religious rituals. Engaging in prayer five times daily, for example, place time constraints on when physical exercise can be performed. Similarly, times of fasting (e.g., during Ramadan) make it difficult for individuals to maintain the energy and fluid balance needed for vigorous physical activity. Muslim groups were also concerned that women would have inadequate time to manage the household and care for their immediate and extended families if exercise became routine. Furthermore, some groups interpreted the Quran to prohibit women from exercising, while others allowed it only if done in female-only settings and if appropriately dressed. Among Southeast Asian and Latin immigrants studied, a sense of religious fatalism was found to be the major barrier to physical activity. Beliefs that health and illness are pre-ordained by God and represent inevitable consequences of his will caused many to see no benefit to physical activity.

Social-relational barriers to physical activity among immigrant groups involve language concerns and feelings of social isolation. As an example of the former, the authors reference a study of Somali women living in New Zealand in which participants found it difficult to follow exercise instructions from instructors, books, and pamphlets even with an interpreter available. A related barrier is the social isolation experienced by many immigrants. Previous work has found that social support and communal ties are foundational motivators for routine physical activity (Satterfield et al., 2003). Thus, separation from family and friends and loss of social capital, common within most immigrant groups, presents another barrier to achieving routine physical activity among these communities.

Similar to Barnes and Almasy (2005), the review identifies the commonly associated variables of poor housing, unsafe neighborhoods, and low socioeconomic status as impediments to physical activity. As voiced by Somali refugees in McEwen et al. (2008), the cool and variable climate characteristic of many Western regions was identified in the review as another important obstacle to physical activity. Not mentioned in the studies described thus far, however, the review by Caperchione and colleagues identified the misinterpretation of bodily signs to be a barrier to physical activity. Migrants from Pakistan and India living in the U.K., for example, viewed sweating, increased heart rate, and breathlessness as signs of illness, and therefore something to be avoided (Caperchione, Kolt, & Mummery, 2009).

# Chapter 3: Methods

This study of beliefs, views, perceptions, and understandings of diabetes, hypertension, healthy eating, and physical activity within the Bhutanese community in Metro Atlanta was part of a larger study that investigated a broader spectrum of health beliefs among this group. The following principles of Community Based Participatory Action Research (CBPAR) were used to guide this work: a) recognizing the community as a unit of identity, b) building on community strengths and resources, c) involvement of cyclical and iterative process for partnership development, research methodology, and data collection, d) facilitation of collaborative, equitable involvement of all partners in all phases, and e) addressing health from both positive and ecological perspectives (Isreal, Schulz, Parker, & Becker, 2001).

## *Research Context*

The study site was located within metropolitan Atlanta, Georgia, due to its relatively dense population of Bhutanese refugees, particularly within the inner city area of Clarkston. Since the 1990's, refugee resettlement agencies have identified Clarkston as an optimal site for the relocation of displaced persons. After the United States government agreed to the reception of refugees from Bhutan in 2006, this area became one of the primary sites for their resettlement. The majority of the area's 5,500 Bhutanese refugees reside in apartments, with extended families often living in neighboring units.

To inform the design, methodology, and conduction of this study, a leadership committee was formed comprising nine (7 men, 2 women) Bhutanese community

leaders. Leaders were identified via a snowballing technique and briefed individually or in pairs about the purpose of the research before being invited to serve on the leadership committee. All leaders voiced that diabetes and hypertension were important issues in their community, needed to be addressed, and enthusiastically agreed to participate on the committee to guide the research process.

*Study Design*

To explore the beliefs, views, perceptions, and understandings of diabetes, hypertension, healthy eating, and physical activity within the Bhutanese community a cross-sectional qualitative study was designed using the aforementioned principles of CAPBR. A qualitative methodology was chosen due to its ability to elicit the *emic* perspective on health, illness, and health-related behaviors while taking into consideration the social, cultural, economic, and historical contexts in which people live (Hennink, Hutter, & Bailey, 2011). Also, because very little is known about the research topic, the study is largely exploratory, and thus well fitted to be addressed through qualitative methodology.

Focus group discussions were used because of their ability to quickly generate large amounts of information regarding community beliefs, values, and norms within a group setting. Furthermore, like many Eastern cultures, the Bhutanese community places a high value on collective opinion, and meeting in groups to discuss a given topic is customary and familiar. We rationalized that this familiarity would serve to increase the richness of the data, and thereby more fully develop our understanding of the research topic.

*Study Population*

Focus group discussions were stratified by age and gender. This was done at the recommendation of the Bhutanese leadership committee after dissuading our team from dividing participant groups based on other criteria (e.g. religion, caste). Concerning age, Bhutanese participants were divided into two groups, 16 to 30 years and 40 years and older. These age divisions were chosen based on what is known about the life histories of Bhutanese within these age groups. Bhutanese men and women between 16 and 30 years in Clarkston have spent the majority of their childhood living in refugee camps in Nepal. Compared to older adults, many people in this younger age group received seven or more years of education while in the refugee camps, and were exposed to more information regarding medical diseases, such as diabetes. They are, however, sons and daughters of parents acculturated to traditional Lhotsampa life in Bhutan. It is with this background that they negotiate life in the United States, balancing their former experiences in Nepal, traditional Bhutanese values, and the powerful influence of American culture. Contrastingly, Bhutanese adults over the age of 40 years spent the majority of their lives in Bhutan, received little to no formal education, and consequently, likely hold a system of belief and values that are more reflective of traditional Lhotsampa culture. We rationalized that focusing specifically on participants with different life histories would elicit a broader range of beliefs about illness, healthy eating, and exercise. Additionally, this age-gender division places participants among peers during the discussions, which may help to foster a more comfortable environment.

A second reason for limiting participation in the younger group to individuals 30 years of age and younger is based upon how the information gained for the current study

will be used. As described in Chapter 1, the purpose of this study is to establish the foundation for a long-term partnership between the Bhutanese community and Emory University and to assist in the design of future community-based chronic disease prevention initiatives. Previous work has shown that in South Asian groups the risk of diabetes increases dramatically after 30 years of age (Mather & Keen, 1985). Therefore, there is a pressing need to understand the beliefs and values of younger Bhutanese immigrants so that the information can be used to build effective strategies for disease prevention before illness develops in this particularly vulnerable community sub-group.

*Participant Recruitment*

Focus group discussion participants were recruited through the nine members of the leadership committee, with each member serving as a gatekeeper for participation. To recruit participants, members of the leadership committee went door-to-door to known Bhutanese households. They also recruited participants from community-wide gatherings, such as religious festivals. Multiple gatekeepers were used to diversify the number of social networks that would have access to participate in the study. Although multiple gatekeepers were used, it is possible that certain segments of the community were systematically excluded from participation. If the beliefs of these individuals are significantly different from those included, the results would be biased. To reduce the likelihood of this occurring, the leadership committee was asked to identify participants of varying religious backgrounds and educational experience. Due to the potential that community members would feel compelled to participate as a result of being asked by community leaders, all members of the leadership community were instructed in how to

approach potential participants. Leaders were asked, specifically, to emphasize that participation was voluntary and that refusal to participate would not be penalized in any fashion. Similarly, leaders were instructed to inform potential participants that their participation would not result in any particular benefits from either Emory University, Grady Hospital, or any Bhutanese community group.

Inclusion criteria were intentionally broad for the purpose of recruiting individuals with varied experiences and opinions. These inclusion criteria were: 1) Bhutanese refugee, 2) living in Metro Atlanta, 3) between ages of 16 and 30 years or 40 years of age and greater, and 4) willing to participate in the study. To further increase the diversity of the groups, no two participants from the same household were permitted to participate in the same group discussion.

*Data Collection and Instruments*

Four members of the Bhutanese community (two men, two women) were selected by the community leadership committee and trained by our research team in focus group moderation, note taking, and ethical research practice. People from the Bhutanese community were chosen to lead the discussions due to their intimate knowledge of the culture and the language, both of which we predicted would serve to increase the depth of the discussion. Furthermore, the leadership committee felt that participants would feel more comfortable during group discussions if lead by a member of their own community. After the initial training session multiple practice sessions under the direct guidance of the leadership committee was performed with feedback from the research team. Of the four community members that were trained in focus group moderation, two (one male,

one women) were involved in moderating the focus groups. These two focus group moderators/note-takers were compensated with gift cards for their assistance.

The focus group discussion guide was developed in collaboration with the Bhutanese leadership committee. Kleinman's (1980) explanatory model of illness (EMs) was used as a framework to develop the discussion questions regarding diabetes and hypertension. Explanatory models of illness refer to the cognitive beliefs regarding illness etiology, pathophysiology, course, and treatment, and can be elicited in both individuals with and without the specific illness in question. Although Kleinman's EMs are illness focused, previous work has demonstrated their utility in exploring health-related activities, such as diet and exercise, through exploring the following domains of belief: current practices/behaviors, etiology/physiology, consequences of practice, and influencing factors (i.e. barriers to practice) (Mayo, 1990 found in (McSweeney, Allan, & Mayo, 1997). The first section of the focus group discussion guide, therefore, contained questions regarding diabetes and hypertension—including questions about disease etiology, pathophysiology, course and treatment. The additional question of "who can someone in your community trust to learn more about diabetes/high blood pressure?" was included to elicit the group's understanding of either the specific people or categories of people (e.g. traditional healers or doctors) who hold influence regarding issues concerning health and illness. The second section of the discussion guide contained questions pertaining to diet and physical activity—including current practices and beliefs about the benefits and barriers to these behaviors. Please see the appendix for focus group discussion guide.

One focus group discussion per age-gender category consisting of between five and nine people each was held. Discussions were conducted at the Bhutanese community center because it is a well-known, centralized, easy accessible place that routinely holds community meetings, events, and activities. At the beginning of each discussion, the moderator described the purpose of the research and informed consent was obtained verbally from each individual participant. Focus group discussions lasted on average 90 minutes. All group discussions were digitally recorded. The young men's and women's groups were conducted in English with the participants using Nepali to express cultural-specific phrases or expressions, or to explain points in need of further clarification. Older men and women's groups were conducted wholly in Nepali. Younger groups were conducted in English to save time and resources that would otherwise have been spent on translating data to English. This was done after receiving assurance from the leadership committee that members of the community under the age of 31 are nearly fluent in English. After the young men and women's focus groups the data was transcribed verbatim, and then anonymized. After the older men and women's groups, the data was translated by the group moderator, then transcribed and anonymized.

After all four focus groups were completed, a review of the data demonstrated a need for further clarification regarding a number of issues participants discussed during the focus groups. However, the leadership committee was hesitant to perform additional focus groups due to the amount time and resources needed for their conduction. To enrich our understanding of the data under these constraints, we performed four key informant interviews. Two of the key informants were identified and initially contacted

by the leadership committee before being approached by our research team. The remaining two key informants were members of the leadership committee.

*Ethnical Considerations*

Ethical approval was given by Emory University's Institutional Review Board. Informed consent detailing the purpose, benefits, and associated risks of participation was obtained from each participant before each focus group discussion and before each key informant interview. Participants were assured that their involvement was entirely voluntary and that no special treatment would be offered in exchange for their participation. Additionally, participants were told that members of the research team or the leadership committee would not impose harm upon them if they decided not to participate.

*Data Analysis*

All textual data was uploaded into the qualitative data analysis software program MAXQDA (VERBI GmbH, Berlin). The data was then reviewed and both inductive and deductive codes were assigned to guide the analysis. Codes were grouped according to research question. To answer each research question, analysis was performed to the level of description-comparison. Codes were reviewed in accordance with a systematic plan of analysis and comparisons between groups were made.

*Limitations of Methodology*

One of the primary limitations of this methodology includes the main disadvantage of community based participatory research, namely the limitations in researcher control. The amount of responsibility given to the leadership committee came with trust that components under direct control of the committee (i.e. participate recruitment, the informed consent process, and focus group moderation practice sessions) were complete and performed unbiased manner. To minimize the risk of bias, lines communication were kept open and feedback was continually exchanged between the community and the research team regarding each step in the research process.

A second limitation of this methodology relates to the inexperience of discussion moderators and note-takers in qualitative methods. Throughout the process of data generation, group moderators had a natural tendency to treat the groups as surveys, and less like discussions. This may have compromised the quality of the data generated from the initial discussions. To address this limitation group moderators were trained by our research team and subsequently participated in multiple practice sessions under the direction of the leadership community. Additionally, as the group discussions were occurring constructive feedback was provided to the moderators and note-takers after each session from the research team about ways to improve group moderation.

The third limitation of our methods was the performance of the younger men's and women's groups in English and not in their native language of Nepali. This may have compromised the amount of detail participants felt comfortable providing. To minimize this limitation, we first received assurance from the leadership committee that younger participants would feel comfortable speaking in English. Secondly, participants

were encouraged to communicate their beliefs and experiences in Nepali, when they did not know how to express the idea in English. Related, it is possible that some data from the older participants was lost during the translation process. To minimize the risk of this occurring our translator was asked to translate the discussion from Nepali to English verbatim.

# Chapter 4: Results

## *Participant Characteristics*

The older men's focus group had nine participants with a mean age of 68.1 years (range 53-78 years). No participants in the older men's group had received any formal education in the past. The older women's group had eight participants with mean age of 49.25 years (range 32-63 years) and an average of 1.5 years of formal education. Due to expected difficulties of creating a rich discussion among the older women's group, the moderator permitted the inclusion of one participant that was below the pre-determined lower age limit of 40 years. The young men's focus group included six participants with a mean age of 23.5 years (range 21-25 years) and an average of 12.5 years of formal education. The young women's focus group included five participants with an average age of 20.2 years (range 16-30 years) and an average of 14.6 years of formal education.

## *Perceptions on the Emergence of Diabetes and Hypertension*

Without prompting, all focus group participants described diabetes and high blood pressure as two of the largest health-related concerns within the Bhutanese community living in metro Atlanta. Nearly all participants told of having some familiarity with both illnesses, through either having the disease themselves, or having a relative or close friend with the disease. Participants in both older men and older women groups reported that diabetes and hypertension are relatively novel illnesses that they were not aware of being present in their community in Bhutan. These participants described that only after

going to Nepal were the first members of their community diagnosed with diabetes and hypertension by doctors working in the refugee camps. They describe that the initial emergence of diabetes and hypertension in the refugee camps, however, was largely overshadowed by other, more acute illnesses—namely dysentery, tuberculosis, and pneumonia. Thus, it was not until after their arrival in the United States that they felt diabetes and high blood pressure became large community health concerns. Young women and older men participants suggest that this is due to increased diagnosis of these illnesses related to enhanced access to healthcare services in the United States. One older women participant, however, linked the ascent of these two illnesses with having come from a "dirty" environment in Nepal to one of cleanliness in the United States:

> "There was a lot of smoking and there was no healthy living due to all the dust and dirt [in the Nepali refugee camps]. But here in the U.S, it is very clean and there is no diarrhea of dysentery. Here it is clean and warm and there are other types of diseases—mainly as blood pressure and sugar disease." (Older Women, FGD)

*Beliefs and Perceptions about Diabetes*

Participants from the older men and women's groups referred to diabetes as the "*madhumeha*." One key informant described that this term, which literally translates into English as "honey disease," was introduced into the community by doctors and public health officials in the Nepali refugee camps. Younger men and women groups used either the term "sugar disease" or "diabetes" in reference to this disease.

*Cause*

Despite the universal opinion among all focus group participants that diabetes is one of the largest community health problems, most older participants described themselves as knowing little about the disease. For instance, when older participants were asked about the etiology of diabetes most responded, "I don't know," while others provided vague etiologic explanations of diabetes such as "weakness of body," or "being careless about food." Alternatively, both younger men and younger women participants described a number of beliefs regarding the causes of diabetes—the most commonly discussed cause being the consumption of large amounts of sugar, or "sweet tasting things, such as bananas." Eating too much rice and "root vegetables", specifically potatoes, sweet potatoes, and yams, were also described by younger men and women participants as causes of diabetes. These younger groups were careful to emphasize, however, that eating "too much" of these particular foods results in diabetes. Eating sweets, rice, and root vegetables in their "proper" amount would not cause disease.

Despite the strong association that the younger women group drew between high levels of sugar consumption and diabetes, some younger women participants voiced confusion over their personal experiences of knowing people with diabetes that did not consume diets high in sugar, and knowing others that did consume high sugar diets and did not have diabetes. To help explain this, the idea of hereditary was discussed. Specifically, it was agreed that if a mother is diagnosed with diabetes before pregnancy, there is an increased risk of her passing the illness to her child compared to if she was diagnosed with diabetes after pregnancy. One key informant agreed with this view, stating:

> "I feel that if people get diabetes at a young age and then get married and have a child, that child will then most likely get [diabetes]. But me, I just found out that I had diabetes. So I don't think it will carry over to her [my daughter] because she is already grown." (Key Informant)

Another determinant of diabetes risk discussed only by participants in the young men's group was age. One younger man's comment is representative of the group,

> "I do not think that young people get diabetes. Only the elder people suffer from this illness." (Young men, FGD)

Young male participants described that this is related to the inability of the aging body to properly digest sugar. A young male key informant confirmed that most people in the community believe that diabetes is nearly inevitable after the age of 45 years. When key informants were specifically asked about "superstitious" beliefs regarding the cause of diabetes, they voiced that they were unaware of any such beliefs.

*Pathophysiology*

The commonly repeated etiologic mechanism by younger men and women groups was that consuming too much sugar, rice, or root vegetables results in elevations in blood sugar levels, the defining hallmark of diabetes. An alternative mechanism presented by these younger groups was that sugar consumption results in the release of insulin. Elevated levels of insulin, in turn, results in diabetes. A related explanation provided by a young woman was that fat in the stomach results in elevated insulin levels, and consequently, diabetes.

*Symptoms/Consequences*

Among both older and younger participants enhanced thirst, increased frequency of urination, and fatigue were the most commonly cited symptoms of diabetes. The strength of this association is exemplified by one older man's comment,

> "I suspect that I have diabetes because sometime my mouth becomes very dry at night and I feel the need to drink a lot of water." (Older men, FGD)

However, younger men and women participants expressed that it may be possible to have diabetes and not have symptoms. Participants in the young women's group added diabetes can result in blurry vision and poor wound healing.

*Prevention*

Participants in the young women, older women, and older men's groups shared the belief that diabetes is a preventable disease. This issue was not discussed during the young men's group. All three of these groups described consuming less sugar, rice, and root vegetables as ways to prevent diabetes. Older women, elder men, and multiple key informants specifically described the substitution of white rice for paraboiled[2] rice as a common practice within the community to prevent diabetes. Key informants made clear that this rice is viewed as being less palatable, however, eaten for the purpose of preventing diabetes. In addition to altering eating habits, multiple key informants describe that some in the community hold the belief that diabetes can be prevented through meditation, the practice of yoga, exercise, and staying awake after meals. One key informant explained, for example:

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[2] Paraboiling is a particular type of hydrothermal treatment applied to the raw rice paddy that provides a type of rice that undergoes less nutrient loss during the milling and cooking processes. (Miah, Haque, Douglass, & Clarke, 2002)

> "My parents they used to say that after eating don't go to sleep immediately, but stay up for at least thirty minutes so that you will not get diabetes." (Key Informant)

*Treatment*

The mainstay of diabetes treatment discussed by all focus groups is consuming less sugar (e.g. using less sugar in tea), rice, and root vegetables. Participants in the older men and young women groups described the importance and inconvenience of people with diabetes not eating the same foods prepared for others in the family. People with diabetes, rather, require the food be cooked with less oils, butters, spices, and root vegetables. A participant with diabetes stated:

> "We, [the family], do not prepare our food in different parts. We prepare food in one part for the entire family. This may not be suitable for everyone in the family because someone may have…diabetes. And we as the family are not usually considerate about this." (Older men, FGD)

Older men and younger women participants described this as a barrier to altering one's diet to comply with a diabetes care plan. Taking medications prescribed by doctors, specifically insulin, was offered as an important treatment for the disease only by younger men and women participants. One key informant tells how the daughters of the elders, many of whom stay home during the daytime, are responsible for assisting elders with routinely measuring blood glucose levels and administering the proper dose of insulin.

Although discussed only very briefly within all four groups, key informants described the importance of traditional medicines in the treatment of diabetes.

Specifically, "bitter gourd[3]" mixed into a curry sauce or ground into a juice was the most commonly discussed traditional medicine. A second included the drinking of a bitter tea, made from the boiling of seeds from the *methi*[4] plant in water. Key informants were unaware of beliefs regarding specific mechanisms through which these bitter foods work to treat diabetes.

*Expected Course*

Within the young women's group there was a diversity of opinion regarding curability of diabetes, with three of the six participants of the opinion that with proper medicines and dietary change diabetes will resolve. The other three, all having at least one family member with diabetes, challenged this with claims that they have seen their loved one's taking medicines for years, and "still they are no better." Out of the remaining groups, only one young male participant voiced the belief that significant functional impairment and death are potential a consequences of diabetes.

*Beliefs and Perceptions about Hypertension*

*Cause*

All focus group participants expressed the belief that a strong relationship exists between stress (i.e. "worry", "sorrow", "mental tension") and the development of high blood pressure. The manner in which participants discussed the link, however, tells that both acute and chronic stressors can result in chronically elevated blood pressure. One participant captured this common belief,

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[3] Bitter gourd is also called 'bitter melon' is a seed plant *Momordica charantia* (U.S. Department of Agriculture)
[4] Also called as fenugreek, the seed plant *Trigonella foenum-graecum* (U.S. Department of Agriculture)

> "When someone hears something that is very exciting, or causes him or her to become very frustrated or very sad, this is like putting a person into extreme temperatures—either very cold or very hot—and this excitement, or sorrow, can cause someone to have high blood pressure." (Older Men, FGD)

Older women participants and multiple key informants discussed that these negative emotions that result in chronic hypertension are the result of their refugee experience and adjusting to life in a new culture. One older woman participant describes that living as a refugee for 17 years has created "a community of worry," which has resulted in many health problems. Key informants cited financial/work-related stressors (e.g. not being able to pay bills, find meaningful employment with opportunities for career advancement) and family related stressors (e.g. managing family disputes based on religion, money management, maintenance of tradition, Western acculturation) as major sources of worry in the community.

In addition to stress and worry, young men and women participants described habits of food consumption as an important contributing factor to the development of hypertension. Specifically, excess salt consumption was the most popularly mentioned diet-related cause, followed by the use of excess oils and spices in food dishes. Young women and older men groups discussed their beliefs about a genetic cause to high blood pressure. However, within the young women's group, in particular, there was some disagreement regarding this point with some in favor of a genetic component while others were not. Unlike participants in the younger groups, older men and women participants described themselves as knowing little about the cause of high blood pressure.

*Symptoms/Consequences*

In discussing the effects of hypertension, the relationship between negative emotion and high blood pressure reemerged. All focus group participants described the main effect of hypertension is loss of control. This loss of control manifests in one of two ways: 1) through fainting without warning, which may or may not result in paralysis, or 2) through uncontrollable outbursts of anger or becoming angry more quickly. A young male participant captures the prevalent belief:

> "When someone has high pressure he may not have control over his temper. This could cause an accident, someone may get hurt or that particular person may get hurt." (Young Men, FGD)

Participants in the older men's group added that high blood pressure causes one to "speak loudly." Other effects of hypertension mentioned by the young women participants included headache and dizziness. Only participants from the younger men's group offered the belief that hypertension can cause other illness over time, such as stroke and heart disease.

*Treatment*

The most popular treatment for hypertension discussed in all focus groups was "bitter gourd[5]". One key informant described that people in the community only consume bitter gourd to treat high blood pressure when they feel they are having symptoms (e.g. easily angered, headache, dizziness). However this medicine does have side effects, as described by participants in the younger women's group. Specifically, the

[5] Bitter gourd is also called 'bitter melon' is a seed plant *Momordica charantia* (U.S. Department of Agriculture)

group expressed that if bitter gourd is consumed too frequently it can result in low blood pressure and hearing loss. Other bitter foods that function to lower blood pressure mentioned by key informants include *methi*[6] seeds, *neem*[7], and *bee*. Regarding the mechanism through which bitter foods function to lower blood pressure, one key informant describes the belief held by "some in the community" that bitter foods function to neutralize the acidic blood of people with hypertension.

In addition to bitter foods, all focus groups described salt reduction as an important treatment adjunct. Younger women and young men groups added that routine exercise constitutes a third important treatment for high blood pressure. Only participants in the younger men's focus group specifically discussed the importance of adhering to strict medical therapy (defined as taking pills daily, not only when having symptoms of high blood pressure) for the management of this disease.

*Assessment of Community Health Education Resources*

When each group was asked specifically about trustworthy resources available in the community to learn more about diabetes and hypertension, there was an overwhelming consensus that none exist. Traditional healers (i.e. "jumping doctors") were described by all groups as being present in the community, however, generally unable to provide information about or assistance in the management of diabetes and hypertension. However, participants in all focus groups described that, although it is

[6] Also called as fenugreek, the seed plant *Trigonella foenum-graecum* (U.S. Department of Agriculture)
[7] *Azadirachta indica*, a tree belonging to the Mahogany family

becoming less common over time, some people in the community still visit jumping doctors when they are ill. One key informant described:

> "There are some [people] that go to the jumping doctor first. Then if it does not get better, they will go to [the hospital]...but others will go to the hospital first and then will go to the jumping doctor after they get out of the hospital…just to make themselves feel better…feeling that they are completely cured." (Key Informant)

All groups expressed a desire to work with medical doctors and public health professions from outside the community, and viewed them as the only trustworthy sources of information regarding diabetes and hypertension. Key informants described that two different groups of health professionals have visited the community and lectured on diabetes and high blood pressure at a local community hall, however, this resource is not available long-term. One of these groups consisted of nurses from a local hospital, while the other were of "medical representatives." The details of this were, however, were not clarified with the key informants.

### *Beliefs and Perceptions on Healthy Eating*

#### *Food Freshness and Purity*

All focus group participants were asked when they felt their family was the most healthy—while living in Bhutan, Nepal, or in the United States. All participants strongly expressed the belief that their families were healthiest while living in Bhutan, due to their diet of homegrown foods, for example,

> "Well in my view our family was especially healthy when in Bhutan because everything that was eaten was produced by ourselves…things that were produced in our own fields." (Young men, FGD)

Participants explained that homegrown foods were healthy because they are fresh and pure. All participants believed that foods, such as vegetables, fruits, and rice, are only healthy if they are consumed shortly after their harvest. Consequently, frozen foods, foods stored in a refrigerator for longer than a few days, or stale foods are viewed as being unhealthy and contributing to disease. One key informant stated that fruits and vegetables grown in Mexico or Canada are not fresh, since they need to be transported long distances and consequently, not were not viewed as healthy as those grown locally.

The second element of homegrown food that participants considered as healthy was food purity, which participants described as foods that have not been subject to chemicals, fertilizers, genetic modification, or processing. These altered foods were described as being "unnatural," "contaminated," and unhealthy. One key informant reported that cattle manure and tree leaves are used as natural fertilizer by people in Bhutan, not chemicals, which they view as unsafe. The young men's group felt that foods that they did not grow themselves are therefore not pure, for example,

> "In Nepal and in America the food that people buy, it might contain some bad stuff which will cause them to have poor health." (Young men, FGD)

One participant from the older men's group described the importance of food freshness:

> "In the United States there are many different types of foods. However, there are not many fresh foods [in the U.S.] because most of the foods here have been stored in the refrigerators for a very long time. This never

> happened back in Bhutan or in Nepal where we used to immediately eat what food we had." (Older men, FGD)

Food purity is described below:

> "I think our family was healthiest in Bhutan. Perhaps this was because we were eating what we produced in our own fields---fruits and vegetables. There was not much sickness when we did this. The vegetables and [other food] items were free from chemicals. I think my family was healthiest in Bhutan because there the food was pure." (Older women, FGD)

One key informant described a common belief that chemicals and fertilizers are especially threatening because, unlike dirt and germs, chemicals are not removed by adequate cooking. A second key informant added that many in the community believe that one of the harms of processed food is that there is a relatively long period of time between the harvest of raw materials and their final consumption---that is, that the food is not fresh. Thus, an overlap between freshness and one element of food purity (i.e. processing) exists.

*Balanced Diet*

All focus group participants reported that the cornerstone to good health is a "balanced diet", which gives the body strength, growth and prevents disease. Participants from the older groups commented on the therapeutic effect of healthy foods. One older male participant shared that he knows a man in the community who consumed a diet low in sugars, fats and rice, and high in fruits and vegetables who formerly was poor in

health, but now is becoming well. The older women's group likewise discussed the therapeutic benefit of food. One older woman commented:

> "[If someone is sick], and that person has not taken food, we should try and ask him or her if they have any appetite. We should find out what is good for the person and ask if the person likes to drink milk or take any type of food. Then if there is no improvement we should send them to the hospital." (Older Women, FGD)

Participants in the young men's and both women's groups stated that a balanced diet consists of consuming the proper amount of food, a view supported by multiple key informants. For example,

> "Too much food is not good and too little food is not good. This is what we mean when we say balanced diet." (Young Men, FGD)

When asked to describe how someone determines the amount of food they should consume to maintain a balanced diet, all were unsure. The young women's group described eating until they feel full and then assessing trends of weight gain. If they start to gain weight, they know that they are eating too much. Participants in the older women's group were also unclear, but agreed that women who have just given birth should eat more food than others. Older men and women briefly discussed that in addition to food amount, balanced diets are also marked by the consumption of a large variety of foods (e.g. different vegetables, soups, and gourds).

The final component of a balanced diet that was discussed by younger men and older women participants was proper spacing of three meals throughout the day. Two comments describe this point:

> "Most and foremost, in order for a person to be healthy he needs to take food at regular times" (Young Men, FGD)
>
> "If people do not eat food at the proper times, they will get sick." (Older Women, FGD)

Young men participants described that their first meal is eaten around eight o'clock in the morning, the second around noontime, and the third sometime after eight o'clock in the evening. One key informant told that the common belief held by many within the community is that food taken in proper time intervals allows the body to be efficient. If food is not taken at these intervals, one may run out of energy and consequently become ill.

*Healthy and Unhealthy Foods*

When groups were asked about specific foods that are healthy to eat, a variety of foods were mentioned. In general, fruits (e.g. banana) and vegetables (i.e. cucumber, pumpkin, spinach, lentils) were the most commonly mentioned as healthy food. Others included eggs, cereals, pasteurized milk, soups, and fish. All groups expressed an ambivalent attitude about the health benefits of rice, which was described as being consumed with breakfast, lunch, and dinner in most households. Young women and multiple key informants stated that many community members feel that a meal is not complete unless rice is present, as described by one key informant:

> "[People in our community], they don't believe that anything bad will specifically happen to them if they don't have rice with each meal. However, it is commonly said that even if someone has on their plate the

> best foods from all over the world, if they do not have rice to go with the food it is not considered a true meal." (Key Informant)

All groups reported that rice has been a staple food for their community for generations. Participants described that in Bhutan rice was easy to grow, quick to prepare, affordable, and provided a good source of energy for the manual farm labor done during the day. All groups expressed the opinion, however, that most people in their community living in the United States are consuming too much rice, and that for improved community health people must begin eating less rice. All focus group participants explained that many households in the community also hold this view, and as a result, have introduced different rice substitutes into their diets. Paraboiled rice[8] was the most common substitute which was viewed as a lighter form of rice containing less energy. Multiple key informants confirmed that paraboiled rice is becoming very popular within the community due to the belief that it is "lighter," and thereby healthier, despite being "less tasty." Participants in the young women and older men's groups also described brown rice as a healthier substitute for white rice because it contains more vitamins and less calories compared to white rice. Older men noted however, that brown rice has a different and less desirable taste. Finally, chapatti and pasta noodles were also used as rice substitutes and described by younger women as "lighter," and thereby healthier.

Foods believed to be harmful for one's health were also discussed. All focus group participants reported that large quantities of rice and sweets (e.g. large quantity of sugar in tea, desserts) are harmful for one's health due to their ability to cause diabetes.

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[8] Paraboiling is a particular type of hydrothermal treatment applied to the raw rice paddy that provides a type of rice that undergoes less nutrient loss during the milling and cooking processes (Miah, et al., 2002)

Young women, young men, and older male participants felt strongly that tobacco and alcohol were also harmful, with alcohol becoming more prevalent in the community since arriving in the United States. The young men's group, however, reported that alcohol in moderation was not harmful for one's health, with one participant reporting that he had heard that a small amount of red wine is even protective against heart diseases. Other harmful foods mentioned by both older men and women included potatoes, yams, and sweet potatoes, collectively referred to as "root vegetables." Men classified meat as being harmful for health, which they noted has become more popular in the diets of their community since arriving in the United States. One key informant describes the community belief that goat, mutton, and pork meat, are viewed as particularly unhealthy meats because they contain large amounts of fat.

*Food Preparation*

In addition to food consumed, food preparation was also described as contributing to health. In particular, the use of excessive salt was viewed as harmful due it causing high blood pressure. All focus group participants described that the use of excess oils and butters in cooking decreases the health value of the food due to its association with high blood pressure. Participants in all four focus groups mentioned that the use of spices in food is unhealthy. One older woman and one key informant describe spices (e.g. ginger, garlic, chili pepper) as harmful due to their ability to cause of stomach pain, indigestion, and gas. One young man participant mentioned the use of excess spices can cause high blood pressure.

Lastly, male participants debated the health value of cooked versus raw vegetables. The young men described that it has been a common tradition within the

Bhutanese community to cook all vegetables in order to kill harmful germs and prevent illness, and some agreed with this practice. Others, however, questioned the necessity of cooking all vegetables, citing tomato, spinach, and onions as vegetables that should not be cooked yet commonly are. However, older men stressed that **all** vegetables should be cooked to prevent illness.

*Barriers to Healthy Eating*

All focus group participants discussed specific barriers to healthy eating, defined by participants as a diet low in sugars, butter, oil, salt, fatty meats and rice, and high in fresh vegetables and fruits. The most commonly discussed barrier during all groups was "tradition", or an unwillingness of the people to alter deeply engrained, culturally meaningful practices of food preparation and consumption. The most commonly discussed traditional eating practice, further described above, was the consumption of rice with each meal. One young woman commented, for example:

> "[Many] people believe in our community that we should have morning rice, afternoon rice, and night rice. And if [they] don't eat rice, [many] people think 'oh, I cannot go to sleep until I have had my rice.'" (Young Women, FGD)

All focus group participants and multiple key informants described that another common practice in preparing traditional dishes is the use of large amounts of salt. One key informant described:

> "People in our community use a lot of salt. They put salt on all of their foods---meat with salt, salads with salt, everything with salt. They do it because they like the taste." (Key Informant)

A third traditional practice that was mentioned in all focus groups was the use of large amounts sugar in food preparation, including desserts, and placed in tea, a very popular beverage within the Bhutanese community. Lastly, the use of large quantities of oils and butters during the preparation of Bhutanese dishes was discussed during all focus groups as a traditional practice in need of changing to benefit the community's health.

The older men's group reported that this unwillingness to alter traditional eating patterns has been amplified by the process of adjusting to life in a new culture. One participant from the older men's group said, for example:

> "Our tradition is set. It is not easy to bring change to our community. [Being new in the U.S.], people are still looking for what they know." (Older Men, FGD)

During the young men's discussion, however, many participants expressed the importance of one taking personal responsibility for the types of foods that they eat, describing that personal choice is the only barrier to healthy eating that the community. One younger participant described, for example:

> "Nothing prevents the people from eating healthy foods! It's the people's habits that are the problem…people need to make a habit of doing the right thing!" (Young Men, FGD)

This belief provided the basis for this group's conclusion that people who become ill are irresponsible. Two young men's comments are representative:

> "[When I hear that someone is sick], I think that this person must be careless…they are probably careless about having proper nutrition…proper cleanliness, and everything else." (Young Men, FGD)

> "A person should be aware of himself. I mean he has to be aware of what he can do to make himself healthy—what he should eat or what he should not eat. He has to choose. He has to choose the foods that are going to make him healthy." (Young Men, FGD)

This idea that illness results from "carelessness," was mentioned very briefly and sporadically during the older men and older women group discussions.

In addition to traditional eating habits, the young women's group and one key informant added that the experience of having previously lived in an environment with a limited variety of foods (i.e. refugee camps) and currently living in an environment of relative food abundance has cultivated a drive within the younger people of the community for unhealthy, yet tasteful, "junk food." These participants described that in the refugee camps, unhealthy foods (e.g. coke/soda and hotdogs) were visibly present, however, unaffordable. As a result, most people were left to consume a daily food ration of rice, lentils, and potatoes with limited variety. One participant described that after arriving to the U.S many in the community were given food stamps, which have been instrumental in making previously expensive unhealthy foods affordable. A key informant added:

> "When they came to the U.S., they got food stamps, some [receiving] $600-700 each month. So they just buy [the junk food] with the food stamps." (Key Informant)

Another participant in the young women's group added that lack of parental supervision over what the younger people are eating is also contributing to this problem.

Another barrier to healthy eating mentioned by participants during all focus groups was the pressure from others within the family and community to conform to traditional practices (i.e. eating large quantities of rice with liberal use of sugar, salt, and oil). Young women focused their comments on how they would be viewed by friends as different if they broke from this traditional diet. One young women participant commented:

> "[If I consumed a lot of fruit], I would be laughed at!" (Young women, FGD)

All focus group participants, with the exception of those in the young women's group, discussed the practical challenge of eating differently from the rest of the family. As described by multiple key informants, the women of the household (i.e. mothers, daughters, daughter-in-laws) are responsible for preparing most of the family's meals. Due to the fact that many Bhutanese households contain extended family (e.g. grandparents, aunts, uncles, etc.) most meals are prepared in large quantities that are shared by all. These participants described that everyone eating from the same food makes it especially difficult for a single person to change their eating habits. Two comments provide examples:

> "I try to cook food that contains limited amounts of salt and oil. However, [when I do this], many people in my family do not like it. They feel that they are young and strong and want to make the food with more salt and more spice." (Older Men, FGD)

> "I like to eat with less salt [and eat less of other unhealthy foods]. But other people [in my family] do not like this. They want more sugars, more salts…so that is the difference between me and them….I have to follow [what they want]." (Young Men, FGD)

Lastly, the high cost of healthy eating was mentioned during the younger men and one older men groups, however, this topic received little discussion.

*Beliefs and Perceptions on Physical Activity*

All focus group participants discussed the importance of regular exercise in maintaining good health and preventing disease, specifically diabetes and hypertension. Participants in the young women's group added that exercise prevents obesity. All participants in the younger groups emphasized mental wellbeing and the prevention of depression as additional benefits to exercise. Participants from both older groups described that exercise helps the body through enhancing the circulation of blood. For example, one older man commented:

> "Without the proper circulation of blood that comes with exercise, a person will not feel well and will catch disease." (Older Men, FGD)

Key informants confirmed that the common belief within the community is that exercise helps through promoting adequate blood circulation. One key informant added that the educated people in the community believe that exercise reduces the build up of fat around the body's "veins and ventricles" which results in a greater area for blood to flow, enhancing circulation and preventing diseases such as high blood pressure.

Participants in all focus groups discussed the various types of activities that are considered to constitute exercise. The younger men discussed both mental and physical exercises. Mental exercises included yoga and meditation, while physical exercise included sports (soccer, volleyball, basketball), running, weightlifting, and farming. One younger male participant stated that going to work provides some degree of physical activity, however the details of this were not clear. Younger women discussed brisk walking as a form of exercise while the older men added that job-related physical activity such as sawing logs, a former job in Bhutan yet no longer done, constitutes exercise. Multiple key informants describe that the most common form of exercise for adults in the community is brisk walking. One informant explained that this habit of walking was developed in Bhutan and in Nepal because people did not own cars. Key informants reported that martial arts, participation in organized soccer leagues, and attending local fitness clubs are other forms of exercise in which younger members of the community participate.

Participants discussed the appropriate frequency and duration of exercise for health maintenance in all focus groups. Younger participants and older women all agreed

that 15-20 minutes of exercise each day was sufficient to maintain good health. Young men qualified that weightlifting exercises should be done for a longer period of time (one hour) and with less frequency (every two days). In discussing the appropriate frequency and duration of exercise, participants in the older male group stressed the importance of balance and not a specific duration or frequency. This group emphasized the importance of not doing too much or too little exercise, but "what the body can tolerate." This group concluded that "a lot of sweating" was an indicator of sufficient exercise, and added that exercise to this point each day is beneficial for one's health.

All focus group participants expressed the opinion that people of all ages in the community should exercise routinely to maintain good health and remain free of disease. Multiple participants in the young women's group, even, discussed feeling personal guilt from not exercising enough. One young woman commented:

> "If on the way to school in the morning I pass someone who is exercising, I look down at the ground, not even looking them in the eye because of the guilt that I feel [because I am not exercising]." (Young Women, FGD)

These strong feelings from the young women, however, were qualified by their belief that older people in the community do not need to exercise as much as younger people. One younger woman's comment captures the belief expressed by the group:

> "[The amount of time that someone should exercise], it depends on age. I don't think that the older people need to exercise all that much." (Young Women, FDG)

Another young woman reported that it is not that the older people need to exercise less, but that the younger people in the community should exercise more for the purpose of

becoming strong leaders in the future. The younger women also expressed the belief that people who are sick and unable to walk should not exercise. Older women added that people who have recently had an operation and pregnant women should not exercise. The young men and older men groups, however, did not identify any particular group that should refrain from exercise when this issue was raised by the group moderator.

*Barriers to Routine Physical Activity*

Participants in all focus groups discussed a number of barriers to routine exercise. All participants in young men and women's groups discussed busy work and school schedules as the primary barrier to routine exercise. Participants in both of these groups described that many of the younger people in their community work jobs with non-traditional hours including nights, evenings, and weekends (e.g. factory work). Many of the younger people work these non-traditional hours in addition to attending school and caring for dependent family members (i.e. children and elder adults) during the daytime, leaving very little time for exercise. One younger woman commented:

> "I think that our work schedule is one of the main [barriers to exercise]…most people work irregular schedules, such as nights in the chicken factories or gas stations." (Young Women, FGD)

One key informant describes his family's time commitment in caring for their mother:

> "Take my mother for example. Since we have come here to the U.S., we have been so busy with work and then with taking care of her [that we don't have time to exercise]." (Key Informant)

Another key informant commented:

> "I think [the barrier to exercise for the younger people in the community] is work. I think that most of them are working at odd hours, late nights. And when they come back home they need to help the family….[They need to] like drive them around, do the laundry, the shopping, everything." (Key Informant)

In addition to time constraints, younger male and female participants reported a lack of moral support from family and friends as a barrier to exercise. These participants reported that not having the support of family and friends and having people to exercise with helps explain why few people in their community exercise regularly. One young male participant's comment demonstrates a link between job-related time constraints and the limited social support:

> "Back in our country we used to exercise a lot. Everyone in the family shared a schedule. In the morning everyone would go to work and then come back home in the evenings. Then we would all be together and we would play. And when we were with our family we would then become happy and this also would make us healthy." (Young Men, FGD)

One male key informant further described the importance of social motivation for regular exercise:

> "Around here people just copy what other people are doing. They don't really think personally about what they want to do or want to be. I have a lot of neighbors around me and when they come over and see my parents just sitting down, they think 'why should I exercise?' [What people do], it

> all depends on what their peers are doing. This could be the reason that people don't exercise." (Key informant)

Similarly, one key informant discussed feelings of depression and social isolation as the cause for many in the community not being motivated to exercise. The key informant described these feelings as "cultural sorrow," and due to the difficulty of adjusting to life in the United States. This key informant further explained that one element of this difficulty is related to the job situation of many in the community:

> "The older people and the younger people that did not go to school, they are finding it very difficult to adjust. When they go to work the type of work that they are doing is very different from what they were doing back at home. Some feel that the work they are doing is inferior to what they were doing before. And they do not feel like there is any room for progress….like after 10 years they will still be in that job. This causes them to be depressed…and when you are depressed you don't feel like moving [or exercising.]" (Key Informant)

A second key informant described family-related adjustments as another source of stress that has accompanied their arrival in the United States. She explained:

> "Families are having a lot of disputes among themselves…for example due to money, religion, difference in beliefs, [and the decision] to come here [to the U.S.]. One generation [in a family] may get too exposed to things here [in the U.S.] and want to bring change while the older generations are stressed about the growing [relational] gap in the family." (Key Informant)

Thus, these key informants described that the stressors associated with being a refugee have created significant potential for the development of mental illness that results in a reduced motivation to achieve the level of routine physical activity necessary to remain in good health. The younger men's group added that lack of open spaces and poor self-motivation are additional barriers to exercise within the community, however these issues were not discussed in detail.

In contrast to participants in the younger groups, many participants in the older men and women's groups cited a lack of knowledge about how to exercise as the primary barrier to routine physical activity. The older men's group added that a lack of proper exercise equipment (e.g. stationary bikes) constitutes another barrier. Although not addressed during the focus group discussions multiple key informants added that many people in the community feel unsafe while being outside, and that this perceived lack of safety prohibits routine exercise for many in the community. One key informant told that news of a Bhutanese young man living in Florida who was murdered outside of his home caused many in his community to fear for their own safety. He added that although this particular incident took place in Florida, it deeply impacted the community living in Georgia because of the close networks that exist within the broader Bhutanese community living in the United States.

# Chapter 5: Discussion

## *Part I: The Refugee Experience, Collectivism, and Health-Related Behaviors*

All participants described that a healthy diet is one that is low in sugars, butter, oil, salt, fatty meats and rice, and high in fresh vegetables and fruits. Participants also described various activities that constitute exercise, and the belief that 15-20 minutes of exercise daily is optimal for health. Thus, both older and younger participants had a basic understanding of a healthy eating and physical activity that are congruent with Western biomedicine. However, participants described a number of barriers to healthy eating and routine physical activity. These barriers can be more deeply appreciated when viewed in light of 1) their refugee experience—that is, having been uprooted from their homeland, placed in refugee camps for twenty years, and then brought to navigate life a culture very different from their own—and 2) their deeply held values regarding the importance of the family unit, or collectivism. Thus, the first part of this discussion will demonstrate how these two particular factors manifest the major barriers to healthy eating and physical activity within the community.

### *Barriers to Healthy Eating*

Participants from all groups explained that the main barrier to healthy eating within their community is the desire of many to maintain traditional eating habits—described as eating large quantities of rice with each meal and using generous amounts of salt, sugar, and butter during food preparation. Our data suggest that this desire to maintain traditional habits has been strengthened over time by the difficulty of the refugee experience. In other words, it appears that the difficulty of the resettlement

process has fostered a desire for certain practices that are familiar. Food preparation and eating habits may be one of many such familiar practices. Comments by younger participants demonstrate that this want to maintain tradition is held predominantly by the elders within the community. Thus, there appears to be a difference between younger and older Bhutanese refugees in regards to the desire for acculturation. Previous work among immigrant communities living in Western countries has demonstrated that younger immigrants acculturate to a new society more quickly than older immigrants (Kwak, 2003). Consequently, this desire to maintain traditional eating habits likely represents a larger barrier to healthy eating among the elder individuals of the Bhutanese community. This difference between age groups should be taken into consideration by both health care providers and public-health practitioners when considering how to deliver education about healthy eating.

Although our data suggests that younger participants are more willing to change their eating habits, all participants described that the social pressure to conform to traditional eating habits presents another large barrier to healthy eating. Participants specifically described the practical challenges of eating differently from the rest of the family. In sum, because meals are prepared in bulk to feed the extended family members, it is difficult for an individual eating from the same portion of food to alter their personal eating habits. Whereas the desire to maintain tradition is reflective of the difficult refugee experience, this barrier is likely the result of the collectivistic values of the Bhutanese people. Collectivism is a value-system common to Asian cultures that assumes that individuals belong to one or more "in groups" from which they cannot detach themselves, and that the interest of these groups are more important than that of

the individual (Hofstede, 1984). Like the desire to maintain traditional eating habits, the desire to maintain collectivistic values has also likely been strengthened by the difficulty of the refugee experience. Although a previous study on the food habits of Southeast Asians immigrants living in the United States demonstrated that over time immigrants adopt a more individualistic approach to meals (Story & Harris, 1989), no study to our knowledge has specifically identified collectivism as a barrier to healthy eating.

Another barrier to healthy eating that is also related to the difficulty of the refugee experience is the desire of the younger people for unhealthy foods that were visible yet unaffordable while living in the refugee camps. Participants described that food rations within the refugee camp contained little variety. After arriving to the United States and receiving food stamps, a large variety of food was suddenly made affordable. This included the "junk" foods that were once unobtainable. Participants described that in response to this experience the young people of the community now consume excessive amounts of delectable, high fat, high sugar foods. This finding is consistent with previous reports that Cambodian refugees with higher food depravation scores are more likely to eat unhealthy foods (Peterman et al., 2010). Likewise, Cuban refugees cite their previous experience of food depravation as the reason for eating unhealthy foods after resettlement (Barnes & Almasy, 2005). Hmong refugees that had experienced food insecurity were shown to overeat unhealthy foods despite knowing the potential harms (Franzen & Smith, 2009). Thus, the difficult experience of spending a substantial amount of time in a food insecure environment presents a significant barrier to healthy eating, particularly among the young people of the community.

*Barriers to Routine Physical Activity*

Like barriers to healthy eating, barriers to routine physical activity can be more deeply appreciated when viewed in light of the refugee experience and the collectivistic-values of the culture. One of the largest barriers to routine physical activity discussed by participants in each focus group was the lack of time. Younger participants, specifically, noted that many within the community hold jobs with non-traditional working hours (e.g. in factories and gas stations) that includes nights, evenings, and weekends. They described, consequently, that they have no time for exercise. Recent work confirms that refugee populations tend to concentrate in certain low-skilled service 'niches,' such as cleaning services, transportation (e.g. taxi driving), and security work. These are jobs that require long hours with night and weekend shifts with minimal pay (Colic-Peisker & Tilbury, 2006). A previous study has also demonstrated that shift work (i.e. work outside of conventional daytime hours) is associated with an increased risk of cardiovascular disease. One of the causal mechanisms proposed is that shift workers exercise less than non-shift workers (Boggild & Knutsson, 1999), which may be related to the finding that shift workers sleep less and are more fatigued compared to day workers (Akerstedt, 1988). Thus, the perception among Bhutanese refugees that non-traditional working hours constitutes a barrier to routine physical activity appears to be substantiated within the literature. Furthermore, the fact that refugees more commonly hold employment that requires non-traditional working hours highlights the powerful influence of the refugee experience. Given the importance of this particular barrier to physical activity, we recommend that addressing it be highly prioritized. For example, an advocacy group may consider requesting employers to institute structured time during the work day for

exercise. A recent study among Mexican Ministry of Health workers demonstrated that such exercise breaks throughout the workday can be effective in reducing body max index, waist circumference, and blood pressure (Yancey et al., 2008).

The second time-related barrier to routine physical activity described by participants within our study was the time spent caring elderly family members. This barrier is likewise related to their refugee experience and collectivistic culture. Regarding the latter, previous work among Cambodian refugees living in California demonstrated that the expectation that the younger members of the family will care for the elderly is primarily driven by collectivistic values (Lew, 1991). One important application of collectivism is the understanding that an individual can rely on the broader social group (i.e. family) during periods of need. Consequently, when elder adults need assistance with their activities of daily living they can rely upon the younger members of the household. In regards to the refugee experience, this study also described that the limited English proficiency of the elder members of the household is a secondary factor in explaining their reluctance to receive care from people outside the community (i.e. nursing homes) (Lew, 1991). Although childcare has been previously identified as a barrier to exercise (Nies, Vollman, & Cook, 1999) no previous study to our knowledge has identified the care for elders as constituting a specific barrier to time for routine physical activity.

A third barrier to routine exercise reported by younger participants was having limited moral support from friends and family. Previous investigations performed among both refugees (Caperchione, et al., 2009) and Americans (Satterfield, et al., 2003) have similarly demonstrated that a lack of friends or family members to exercise with is a

significant barrier to routine physical activity. However, our results suggest that the difficulties of the refugee experience acting upon the Bhutanese community have created an environment of reduced social capital, and consequently, reduced motivation for physical activity. The first contributing factor to this reduction in social capital is the high prevalence of shift work within the community. Previous work confirms that working during non-traditional hours is associated with compromised family life and networks of social support (Boggild & Knutsson, 1999). A second contributing factor is the presumed high prevalence of mental illness within the community, which is a common problem among refugee populations (Bhugra & Jones, 2001). Key informants described that since their resettlement in the United States many people are experiencing "cultural sorrow." The factors described as contributing to this sorrow are related to the refugee experience and include financial/work-related stressors (e.g. not being able to pay bills, find meaningful employment) and family related stressors (e.g. disputes regarding the maintenance of tradition, Western acculturation). As mental illness by definition impairs social functioning, its high prevalence within the community may help explain the limited support for exercise that participants describe receiving from friends and family members. As the first step to managing a problem is recognizing its presence, one important area for future research is thus to quantify the burden of mental illness within the Bhutanese refugee community.

Although not discussed among focus group participants, multiple key informants described that concerns regarding the safety of their neighborhoods constitutes an important barrier for physical activity. Similar studies among other resettled refugee communities have found this to be a commonly cited barrier to exercise (Darr, Astin, &

Atkin, 2008); (Kim, et al., 2007); (Caperchione, et al., 2009). Previous work has shown that many refugees resettle in low-income areas (Carballo & Nerukar, 2001); (Francis, 2009), which are generally associated with higher rates of crime. The Bhutanese community of metropolitan Atlanta mostly resides within lower-income apartment complexes concentrated around the township of Clarkston, an area reported to have crime index 77% greater than the national average (WMG, 2012). The fact that the majority of the community resides within these low-income apartments constitutes part of what makes their experience as refugees difficult. Resettlement agencies, the local police department, refugee advocacy groups, and public-health practitioners should work together to develop strategies to address this important concern and barrier to physical activity. Such initiatives may include the addition of street lights within darkened areas, increased patrolling by local police, a neighborhood watch initiative, or coordinating landlord communication to ensure troublesome residents cannot find housing in the area.

## *Part II. Community Beliefs and Perceptions on Chronic Illness and its Management*

### *The Emergence of Chronic Illness and the Epidemiological Transition*

During group discussions on diabetes and hypertension, older participants provided a historical perspective on the emergence of these two illnesses within their community. Older participants described that while living in Bhutan malaria, tuberculosis, diarrheal disease, and malnutrition presented the largest threats to community wellbeing. It was not until after arriving to the United States that diabetes and hypertension became important issues, and replaced their former health concerns.

This recognized change in disease burden from acute, infectious and nutritional diseases to chronic, non-communicable diseases is reflective of the epidemiologic first described by Omran (1971). One participant's comment associating her move from a dirty to a clean environment with a shift from acute to chronic illness predominance fits nicely with what is understood to be the primary driver of the epidemiologic transition—namely, socioeconomic development (Omran, 1971).

*The Emotion-Disease Axis*

Participants in all groups described a connection between emotional stress and hypertension. This association was described as bidirectional—that is, one cause of hypertension is stress (i.e. "mental tension") and one of the primary effects of hypertension is anger outbursts. Older women and multiple key informants specifically described the stressors associated with their experience as refugees as the cause of their hypertension. Belief in the link between strong emotions and hypertension, however, has been found among the African American community (Hueurtin-Roberts & Reisin, 1990); (Hekler et al., 2008) as well as Caribbean immigrates (Morgan & Watkins, 1988). We hypothesize that this belief within the Bhutanese community partly developed due to fact that major life stressors (i.e. being removed from their home and placed in refugee camps) coincided in time with the initial diagnoses of hypertension made by Nepali doctors in the refuge camps. An alternative hypothesis relates to the non-Western idea of *qi*, or the vital flow of energy through the body. Previous work has reported that South Asian immigrants use the concept of *qi* to explain cardiovascular disease (Ton, et al., 2011) . Elevated blood pressure may arouse connotations of excessive blood flow, or

enhanced *qi* (life force). If this life force is enhanced, it may manifest in strong emotion (i.e. anger). However, these explanations were not present in the data and will require further study to determine their accuracy.

*Age and Illness Beliefs*

Older and younger participants displayed differing levels of understanding regarding diabetes. Despite have recognized diabetes as a large community health issue, older participants voiced knowing little about the disease. Younger participants, however, most commonly cited the excess consumption of sweet foods, rice, and root vegetables as the cause of diabetes. Younger participants cited hereditary and age as additional causes. This difference is likely explained by the higher level education completed by younger participants.

Interestingly, we found that although young women participants discussed heredity as a cause of diabetes, further probing revealed their idea of heredity differs from the biomedical understanding of genetic inheritance. Young women explained that parents who develop diabetes after their children reach adulthood are unlikely pass their illness to the next generation. Hatcher and Whitemorre (2006) report a similar finding among Hispanic patients with diabetes. Although Hispanic participants described hereditary as an important risk factor for diabetes, they explained that a child's risk of diabetes is associated with how well their parents controlled their own disease. Thus, we learned that an answer that sounds congruent with the biomedical model of disease may in fact not be.

Younger male participants discussed the importance of age as an important risk factor for diabetes, with some suggesting that the disease is unavoidable after the age of

45 years. When we pair this finding with the younger women's discussion of heredity, it suggests that a sense of fatalism regarding diabetes may exist within the community. Similar studies performed among refugee communities have demonstrated that fatalistic beliefs about health and illness are common and serve as barriers to health promotion (Brainard & Zaharlick, 1989); (Caperchione, et al., 2009); (Fleming & Gillibrand, 2009); (Ton, et al., 2011). However, as a fatalistic theme was not clearly apparent from within the data, further research on this topic among the Bhutanese community is necessary to determine its role.

*Illness Paradigms: Acute versus Chronic*

Participants in all groups discussed the consequences of diabetes and hypertension. However, group discussions centered upon the acute symptoms associated each disease. This particular focus on the acute symptoms of illness is likely the result of the community's familiarity with the acute, infectious disease paradigm and unfamiliarly with the paradigm of chronic disease. Helsel et al. (2005) writes "…to make sense of illness people use preexisting frames of reference; they draw on personal, familial, or cultural repertoires of explanations and categories to understand and reorder their own experiences." As described above, chronic illness is relatively new to the Bhutanese community. Consequently, the Bhutanese people may not have yet developed the framework necessary for understanding the chronic, insidious nature of diseases that are present for long periods before causing symptoms. Previous research has likewise found that the nature chronic diseases are poorly understood among groups that are familiar with acute, infectious diseases (Ypinazar and Margois 2006). Consequently, future

community educational efforts should include a clear message regarding the difference between acute and chronic illnesses. Likewise, healthcare providers should consider this paradigm difference when counseling Bhutanese patients about the importance of taking medications for an asymptomatic disease.

*Traditional Medicine and the Management of Chronic Illness*

Young and older participants described that while living in Bhutan it was common practice to manage illness with herbal preparations. This sometimes included the assistance of a traditional healer (i.e. "jumping doctor"). Participants described that the use of traditional medicines and healers in Bhutan was due to the fact that Western medicines were unavailable. With this background, one can understand the common use of herbal medicines within the Bhutanese community living in the United States for the treatment of diabetes and hypertension.

The most commonly mentioned herbal medicine for the treatment of both diabetes and hypertension by participants was bitter gourd. *Momordica charantia*, or bitter gourd, is a tropical vine native to Asia, Africa, and the Caribbean,with green leaves and yellow flowers. The fruit is oblong and green, resembling a cucumber. A number of studies have examined the biologic effects of *M. charantia* in both animal and human subjects. In rats with induced type 2 diabetes, *M. charantia* fruit pulp was shown to improve fasting blood glucose and beta cell function (Franzen & Smith, 2009). A similar study reported that *M. charantia* extract improved the antioxidant status and maintained normal glucose levels in diabetic rats given a chronic sucrose load (Colic-Peisker & Tilbury, 2006). Although these studies and others (Akerstedt, 1988); (Kwak, 2003) seem

congruent with traditional Bhutanese practice, a recent randomized control trial of 40 patients with type 2 diabetes taking *M. charantia* capsules three times daily reported no reduction in fasting blood glucose or weight loss (Hofstede, 1984). Although not as widely researched in the literature, one study has demonstrated *M. charantia* to have antihypertensive effects in rodents. However, to our knowledge no study regarding the efficacy of this treatment has yet been done in humans. Thus, despite being widely study, the use of *M. charantia* has not been shown to be of benefit in patients with diabetes and hypertension. Healthcare practitioners should be aware that bitter gourd and other bitter seeds are commonly used medications within the Bhutanese community for the management of diabetes and hypertension. Details regarding the use of these herbal preparations (i.e. dose and frequency) should be elicited during the clinical encounter, and patients advised about the potential benefits and harms of their use.

*Study Strengths*

The primary strength of this study stems from the working partnership that was developed between our research team and Bhutanese community. The leadership committee that was established played a major part in guiding the design and conduction of this investigation. In keeping with the intent of community based participatory research, a large degree of responsibility was afforded to the committee, including the recruitment of volunteer moderators, note-takers, translators, and participants, and the actual conduction of focus group discussions. Previous work (Lord and Hutchison, 1993) has shown that the research process itself can be an empowering experience for

communities. It is the hope of our research team that this was in fact the case and has thereby effectively established a foundation for future partnership activities.

# Chapter 6: Public Health Implications

Our hope is that the results from this study will be used by the 9-member Bhutanese leadership committee to develop culturally appropriate, community-based chronic disease prevention initiatives. Our research is also applicable to health care practitioners around the world that come into contact with refugees from Bhutan, as well as the non-governmental agencies that assist in the resettlement process. The following comprise a set of practical implications from this research that may be relevant to any professional or group seeking to help improve the health and resettlement of Bhutanese refugees:

1. Understanding the value of collectivism is paramount and should be used to encourage healthy behavior:

One important theme that emerged from our research was the importance of collectivism. This is in contrast to individualism, a value common to Western society. Although our results suggest that collectivistic values serve as a barrier to healthy eating, previous work has shown that it can serve as an important motivator for behavioral change if the particular change is endorsed by the group (Coburn & Weismuller, 2012). In the medical setting, this implies that any advice on behavioral change (i.e. healthy eating and physical activity) should be delivered to not only the individual patient, but actively involve the other members of his or her family.

From collectivistic values stem a desire for social acceptance and belonging (Hui, 1989). The importance of belonging and its relationship to health-related behavior within

the Bhutanese community was succulently described by one key informant when he said, "Our people tend to follow what everyone else in the community is doing." This strongly suggests that community-level health interventions that specifically seek to enhance the social capital of the commonwealth can be effective. Community gardening is one example of such an intervention that also takes into consideration the high value this community places on fresh, "pure" fruits and vegetables and our finding that many elders in the community are more familiar with occupation-related physical activity.

2. An understanding of traditional medicines and traditional healers within the community can help bridge cultural barriers to the management of chronic illness:

As described above, traditional medicines (i.e. bitter herbs and fruits) are commonly used in the management of both diabetes and hypertension. Although no human studies have demonstrated their clinical efficacy, of particular interest to health care clinicians is the safety profile of these medicines. To date, no large-scale studies have been done to establish the safety of bitter gourd (*M. charantia*). However, multiple case reports and case series shed some certain patient populations for whom *M. charantia* can be medically dangerous (Basch, Gabardi, & Ulbricht, 2003). These populations include:

A. Those with glucose-6-phosphate dehydrogenase deficiency, a genetic condition most common in persons of Mediterranean and Middle Eastern lineage, are at risk of developing favism[9] after ingestion of *M. charantia*.

[9] Favism is the clinical consequence of G-6-PD deficiency. It is a hemolytic anemia that can result in kidney injury, shock, and death if untreated (van Solinge & van Wijk, 2010)

B. Those with underlying liver disease, as *M. charantia* has been demonstrated to cause significant elevations in gamma-glytamlytransferase and alkaline phosphatase in animals after the ingestion of seed extract.

C. Those taking other blood-glucose lowering therapy (e.g. sulfonylureas), as this can precipitate severe hypoglycemia.

D. Pregnant women, as two proteins isolated from *M. Charantia* have been shown to be abortifacients in animals.

In addition to traditional herbal medicines, participants discussed the presence of traditional healers (i.e. jumping doctors) in the community. Although participants described them having a much more prominent role in Bhutan and Nepal, some did explain that there are still members of the community that seek care from the jumping doctors. In considering future public health interventions, these jumping doctors may be strategic partners and important for reaching the more vulnerable sub-groups within the community (WHO., 2002); (UNAIDS, 2000).

3. Opportunities for dietary change exist and should be further explored:

Although large barriers to healthy eating exist within the Bhutanese community living in Metro Atlanta (e.g. desire to maintain tradition), our finding that people in the community are both a) aware that particular traditional habits are unhealthy and, b) taking steps towards altering these habits, is encouraging and demonstrates that potential for further change exists. Participants described that many within the community are substituting a number of different foods—including paraboiled rice, brown rice, chapatti,

and noodles—for the more traditional white rice. The purpose for this substitution is to eat healthier, as these rice substitutes were described as being "lighter," and in the case of brown rice, contain more vitamins. Although further work is necessary to determine how effective these particular white rice substitutes are in reducing daily caloric intake and preventing weight gain, the community's attention this particular issue suggests that an openness to dietary counseling is present. Furthermore, the type of substitutions that are occurring demonstrates that to be effective, any advise should consider the value their culture places on rice consumption.

5. Effective community-level interventions should address both the structural and psychological barriers to routine physical activity:

One of the largest barriers to routine physical activity described by younger participants was having jobs with non-traditional work hours. As one of the reasons that refugees commonly hold these unskilled jobs is their limited language proficiency (Colic-Peisker and Tilbury 2006), English classes may effectively increase opportunity for exercise over time. Requesting the employers of refuges to institute structured time during the work week for exercise (e.g. walking breaks) may be an alternative strategy for addressing this particular barrier to exercise. Another structural barrier to physical activity within the Bhutanese community is safety. Potential ways that this issue can be addressed is through the development of a neighborhood watch initiative[10], or through strengthening the community's partnership with the local police department.

[10] Neighborhood watch is an evidence-based strategy shown to be effective in reducing rates of crime that involves community residents looking out for suspicious activities and having an easy and efficient means of communicating suspicions to the local police department (Bennett, Haolloway, & Farrington, 2008).

Many participants described the stress associated with their experience of being uprooted from their homes in Bhtuan, placed in refugee camps for 20 years, and struggling to adjust to life in the United States as a barrier to physical activity within the community. Previous work has demonstrated that refugee populations are particularly vulnerable to mental illness (Pumariega, Rothe, & Pumariega, 2005) and that prior trauma, time in refugee camps, and difficulty adjusting to life in the country of resettlement are significant risk factors for the development of depression (Fenta, Hyman, & Noh, 2004). Furthermore, depression serves as a risk factor for chronic illnesses (Patten, 2001), and patients with depression are less likely to engage in physical activity. As a result, programs that seek to enhance the physical activity of a community with a potentially high burden of mental illness should also address the mental health needs of the community to be effective.

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## Tables and Figures

| Table 1: Studies of healthy eating and physical activity practices included in review | | |
|---|---|---|
| **Author (year)** | **Study Population** | **Methodology** |
| Barnes and Almasy (2005) | Refugees: Bosnian, Cuban, Iranian | Qualitative: In-depth interviews |
| Drummond et al. (2011) | Refugees: Sierra Leon, Liberia | Quantitative: questionnaire |
| McEwen et al. (2008, 2009) | Refugees: Somalia | Qualitative: Focus group discussions |
| Harrison et al. (2005) | Asian immigrants: Chinese, Vietnamese | Qualitative: Focus group discussions, Key informant interviews |
| Kim et al. (2007) | Asian immigrants: Hmong | Qualitative: Focus group discussions, Key informant interviews |

# Appendix

## Bhutanese Focus Group Discussion Guide

**Introduction:**
Good morning, my name is [moderator's name] and I am working with a team of health employees from Emory University, we are conducting a research project on how Bhutanese refugees in the Atlanta area view and understand health, illness, diabetes and high blood pressure. The hope of the researchers is to learn how the Bhutanese view these illnesses and to use this information to create culturally sensitive and effective services to best meet your community's health needs. Each of you were chosen to be a part of this group because we feel that your views are valuable, and together, can help us to develop the understanding we need to best serve the Bhutanese people living in Atlanta and elsewhere.

Your participation in this group discussion is completely voluntary. For any reason, you can decide not to answer any question that is asked of the group, and are free to leave the group at any time. I would like to tape-record our conversation to be sure that I do not miss anything that you say. I want to assure you that our discussion and the tape recording will remain confidential. No one's personal information will be shared outside of the research group.

I have a list of topics that I would like for us to discuss and questions to guide our discussion. However, please feel free to bring up any ideas that seem relevant to the topic. Please know that you are the experts for your culture and what you feel is important; we want to learn from you. I am most interested in understanding the Bhutanese community's beliefs and ideas about health, illness, diabetes and high blood pressure.

Before we begin, I would like to describe the basic rules for our discussion: First, it is best if only one person speaks at a time. This is important because we want to be sure to hear what everyone has to say. Second, there is no need to speak in any particular order. Simply engage in the discussion as you are able and speak freely. Third, it is okay to disagree with one another. All of your opinions are equally important. And lastly, please keep all side conversations to a minimum. If you do have comments, please make them to the entire group so that we can all appreciate what you have to say.

Do you have any questions before we begin?

Okay, to get to know each other a little before we begin , let's go around the room telling everyone your name and, since we will be talking a little about food today, your favorite food and why.

**Perceptions of Community Health:**

1. Within the Bhutanese community living here in the U.S., what are the most common health problems?

**Perceptions of Health and Illness:**

2. What causes a person to be healthy?

3. Are there certain things a person can do to maintain his or her health and not become sick?
*Probe: how does doing these things cause someone to be healthy?*

4. What causes a person to become sick?

5. How does being sick impact someone's life?
*Probe*: *Work*? *Relationships with family and friends?*

6. What can be done to help a sick person become well?
*Probe: Traditional healers and medicines? Doctors and hospitals? Why?*.

7. What prevents people within your community from being as healthy as possible?

**Understanding and views of diabetes and heart disease:**

Now, I'd like to ask the group a few questions about diabetes and high blood pressure…

8. What do you know about diabetes?

9. Why do people get diabetes?
*Probe: Passed down from mother or father? Explain how this works?*

10. Can people prevent themselves from getting diabetes?
*Probe: If so, how?*

11. What can happen to people as a result of having diabetes?

12. Can someone have diabetes and not know that they have diabetes?

14. What are good treatments for diabetes?
*Probe: Traditional treatments*

15. If someone takes treatments, will their diabetes go away or will they need treatment for the rest of their life?

16. Who can someone trust to learn more about diabetes?
*Probe: Friends? Family? Traditional healers? Doctors?*

17. Do people with diabetes need to eat differently than the rest of the family?

If so, is this difficult for them to do this?

18. Out of the following people, who has a highest chance of getting diabetes:
A. The person born to a mother who has diabetes before she becomes pregnant?
B. The person born to a mother who gets diabetes soon after she gives birth?
C. The person born to a mother who does not have diabetes?

19. Of these options, who has the lowest chance of getting diabetes?
*Probe: Reasons why?*

20. What do you know about high blood pressure?

21. Why do people get high blood pressure?

22. Can people prevent themselves from getting high blood pressure?
*Probe: If so, how?*

23. What can happen to people as a result of having high blood pressure?

24. What are good treatments for high blood pressure?

25. If someone takes these treatments for high blood pressure, will it go away completly or will they need to take treatment for the rest of their life?

26. Can someone have high blood pressure and not know that they have high blood pressure?

27. Who can someone trust to learn more about high blood pressure?
*Probe: Friends? Family? Traditional healers? Doctors?*

**Dietary patterns, physical activity and health**

Now we are going to move on to a discussion of food…

28. How much rice should a person eat each day in order to be healthy?

29. What specific foods are healthy for a person?

30. Is the way a food is prepared important for determining how healthy a food is for the body?
*Probe: Use of salt, spices, butter/oils, cooked versus raw?*

31. What are some foods that are not healthy for a person to eat?
*Probe: why*?

32. Is the amount of food a person eats important for their health?

33. Exactly how does someone determine the right amount of food for him or her?

If someone in your community wanted to eat meals containing mainly vegetables and fruits
with smaller portions of rice and limited amounts of butter, oil, sugar, salt, and sweets—including putting less sugar in tea:

34. What would happen to this person?
*Probe:, Why would this happen?*

35. Would it be easy for a person to eat this way in your community?
*Probe: Why would this be difficult or easy?*

36. What would this person's family and friends think about their eating habits?

37. Do you know anyone in your community who eats like this?
A. If so, are they healthy? Why?

38. Within your community, what prevents people from eating healthy foods?
Probe: *How do these things prevent people from eating healthy?*

Now we are going to discuss the topic of exercise…

39. When you hear that someone is exercising in your community, what comes to mind?
*Probe: Specific activities?*

40. How much physical activity or exercise is good for a person's health?
*Probe: Frequency? Duration?*

41. Who in your community should exercise on a regular basis?

42. Who in your community should not exercise on a regular basis?

43. What happens to people that:
    A. Exercise on a regular basis?
    B. Do not exercise on a regular basis?
    *Probe: Can you explain why this happens*?

44. Within your community, what prevents people from exercising on a regular basis?

**Closing question:**

45. What are some ways that your community can work to improve the overall health of its people?

46. What are some ways that the volunteer health professionals from Emory can work with you to benefit your community?