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“Un Pueblo Tan Dulce”: Diabetes, Depression, and Obesity Syndemics in Puerto Rico

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Un Pueblo Tan Dulce: Diabetes, Depression, and Obesity Syndemics in Puerto Rico

Shir Lerman, PhD

University of Connecticut, 2016

Diabetes, depression, and obesity are global health crises that disproportionately affect people with low socioeconomic status and other marginalized identities. These diseases have high incidence and prevalence rates in Puerto Rico due to high poverty and unemployment rates, changing dietary patterns, and Puerto Rico's political status as a U.S. commonwealth. Puerto Rico's political status is of particular importance, as it simultaneously contributes to and poses unique challenges to addressing the complex and myriad health crises on the island. As such, I take syndemic and critical medical anthropology approaches to maintain that depression, diabetes, and obesity are politicized in Puerto Rico. I draw on nearly a year of mixed-methods fieldwork to argue that depression, obesity and diabetes form a syndemic with the violence and political instability that are part and parcel of living in Puerto Rico. I named this syndemic the OVIDD (Obesity, Violence, political Instability, Diabetes, and Depression) Syndemic.

One of my key findings is that Puerto Rico's political status exacerbates the incidence and prevalence rates of diabetes, depression, and obesity on the island. These diseases are politically charged, and their incidence and prevalence rates are unlikely to diminish without also improving the political and economic crises in Puerto Rico. The diseases in question interact deleteriously and syndemically, contributing to the OVIDD Syndemic in Puerto Rico. Moreover, the question of Puerto Rico's political status has remained in flux since the United States acquired the island from Spain following the Spanish-American War of 1898. Puerto Ricans report preferring either full statehood or full independence and do not want to maintain the current status quo. However, despite Puerto Ricans' pleas to the U.S. Government to change the island's status, the government has thus far not made any effort to heed their wishes. This leaves the island in a state of political liminality in which Puerto Rico is neither an independent nation with the power to make its own decisions, nor a full state that receives full economic and political benefits from the United States.

“Un Pueblo Tan Dulce”: Diabetes, Depression, and Obesity Syndemics in Puerto Rico

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2016

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Shir Lerman

2016

APPROVAL PAGE

Doctor of Philosophy Dissertation

“Un Pueblo Tan Dulce”: Diabetes, Depression, and Obesity Syndemics in Puerto Rico

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“But I don’t want to go among mad people,” Alice remarked.

“Oh, you can’t help that,” said the Cat. “We’re all made here. I’m mad. You’re mad.”

“How do you know I’m mad?” said Alice.

“You must be,” said the Cat, “or you wouldn’t have come here.”

Lewis Carroll, *Alice’s Adventures in Wonderland*, chapter 6

Introduction and Research Questions

Researchers in health and in social sciences are paying increasing attention to Type 2 Diabetes Mellitus (T2DM, henceforth referred to as diabetes) due to its rising global incidence and prevalence (WHO 2012; Wild et al. 2004), particularly in places, such as China and India, that are rapidly experiencing urbanization and economic and nutritional changes (Hu 2011). Diabetes is important because of its known association with other diseases, such as cardiovascular disease (Echouffo-Tcheugui and Kengne 2013; Steinberger and Daniels 2003), obesity (Kaufman 2005; Moore and Pi-Sunyer 2002), and polycystic ovarian syndrome (Jakubowicz et al. 2012; Sharpless 2003) as well as with depression (McSharry et al. 2013; Mendenhall 2012; Park et al. 2013; Rock 2003). While researchers and health care providers have long known about the coexistence of illnesses, it is only in the last few decades that anthropologists have begun to address this issue in their work and have developed a body of literature on culture and comorbidity built around syndemics theory that will be discussed below (González-Guarda et al. 2012; Guarnaccia 1993; Mendenhall 2015, 2012; Rock 2003; Thapa 2014; Weaver et al. 2015). My research in Puerto Rico dealt specifically with what I call the OVIDD Syndemic (Obesity, structural and symbolic Violence, political Instability, Diabetes, and Depression) and contributes to this growing body of literature.

What is Syndemics?

Syndemics theory was introduced by Merrill Singer (Singer 1994, Singer and Clair 2003) to examine the "...concentration and deleterious interaction of two or more diseases or other health conditions in a population, particularly as a consequence of social inequality and the unjust exercise of power" (Singer 2009:xv). This theoretical approach addresses the ways in which

negative health conditions perpetuate and worsen one another's presence and are negatively affected by social, political, and economic inequalities that underpin these deleterious illness interactions.

The relationship between diabetes and depression has developed to the point that it is no longer sufficient to consider the two illnesses to be comorbid; they do not merely coexist, but interact synergistically to accelerate and worsen one another's etiology and side effects. For example, depression contributes to swifter kidney failure and retinopathy among individuals with diabetes and to missed medical appointments, medication non-adherence, and inconsistent adherence to a diabetes-friendly diet (Ciechanowski et al. 2006; Egede and Ellis 2010). Conversely, diabetes contributes to the inability to heal from depression, particularly if diabetes develops as a consequence of changes in diet that often go hand-in-hand with depression (Golden et al. 2009). In addition, people with depression are also more likely to abuse alcohol and smoke cigarettes, which can also contribute to elevated risk for developing diabetes (Brown et al. 2005).

Many of the risk factors for both diabetes (increased weight and physical inactivity, ethnicity [African Americans, Hispanics, and Native Americans], age, high blood pressure, and a family history of diabetes (Mayo Clinic 2015b) and depression (alcohol and/or drug abuse, family history of depression, a history of other mental illnesses, co-existing chronic illnesses, and traumatic events (Mayo Clinic 2015)) are the result of culturally constructed structural inequalities.

Social and economic inequalities result in differential access to healthcare and healthy food (e.g., affordability), difficulty in obtaining employment or education (e.g., as a result of an illness), and illness as a result of poverty and crime. Social inequality and unjust power implementation are inherent contributors to structural violence, which is defined as societal,

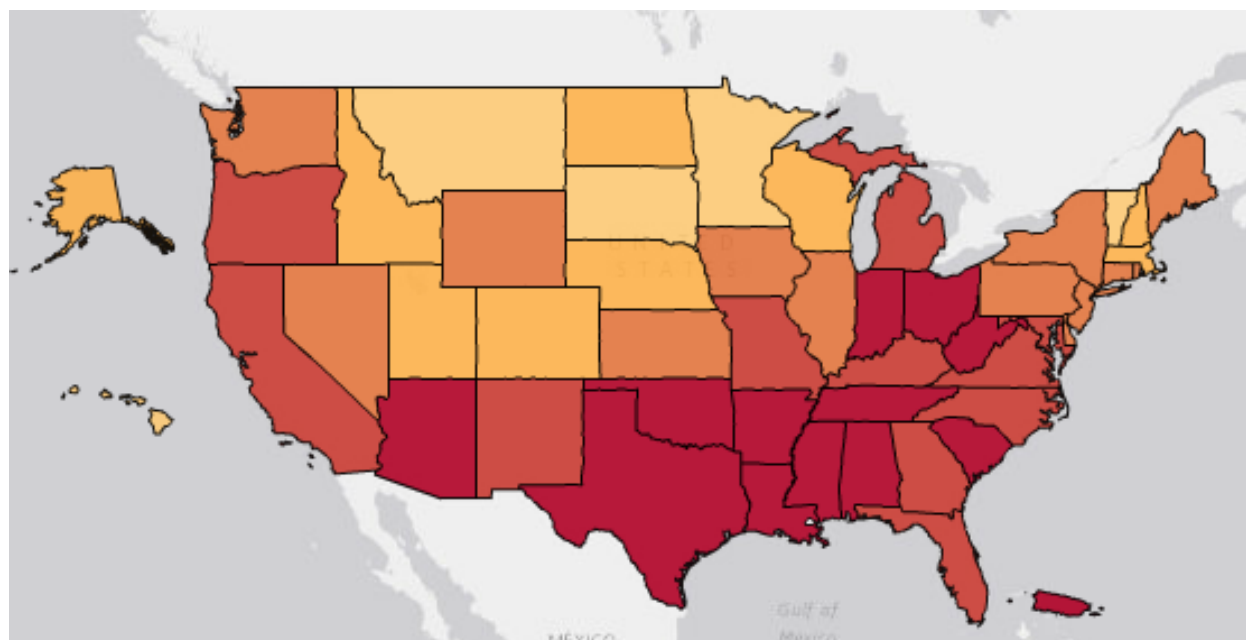
institutional, and structural dimensions of suffering, or what James Gilligan (1997) concisely defined as “...the increased rates of death and disability suffered by those who occupy the bottom rungs of society, as contrasted with the relatively lower death rates experienced by those who are above them” (pg. 192). Paul Farmer expanded on Gilligan’s definition by describing structural violence as “...social arrangements that systematically bring subordinated and disadvantaged groups into harm’s way and put them at risk for various forms of suffering” (Benson 2008:590; Farmer 2004:307-308). Structural violence manifests at the institutional level and prevents the powerless and disenfranchised from meeting their basic needs, including regular access to healthy food, clean water, education, safe shelter, and warm clothing.

Like structural violence, symbolic violence, or the implicit inequities that impair wellbeing, also contributes to syndemics. It constitutes the way in which sufferers are exposed to and internalize social domination via their social, political, and economic environments, which, in turn, perpetuate the syndemic relationship (von Holdt 2013:115; Mendenhall 2012:16). Thus, my analysis of the interactions between diabetes, obesity, and depression draws on the syndemic framework and uses both structural and symbolic violence to evaluate the manner in which those interactions interact with social, economic, and political environmental factors in Puerto Ricans.

As a result of structural violence and social inequities, diabetes and chronic depression are unevenly distributed in populations (Moffat 2010; Weaver and Hadley 2011). Historically, diabetes was historically considered a “disease of affluence”, as sugar was an expensive commodity and thus limited to the wealthy (Wiedman 2012). Currently, however, diabetes disproportionately affects the poor within wealthy nations due to the overabundance and over-consumption of inexpensive, nutrient-poor (but high in sugar, fat, and sodium) foods, lack of safe and realistic physical activity opportunities and access to healthy foods, and increased

psychological distress due to a lack of steady access to housing, healthcare, and social support (Guell 2011; Mendenhall et al 2010; Rock 2003) and the threats and stresses of poverty in industrial society. The changed demographics among those newly diagnosed with diabetes have led to health researchers now dubbing it a “disease of poverty” (Mendenhall et al. 2010; Schoenberg et al. 2005; Rock 2003). Like diabetes, chronic depression has also become more common among low-income people, including those in places historically affected by American colonialism (Kaur et al. 2013; Rood 1996). In addition, depression is much more frequent among those who have experienced a form of violence, such as domestic or structural violence (Jackson et al. 2009; Massé 2007; Mendenhall and Jacobs 2012). Mental illness is also caused by, and results in, poverty (Belle and Doucet 2003; Lloyd et al. 2010; Lorant et al. 2003; Saraceno and Barbui 1997).

The map below shows the prevalence of diabetes among adults ages 20 and over in the United States and Puerto Rico:



The states with the highest rates of diabetes (Mississippi, Louisiana, West Virginia, Alabama, and Tennessee, as well as Puerto Rico) are also the poorest in the United States (CDC 2012). Rate is per 1,000 people.

Puerto Ricans on the island in particular are at high risk for diabetes (15.4%) and depression (11%); by comparison, the diabetes prevalence rate in North America and the Caribbean is 11.5% (Centers for Disease Control and Prevention 2015; International Diabetes Foundation 2014). Contributing structural factors, as will be shown in this dissertation, include high crime and poverty rates, changing dietary and physical activity patterns, and political instability (Jiménez et al. 2013; Langellier et al. 2012; Paraless Quenza 2009; Soltero and Palacios 2011). Puerto Rico's status as a U.S. Commonwealth means that the island does not have the full status of a U.S. State and does not receive sufficient funding for federally funded programs such as Medicaid and the Supplemental Nutrition Assistance Program (SNAP, which was formerly the

Food Stamp program). For example, Puerto Rico ranks forty-eighth out of the fifty states, Puerto Rico, and Washington, DC in terms of annual federal research and development money received (Elliot et al. 2012). In addition, contemporary eating patterns have been correlated with both type II diabetes and chronic depression (Austin 1999; Hadley and Crooks 2012; Hu 2011). The increased consumption of animal fats, simple carbohydrates, trans fats, and fructose all contribute to insulin resistance (Hu 2011). Previous attempts to address the underpinnings of the pervasiveness of diabetes and/or depression in Puerto Rico have not incorporated either eating patterns and Puerto Rico's politically liminal status or the sociocultural factors that underlie syndemics and structural and symbolic violence as models that promote the etiology and perpetuation of these illnesses in Puerto Rico. Nor have they addressed the enhancing aspects of syndemic interaction.

For this reason, I identified three guiding research hypotheses to frame my research on the OVIDD Syndemic:

- 1) Individuals with both diabetes and obesity have greater prevalence and severity of depression than individuals with only diabetes or obesity.
- 2) Type II diabetes mellitus, obesity, and depression contribute to and reinforce the negative lived experiences of the people suffering from these diseases.
- 3) Puerto Rico's liminal political status and pattern of structural violence underlie and propagate diabetes, obesity, and depression on the island and create the five-pronged OVIDD (Obesity, structural and symbolic Violence, political Instability, Diabetes, and Depression) Syndemic.

In this dissertation, I begin by taking describing the diseases I address: obesity, diabetes, and depression and take a critical look at the biological and structural factors that contribute to the

OVIDD Syndemic in Puerto Rico. Following this, I examine the historical, political, and economic elements in Puerto Rico that exacerbate the syndemic on the island. After this I discuss syndemics theory, which guides and structures my research and the methods I used. Finally, I discuss my results and offer conclusions and steps forward to remedy the cultural and structural factors that have favored ill health.

Chapter One: Understanding the Social Nature of Chronic Disease

By the end of the twentieth century, chronic illnesses had replaced infectious diseases as the primary causes of morbidity, mortality, and overall life disruption in the United States, accounting for 70% of deaths in the country (Cooper et al. 2012; Kreiner and Hunt 2013; Manderson and Smith-Morris 2010; Centers for Disease Control and Prevention 2015). Heart disease and cancer combined, the top two causes of death in the U.S., cause 48% of all mortalities (CDC 2015). The rise in the incidence and prevalence rates of chronic illnesses has

been linked to a combination of socioeconomic and life-condition¹ factors, such as poverty, linguistic and gender barriers to care, differential access to healthcare and healthy foods (e.g., fresh fruits and vegetables), astronomically high tax and unemployment rates, increases in the usage of motorized transportation and in sedentary behavior, an increase in the consumption of processed foods, and the cleanliness and overall healthiness and safety of neighborhoods (Cooper et al. 2012; Nugent 2008; Whyte 2012). For example, air pollution is correlated with asthma, allergies, lung cancer, and heart problems, and disproportionately affects lower socioeconomic neighborhoods (Chen and Goldberg 2009; Peled 2011; Williams et al. 2009).

A discussion of chronic illness is particularly timely due to longer lifespans and the economic implications of paying for medications and regular health checkups for longer periods of time; as people age, more of their overall expenses will be dedicated to healthcare (Diefenbach et al. 2009; Rodríguez-Gómez et al. 2006). At the same time, some research suggests that very chronic illnesses that tend develop with age, such as diabetes, are also responsible for shortening the lifespans of younger generations (Gray 2014; Olshansky et al. 2005). The following figure (Figure 1) from the National Institute of Aging presents actual and projected estimates of chronic illness among adults 65 or older, and illustrates that chronic illness is becoming more prevalent not only in high-income countries but also in low- and middle-income countries (U.S. Department of State 2016).

¹ Keeping in line with Susan Whyte's (2012) recommendations on chronic illness research, I use the term 'life-condition' in lieu of 'lifestyle' in order to acknowledge that sufficient self-discipline is not sufficient to stave off chronic illnesses, and that larger sociopolitical factors are oftentimes also implicated.

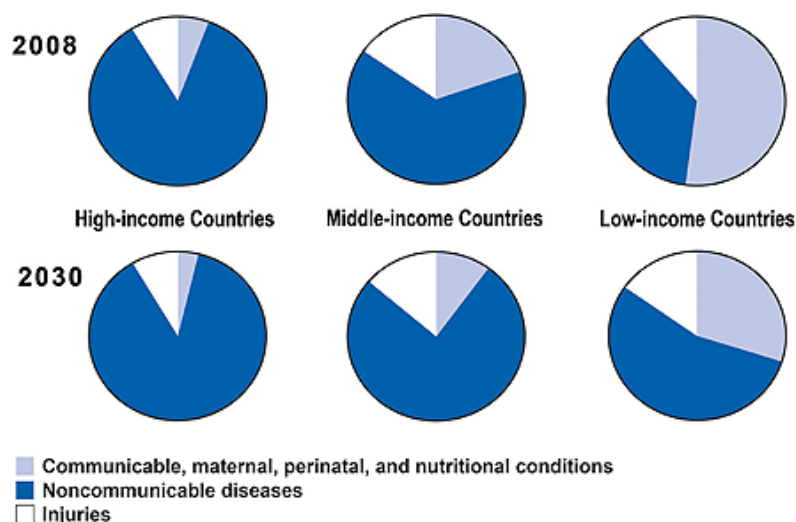


Figure 1
 National Institute on Aging, “Global Health and Aging: New Disease Patterns”, 2011.

Suffering Invisible Diseases

Some of the diseases that comprise OVIDD have certain social features that contribute to the experience of their sufferers. The sick role itself allows for the normalizing of deviant behavior, which “fails in some way to fulfill the institutionally defined expectations of one or more of the roles in which the individual is implicated in society” (Parsons 1951:452). Certain chronic conditions, like enduring pain, diabetes, and depression, are invisible to the public eye and can cause a disconnect between the sufferers’ lived experience of pain and suffering and the public’s apparent indifference to their unseen affliction. This can cast doubt on the person’s health status and de-legitimizes his or her illness experiences and associated suffering, stripping the sufferer of his or her agency in the process. This is what M. Cameron Hay (2010) describes as “...local social interactions in which others judge the validity of experience, often basing those judgments on assumptions about real disease as something physically apparent or visible” (pg. 260). Illness challenges agency, which Hay succinctly defines as “the intentional and motivated capacity to act that is often manifested in productivity... in daily life” (2010:260) and

thus one's validity as a productive member of society. Illness invisibility magnifies the suffering of those with a chronic illness by delegitimizing the significance of the illness as a visible, and thus "real", experience (Hay 2010). People with invisible chronic illnesses, therefore, may be required to work despite and around their illnesses to prove their agency, therein amplifying their suffering and negatively impacting their agency. To have a chronic illness is to house several identities simultaneously: to be both Same and Other, both part of the community and apart from it, and in a permanent state of liminality, neither fully healthy nor acutely ill (Jackson 2005; von Peter 2013). The individual partly fulfills the sick role of 'not functioning normally' (Parsons 1975:259) by having 'permission' to not to be a fully productive member of society (Parsons 1951; Scrimshaw 2006), but since some chronic illnesses allow for partial societal participation (e.g., diabetes, depression, obesity), the individual is not seen as being fully "sick" enough to deviate from being productive but is not well enough to not fully participate in society (Manderson and Smith-Morris 2010).

Chronic illnesses are fundamentally about bodies: how bodies with chronic illnesses change, the social meanings that are mapped onto physical bodies with chronic illnesses, and how both people with chronic illnesses and their social networks cope with chronic illnesses (Kelly and Field 1996). Chronic illnesses disrupt the 'structures of everyday life' and bring to focus 'the worlds of pain and suffering' and potential death (Bury 1982:169). Their social contexts are by definition long-term and require long-term maintenance (Bury 1991). Chronic illnesses change the way that individuals understand and live with illnesses, the ways in which individuals interact with their bodies, and how society interacts with the chronically ill. For example, while diabetes was initially primarily prevalent among adults over sixty-five, it is becoming more prevalent among individuals in their thirties, forties, and fifties (Kaufman 2005;

Popkin 2009), leading to individuals living with diabetes for greater parts of their lives, both in terms of being diagnosed earlier and living longer with diabetes. This places an economic burden on both the individual and the population, due to disease-adjusted life years (DALYs; a lost DALY is a lost year of a ‘healthy’ life), frequent medical check-ups and ensuing treatment, and caring for an aging population subset (World Health Organization 2016).

Stigma and Chronic Disease

Stigma is a major part of living with diabetes, depression, and obesity (Barlösius and Philipps 2015; Brewis 2014; Brown et al. 2010; Schabert et al. 2013). The word itself comes from the Greco-Roman era but has numerous definitions today, the most prominent of which is that of Erving Goffman who defined stigma as “an attribute that is deeply discrediting” and would cause an individual to be rejected (Goffman 1963:3). Goffman categorized stigma into three categories: abominations of the body (physical deformities), blemishes of the individual character that are “perceived as weak will”, and a tribal stigma of race, nation, and religion (Goffman 1963:4). To have a stigma indicates an individual’s loss of value, or a ‘spoiled identity’, that cuts the person off from his or her community (Goffman 1963). Bruce Link and Jo Phelan expand on Goffman’s definition by describing stigma as an undesirable characteristic that leads to discrimination. Stigmatization furthers the process of separation between “us” and “them” (Link and Phelan 2001) and contributes to poorer health outcomes. It encompasses a wide range of people, including women, ethnic minorities, the obese, the mentally ill, and the poor (Abadía-Barrero and Castro 2006; Lichtenstein 2003; Quinn and Chaudoir 2009; Rao and Valencia-Garcia 2014; Stuart and Arboleda-Florez 2012). Stigma also reflects the positionality of power and inequality (Link and Phelan 2001; Schabert et al. 2013). It delineates between

those in power, who stigmatize others and draw power from the process, and those who are stigmatized as outsiders for having at least one stigmatized condition. Stigmatizing others is a “tactical response to perceived threats, real dangers, and fear of the unknown” (Jenkins and Carpenter-Song 2008:382) that delegitimizes not only the stigmatized conditions but also the person and his or her experiences and interpretations. In this dissertation, I concentrate on stigma as contextualized within both the illnesses being researched and within the politically unbalanced relationship between Puerto Rico and the United States.

Syndemics Theory as a Framework for Understanding Chronic Diseases

The illnesses I research in this dissertation— diabetes mellitus, obesity, and chronic depression – have attracted attention due to their independently sharp increase in incidence and prevalence (Golden et al. 2009; Weiler and Crist 2009). The anthropological literature focuses on the self-management of each disease, examining compliance with self-management and life-condition factors that affect the disease course, and sociocultural and environmental situations that influence the promulgation of all three illnesses. Social and environmental situations include cultural understandings of illness etiology and treatment, access to transportation to get to a doctor’s office, economically feasible healthy food options, and safe neighborhoods in which to exercise (Cabassa et al. 2008; Ferzacca 2000; Lin et al. 2004; Weaver and Hadley 2011; Wittink et al. 2008).

Precisely because depression, obesity, and diabetes are potentially interconnected, we need a framework that will help researchers appreciate the three illnesses as part of a holistic experience. Syndemics theory, which was founded in the broader paradigm of critical medical anthropology, is an essential tool for understanding the pathways that connect different diseases.

The theory goes beyond comorbidities to include and critique the ways in which two or more diseases interact and intensify each another on both the biological and the structural levels through socio-physiological, biopolitical, biocultural, and psychosocial pathways (Singer 2009).

While syndemics theory was introduced using the example of the substance abuse, violence, and AIDS triad (the SAVA syndemic), it is easily applied to many other synergistic health conditions (Singer 2009). It provides a framework through which to understand that interacting health conditions do not exist in a vacuum and that in curing and healing individuals, it is not sufficient merely to treat specific diseases but also the broader social conditions in which diseases and illnesses develop and interact must be considered and addressed. It is especially valuable to use the syndemic approach in the study and development of interventions for chronic illnesses, since most of them have numerous health complications and are strongly correlated with other chronic illnesses as well as acute and infectious illnesses. Syndemic constellations are also more likely to occur in specific sociopolitical conditions, such as poverty, crime, unemployment, domestic violence, racism, sexism, and political immobility (Belle and Doucet 2003; Hanandita and Tampubolon 2014; LeBron et al. 2014; Weaver and Mendenhall 2014).

The Meanings of Disease and Illness

In discussing syndemics and the relationships between the biological, structural, and social components of the OVIDD Syndemic, it is important to recognize the differences and similarities between disease and illness as etiological categories. Disease refers to a breakdown in the biological pathways of the body with ‘operationally identifiable etiology’, while illness refers to the cultural construction and psychosocial experience of, and meanings surrounding, the disease (Kleinman 1980:72; Kleinman and Good 1985). In order to fully appreciate the impact

of a health condition on the individual and his or her social network, both the disease and the illness experience need to be taken into consideration. Individuals are bound by cultural models of health and non-health, which in turn dictate the way that they seek (or do not seek) treatment. I dedicate time to discussing both disease and illness categories in order to unpack the layers of the syndemic in question. Additionally, since both disease and illness are ‘abnormal’ states of health, exploration of their roots mandates an *a priori* understanding of ‘normal’ health as it is culturally defined and delineating how and whether the sufferer can function normally (Keyes 1985; Lutz 1985; Quinlan 2011). Therefore, I describe the variance of the illnesses of interest from a ‘normal’ state of health, although due to cultural differences in the perception of ‘normal’ various cultural examples of each illness may be needed.

Following similar arguments, I use ‘individual with diabetes/depression/obesity’ to describe individuals suffering from the illnesses in question. ‘Patient’ implies a solely clinical experience of receiving clinical care, while ‘sick person’ and ‘sufferer’ imply that the individual’s identity is immersed wholly within having an illness (Kleinman 1988, 1980). Since persons with chronic illnesses often return to work and daily activities in the community and learn to self-manage their illnesses, the term ‘individual with diabetes/depression/obesity’ allows them a more active role in their own lives (Kleinman 1988).

Chapter Two: Diabetes, Depression, and Obesity Syndemic Diseases

Diabetes mellitus is well established as a chronic illness, having been described as such as early as the second century CE by the Greek physician Aretaeus of Cappadocia (Laios et al. 2012; Sanders 2002):

Diabetes is a wonderful affection, being a melting down of the flesh and limbs into urine... The patients never stop making water, but the flow is incessant, as if from the opening of aqueducts... The nature of the disease, then, is chronic, and it takes a long period to materialize; but the patient is short-lived, if the constitution of the disease be completely established, for the melting is rapid, the death speedy. Moreover, life is disgusting and painful... they thirst, as if scorched up with fire...

Indeed, an unnamed seventeenth-century English surgeon called diabetes ‘the pissing evile’ due to frequent urination common for that disease (Kelleher 1988). Expanding upon Aretaeus’ and the unnamed physician’s vivid descriptions, diabetes is characterized by high blood sugar (glucose) and the body’s inability to produce and/or process insulin (a hormone that helps the body use energy), and it has reached epidemic proportions in the contemporary world (Katon et al. 2010; Mendenhall et al. 2010; Pineda-Olvera et al. 2007). The number of people worldwide living with diabetes rose from 171 million in 2000 to 371 million people in 2015, and it is estimated that by 2030, almost 552 million individuals worldwide will have diabetes (International Diabetes Federation 2013). By 2012, 29.1 million people in the United States alone had developed type-2 diabetes, constituting 9.3% of the overall United States population, and diabetes was the seventh-leading cause of death nationwide (Centers for Disease Control and Prevention 2014). While diabetes mellitus (DM) manifests as one of three types (Type 1, Type 2, or Gestational), my research focused specifically on Type II Diabetes mellitus (T2DM), also known as adult onset diabetes, which is the most common form of diabetes and accounts for

nearly 95% of the population of individuals with diabetes in the United States and worldwide (ADA 2011; IDF 2013). As such, I will use ‘diabetes’ to indicate T2M and will specify all other types as needed.

During the digestion process, the body breaks down food into sugars, starches, and protein and converts them into glucose (the body’s main energy source), which is then incorporated directly into the bloodstream (Kaufman 2005). β -cells in the pancreas, which produce and synthesize insulin, receive a signal that glucose has spiked; the β -cells release insulin, which transports glucose from the blood into the cells to be used as fuel. When the cells do not recognize insulin due to impaired insulin receptor signaling on the cells, glucose builds up in the blood cells and other body cells do not receive the fuel they need to function properly (Albu 2012). This process damages the β -cells and reduces insulin production, leading to the development of diabetes (ADA 2011; Coronado et al. 2007; Montoya 2011).

Healthcare providers diagnose diabetes after administering an oral glucose tolerance test (OGTT), in which a healthcare provider measures an individual’s baseline glucose level, the individual then drinks a sweet glucose drink within five minutes after the measurement, and then a second glucose measurement is taken two hours after the individual drinks the glucose beverage (ADA 2011; Rock 2003). Normal glucose levels should be lower than 100 mg/dl, while “at-risk” levels are 101-125 mg/dl, and diabetes is 126 mg/dl and higher (ADA 2011). Symptoms of diabetes include retinopathy (damage to the retina), polyuria (increased urination), polyphagia (increased hunger), polydipsia (increased thirst), blurred vision, unusual weight loss, tingling/numbness in the hands or feet, frequent infections, extreme fatigue and irritability, and slow-healing cuts and bruises (ADA 2013c; Egede 2004; Lin et al. 2004). Diabetes is one of the leading causes of blindness, end-stage renal failure, gangrene, and gangrene-associated non-

traumatic limb amputations among adults in the United States (González et al. 2009; Vest et al. 2013). Individuals with diabetes are also at increased risk for stroke, some cancers (pancreatic, liver, endometrium, breast, bladder, and colon and rectal), high blood pressure, and poor dental health, and heart problems are two to four times as likely in individuals with diabetes as in individuals without it (Ferzacca 2000; Giovannucci et al. 2010; Lieberman 2004; Schoenberg et al. 2005).

Biomedical treatments for diabetes focus on losing weight by adopting healthier life-conditions, particularly increased physical activity and a diet rich in fruits and vegetables and low in processed foods. If the healthier life-condition lifestyle is not sufficient to reduce glucose levels, then a healthcare practitioner will prescribe oral medications, most commonly Metformin; if the oral medication is insufficient to control glucose levels the individual will need to inject insulin (American Diabetes Association 2013c).

Healthcare providers and health researchers have suggested several etiologies for diabetes, such as the thrifty genotype hypothesis (in which humans maintain fat reserves in their body as an adaption to the feast-or-famine conditions of our early lives as hunter-gatherers) (Lieberman 2004; Urdaneta and Krehbiel 1989), the fetal-origin model (under-nutrition in utero leads to low-birth weight, which contributes to higher risk of diabetes) (Almond and Currie 2011), lack of transportation or economic access to healthy foods and health care, health illiteracy, linguistic barriers to healthcare, distress from unstable social networks, a rapid lifestyle change (e.g., moving from a rural to an urban setting, immigrating to a new environment), and unsafe neighborhoods in which to do physical activity (González et al. 2009; Guell 2011; Himmelgreen et al. 2011; Rock 2003; Smith-Morris 2006; Urdaneta and Krehbiel 1989; Webber 2009). Furthermore, cultural models surrounding the etiology and lived experience of diabetes

vary by culture, contributing to the complexity of effective diabetes prevention and management. A visual sense of just how interactive, multidirectional, and intertwined various risk factors for diabetes are can be seen in Figure 2, below.

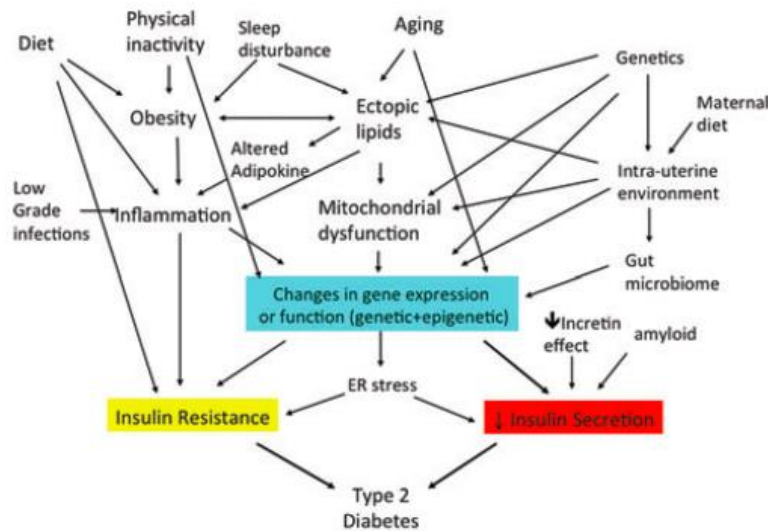


Figure 2:
Pathogenesis of
type 2 diabetes
(Ma and Chan
2013)

When it was first recognized as a disease, diabetes was considered a “disease of affluence” and the aged due to the rich dietary patterns of the wealthy and due to its rarity. As early as 500 CE, the ancient Egyptians correlated diabetes with obesity, which was also uncommon at the time (Polonsky 2012). It became more prevalent in the early 1980s in wealthier nations (such as the United States, Canada, and the United Kingdom), however, due to the overabundance and over-consumption of cheap, nutrient-poor foods in those nations (Denaei et al. 2013; Everson et al. 2002; Hu 2011). Today it disproportionately affects the poor living in wealthy nations due to a constellation of factors such as their higher consumption of poor-quality foods, lack of physical activity opportunities, and increased psychological distress from lack of steady access to necessary healthcare, employment, and social support (Eaton et al. 1988; Ferzacca 2004; Mendenhall et al. 2010; Rock 2003). Diabetes has also become more prevalent among younger individuals than in the past. It is not uncommon to see it in people in their 30s,

40s, and 50s, (Kaufman 2005) and this results in individuals living with diabetes for longer periods of their lives. Furthermore, since the symptoms of diabetes may not manifest for some time after the onset of the illness and may not all manifest simultaneously, individuals may not know that they have diabetes or are at risk for it until it is too late to prevent its progression (Lieberman 2005; Urdaneta and Krehbiel 1989). This is particularly common among individuals who are not able to visit a primary care physician on a regular² basis and thus not be screened for diabetes early enough to detect its onset or who otherwise may not know to recognize the symptoms of diabetes as they gradually develop.

Carolyn Smith-Morris' 2006 ethnography of diabetes among the Akimel O'odham (colloquially known by outsiders as the Pima), a Native American group located by the Gila River in the Arizona/northern Mexico desert, indicated that the sweltering Arizona heat, unemployment, and their unhealthy diet were all factors in the Akimel O'odham developing diabetes: that the starkly high levels of unemployment and high reliance on government assistance coupled with the ensuing limited resources, reduced physical exercise due to the heat, limited healthy food options on the reservation where the Pima were living, and use of food as a comfort against daily struggles, were all contributing factors to diabetes. Although the Akimel O'odham have lived near the Gila River since before the arrival of Spanish explorers and are familiar with the high temperatures, their responses to it have changed in the past hundred years with the drying up of the Gila River, the ensuing loss of their traditional farms, and reliance on government-subsidized foodstuffs (Smith-Morris 2006). Instead of drinking water when thirsty, many Akimel O'odham are drinking soda and other sweetened beverages instead, and are not expending sufficient energy to obtain food to offset the extra calories (Ravussin et al. 1994;

² In this context, "regular" means annual checkups with primary care physicians and/or weekly or monthly checkups for specific issues, such as diabetes.

Schulz et al. 2006; Smith-Morris 2006). Indeed, diabetes is so ubiquitous in the Akimel O'odham that participants in Smith-Morris' research observed, "it's just how Pimas are" (2006:33).

Smith-Morris' ethnography is telling in its illumination of diabetes as a common disease in the Akimel O'odham and the acceptance of the disease as a part of life. While diabetes is increasingly prevalent in the overall United States (Fernandes et al. 2007), it is also becoming increasingly stigmatized (Aghamohammadi-Kalkhoran and Valizadeh 2014; Lee, Lim, and Koh 2014) due to its association with obesity, obesity stigma, and out-of-control food consumption (Ferzacca 2000; Teixeira and Budd 2010) and because healthcare providers may stigmatize people with diabetes if they [the patients with diabetes] do not lose weight or adhere to their medication regimen (McNaughton 2013). People with diabetes who need to inject insulin may also be mistaken for and stigmatized as drug users should they need to inject insulin in public (Balfe and Jackson 2007). In the United States, a country in which productivity is highly valued, any loss of individual productivity is devalued and stigmatized, particularly if the cause of that loss is concealed or is a manageable disease as diabetes is commonly thought to be (Ferzacca 2000; Hopper 1981). Because individualism a highly desirable trait in the United States, any dependency on outside help, including medications or therapy, could be interpreted as weak and unnecessary (Quinn and Crocker 1999).

Since diabetes is a chronic illness, there is a strong focus in the health literature on the lived experience of diabetes, or the way in which an individual's life has changed to accommodate a total shift in the perception of one's health and an ensuing complete shift in health maintenance. A lived experience of diabetes may include taking medications, changes in diet, the interaction with the doctor during frequent check-ups, cultural models surrounding how

and why someone developed diabetes, the long-lasting impact on the individual's social support network, and day-to-day symptomology (Cabassa et al. 2008; Garro 1994; Mendenhall et al. 2012; Mendenhall et al. 2010; Rock 2003).

It should be mentioned that the cost of diabetes treatment is exorbitantly high and includes the price of medications, multiple doctor visits, sick days, disability, extra or special food, and the cost of the side effects and consequences of diabetes including heart problems, kidney problems, and visits to the dentist and ophthalmologist. In 2014, diabetes carried a \$322 billion burden for the United States population, or \$10,902/person, including for those without diabetes; this represents an increase from a burden of \$218 billion in 2010 (Dall et al. 2014; IDF 2014). While \$10,902 is a steep price, it is especially extortionate for individuals living in poverty, as they cannot always afford the extra money required to live well with diabetes, and they may not always have health insurance plans that can cover the costs. This is particularly distressing, considering that diabetes is now more markedly prevalent among individuals living in poverty (Garcia de Alba Garcia et al. 2007; Rosal et al. 2005; Vest et al. 2013; Weaver and Mendenhall 2013).

One of the major contributions to the costly expenses associated with diabetes is the frequency with which diabetes interacts with other diseases (Anderson et al. 2001; Pablos-Méndez et al. 1997; Sheehan 2010; Wagner and Abbott 2007). In particular, depression has been found to increase diabetes costs and generally exacerbates diabetes symptoms (Mendenhall and Weaver 2014; Zhang et al. 2013).

Depression

“Madness is the most solitary of afflictions to the people who experience it; but the most social of maladies to those who observe its effects” (MacDonald 1981:1)

Major chronic depression, a mental illness that increasingly co-occurs with diabetes, defines a collection of symptoms that affect approximately 16 million Americans and 350 million people worldwide (National Alliance on Mental Illness 2013; National Institutes of Mental Health 2012; World Health Organization 2012). It is estimated that by 2020, depression will impose the second-largest burden of ill health worldwide (NIMH 2010; Segal et al. 2002; WHO 2012) and it is currently the leading cause of disability for Americans between the ages of 15-44 (Keeler et al. 2014). Depression has become a burden in countries at all income brackets, placing considerable emotional, physical, financial, and social burdens on the populations as they struggle to cope with such an isolating disease (Patel et al. 2006; Peterson et al. 2011). Indeed, depression has become so common that psychiatrist Dan Blazer and psychologist Anthony Marsella and colleagues have separately suggested that we live in the “Age of Melancholy” (Blazer 2005:3; Marsella et al. 1985:299). In the fifth edition of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-5; published 2013), the American Psychiatric Association (APA) defines a major depressive episode, as “a period of at least two weeks during which at least five symptoms [out of nine] within a prescribed list are present and represent a change from previous functioning, and at least one of the symptoms is either depressed mood or loss of interest or pleasure”. The symptoms are: depressed mood most of the day; markedly diminished interest or pleasure in all or almost all activities (anhedonia); significant weight loss or gain (a change of more than 5% of body weight in a month) or decreased or increased appetite; insomnia or hypersomnia; psychomotor agitation; fatigue or loss of energy; feelings of worthlessness or excessive or inappropriate guilt; diminished ability to think or concentrate; and recurrent thoughts of death, recurrent suicidal ideation, or a suicide attempt. All of the symptoms except

weight change and suicidal ideation need to occur nearly every day. To meet the criteria for diagnosis, the symptoms need to cause distress or impairment in important areas of functioning (e.g. social, occupational) significant enough to cause daily disruptions to daily functioning and the episode cannot be attributable to the physiological effects of a substance or another medical condition (American Psychiatric Association 2013). Major depressive disorder (i.e., chronic depression) constitutes more than one episode within the space of two months. There are two forms of major depression: melancholic depression and atypical depression. The diagnosis for melancholic depression requires anhedonia (diminished ability or inability to feel pleasure), plus a distinction from grief, severe weight loss, excessive guilt, hyposomnia (reduced amount of sleep), and decreased physical and mental reaction times (Gallagher 1999; Radden 2003). Conversely, atypical depression, while sharing many of the same symptoms as melancholic depression, is not associated with constant anhedonia. Individuals with atypical depression experience improved moods in response to positive events, as well as increased appetite, increased sensitivity to interpersonal sensitivity, and hypersomnia (Chou and Yu 2013; Fournier et al. 2013). Melancholic depression is twice as commonly diagnosed as atypical depression (Gold and Chrousos 2002; Fournier et al. 2013).

There is no single gene, life event, or socioeconomic factor responsible for chronic depression; rather, its onset is caused by a combination of socioeconomic, environmental, psychological, cultural, and genetic factors (APA 2000; Diefenbach et al. 2009; NIMH 2011). While there is no single gene that predisposes people to this illness, it appears that individuals inherit a vulnerability to depression from family members through a combination of genes that is not yet fully understood (Desjarlais et al. 1995; Eghigian 2010; Levinson 2006). There is, however, some research suggesting that prolonged stress increases levels of the gene mitogen-

activated protein kinase phosphatase-1 (MAPK-1), which is located in the broader MAPK pathway in the hippocampus; increased levels of MAPK-1 in turn contributes to increased depression symptomology (Duric et al. 2010; O'Dushlaine 2010). Other research has found that the genomic region 3p25-6 peaks in individuals with depression (Lewis et al. 2010; Pergadia et al. 2011) although the precise pathways are not yet clear. The pathogenesis of depression is inconclusive: Dr. Turhan Canli (2014) argues that the bacteria *Toxoplasma gondii* causes mood changes in rats and that this translates to a possible pathogenic origin for depression, but so far no other research supports Dr. Canli's results.

Depression may also be triggered by stressful life events, such as physical and psychological abuse, loneliness, having a serious illness, the loss of a loved one, and changes in employment status, environment, and/or finances (Cabassa et al. 2008; Hammen et al. 2010; Jabbi et al. 2008). For example, moving to a new location is often a stressful life event, especially if it requires learning a new language and navigating a new cultural environment (including educational, medical, and dietary) that is culturally or geographically far from one's home culture (Hovey and King 1996; Lorenzo-Blanco and Cortina 2013).

Inequality, particularly as it is manifested in poverty, discrimination, and structural and symbolic violence, is a major contributing factor to the development of depression, especially among ethnic minorities and other socially disadvantaged populations (Belle and Doucet 2003; Fitzgerald 2010; Flores et al. 2008; Friedman 2015; Galea et al. 2005; Lorant et al. 2003; Mendenhall 2015; Ro 2014; Williams et al. 2007). Possible pathways to explain this relationship include (but are not limited to) inadequate financial or educational opportunities and a lack of a strong social support network to cope with hardship (Everson et al. 2002). Limited financial or educational opportunities are due to a wide range of factors, including xenophobia, sexism, and

racism. All of these factors can result in social isolation and stress, since they form the underlying reason for individual and group exclusion (Flores et al. 2008; Hovey 2000; Martínez-Pincay and Guarnaccia 2007). This kind of social fragmentation is deeply intertwined with the development of depression (Pearson et al. 2014). Social fragmentation includes factors that impact social ties within a neighborhood, such as a weak social support network, poverty, underemployment, and forced migration, all of which spark the onset of and perpetuate depression (Desjarlais et al. 1995; Hammen 2010; Harpham et al 2007; Kleinman 1986). Importantly, depression contributes to isolation from friends, family, and coworkers, due in part to the perceived shame and stigma of having depression; the isolation, in turn, propagates depression (Harpham et al 2007; Keeler et al. 2014). Having a social support system mitigates negative reactions to and provides coping mechanisms for stressful situations (Simon 2007); the absence of a social support network leaves individuals susceptible to depression.

In particular, poverty is shown to be a key contributor to increased rates of depression and decreased mental health care (Alegría et al. 2002; Hanandita and Tampubolon 2014; Jackson et al. 2009). Fifteen percent of Americans living below the U.S. federal poverty line reported having depression, compared with 6.2% of Americans living at or above the federal poverty line (Pratt and Brody 2014), and this also has severe implications for employment. With depression the second-leading cause of disease-adjusted life years (DALYs), people living in poverty are at further risk of being unable to afford proper treatment, due to both the high costs of care and to increased risk of losing their jobs due to depression-related missed work days (World Health Organization 2007). Children are also affected by their parent's depression. For example, childhood exposure to maternal depression detrimentally affects linguistic, cognitive, social, and motor development (Petterson and Albers 2001). Almost one third (28%) of poor mothers report

having depression compared to 17% of non-poor mothers with serious implications for their children's welfare. Chronic depression from sustained poverty also increases the production of the hormone cortisol, which decreases stress-induced cellular inflammation. While short-term cellular inflammation reduction is beneficial, cortisol's long-term efforts to reduce inflammation suppresses the immune system, which puts individuals at greater risk for developing other illnesses. Furthermore, poverty desensitizes monocytes and macrophages from cortisol, contributing to prolonged cellular inflammation (Miller and Chen 2013).

The following chart (Figure 2) summarizes the numerous genetic, physiological, personal, and social factors that contribute to the development of depression:

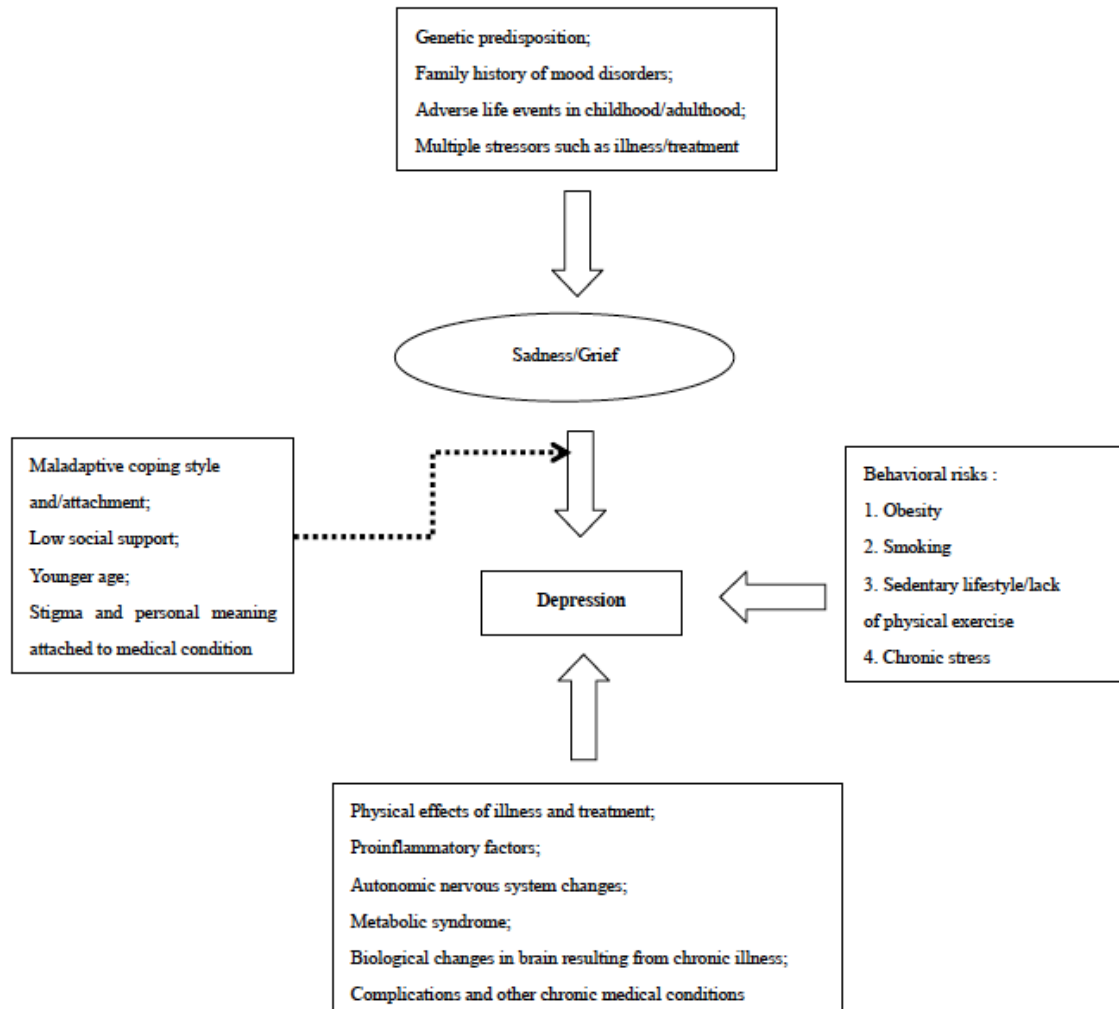


Figure 2: Numerous Factors Contributing to Depression

(Heeramun-Aubeeluck, Lu, and Luo 2012)

changes in relationships and the sufferer's identity especially if the sufferer can no longer be a functioning member of society and must take extended time off from work (Kleinman and Good 1985; Littlewood 2002). Depression is highly stigmatized and stigma casts societal doubt on the sufferer's mental stability, questions what the sufferer may have done to "deserve" depression, raises the fear that depression may be contagious, and suggests a weakness in the sufferer's character and will (Ablon 2002; Estroff et al. 2004; Goffman 1963). Depression stigma is insidious due its all-encompassing negative effects on social interactions, employment

Depression can thus be

understood as a result of

opportunities, self-esteem, and feelings of demoralization; the stigma attached to depression often prevents sufferers from seeking help and decreases their overall health and quality of life (Couture and Penn 2003; Link et al. 2004; Penn and Wykes 2003; Quinn et al. 2004; Sartorius 2007). Some of the stigma surrounding depression also centers on its being “dangerous” to others mental and physical health, including self-inflicted violence (suicide) and physical or psychological violence inflicted on others (Couture and Penn 2003; Link et al. 1999). Depressed people have fewer social support networks upon which to build a sympathetic community, partially due to the fear of seeking both help and other depressed individuals, which would, in turn, publicly acknowledge the presence of depression and would then leave the individual vulnerable to being stigmatized. Less than one-third (31%) of individuals with depression have accessed treatment, (American Psychological Association 2014), due to concerns of stigmatization by both healthcare professionals and the general public alike (Shidhaye and Kermode 2013).

Having depression is an isolating experience that results in an incredible amount of social distance. Due to the fear of being labeled as mentally ill, individuals may not seek out help or disclose their depression to their friends and family. The stress of being a caregiver of someone with depression may also cause the caregivers to turn away individuals with depression, further alienating the depressed individuals (Avison and Comeau 2013). This causes them to create a dual identity: one that the individual uses in public and one used in private. This is especially salient for individuals who perceive their social identity as more important than their personal identity (Dovidio et al. 2001). It can be demoralizing for an individual to emphasize the social over the personal identity and then experience exclusion because of a stigmatized identity, which

can also promote the development of dual identities in order for the individual to protect his or her social identity.

Depression is an altered state of being that involves the entire body and range of emotions. Depression, and indeed any mental illness, is broader than the pathogenic/pathoplastic dichotomy assigned to it during the first three quarters of the twentieth century (Cohen 2004). While pathogenesis's assumption of underlying biological causes of mental illnesses and pathoplasticity's focus on the cultural and personal characterization of the symptoms of mental illness are both necessary (Cohen 2004), they too closely mirror the body/mind dichotomy evident in western medicine and thought and do not take into consideration our newly emerging understanding of the fact that the physical and the mental are intricately intertwined (something that many alternative health systems have long accepted). Problems of the body influence mental health and illness and vice versa. Neither does the current notion of mental illness address the fact that mental illnesses often have no distinct biological markers and thus health care practitioners must therefore rely upon symptoms for diagnosis. Kleinman (1977) suggested long ago that we would serve a multicultural population better by defining depression using each culture's own definition. This he calls 'cross-cultural psychiatry' that has a network of considerations including how depression is perceived and interpreted, when and how it is culturally acceptable to experience and express depression, whether depression is stigmatized, how and when sufferers' are allowed to access treatment (and what kind), and the effect of depression on social networks.

Additionally, the sufferer's relationship with the healthcare provider is a key aspect in depression diagnosis (Brown and Harris 1978; Kleinman 1988). Social factors (e.g., poverty), aging, and preexisting health conditions (e.g., alcoholism) can influence how and when

healthcare providers diagnose a sufferer with depression and will influence the type of treatment that a sufferer will receive. The healthcare provider and the sufferer may define depression in different ways, which will affect the way that treatment is provided and adhered to, and a provider may fail to diagnose depression accurately or to diagnose depression when it is not present (Gaynes et al. 2002; Koss-Chioino 1999a; Rock 2003). The healthcare provider is granted the social power to make decisions regarding the health status of the sick person, and yet the sufferer's dignity as a fellow human being demands that he or she have an equal say in the treatment process. In their seminal edited volume on culture and depression, Kleinman and Good (1985) ask pertinent questions regarding the role of depression in culture and vice versa, universal versus culturally specific variations of depression, how depression is interpreted across gender, age, and socioeconomic lines, and what can be learned about the cultures in question and the larger human experience by looking at depression. Kleinman, Good, and the other contributors to their volume, make it clear that depression is culturally situated and that in order to understand depression, one must also understand the religious, linguistic, gendered, and political-economic contexts in which depression arises and is treated (Beeman 1985; Kleinman and Good 1985; Marsella et al. 1985). The contributors to this volume also critique the very classification of depression as a disorder, instead questioning whether it would be better defined as an altered emotional state in response to life's stressors (Jackson 1985; Schweder 1985). As Kleinman, Good, and colleagues have shown, addressing cultural models of mental health is central to understanding the culture in question and to developing successful interventions.

Puerto Rican mental health legislation can be traced back to 1844, when the Spanish government established the Charitable Asylum in San Juan for 'the incurably insane' (Gil 2010). The Asylum was closed between 1898-1907 due to the Spanish-American War, was reopened

again in 1907 under American auspices, and permanently reclosed in 1927 when the United States reorganized the health departments. Law 56 (April 1928) established protocols for the admission of mental patients to district hospitals, and Puerto Rico's first mental hospital opened in Río Piedras, a neighborhood of San Juan, on November 13, 1929 (Gil 2010). The mainland Congressional development of the Community Mental Health Care Act of 1963, coinciding with the first stirrings of deinstitutionalization of patients from mental hospitals, prompted Puerto Rico to create the Mental Health Community Centers, which would be dismantled with the overhaul of Puerto Rico's health insurance plans in 1992.³ Article 1.06 of Law 102-321, passed on July 10, 1992, defines a mental disorder as

Clinically significant syndromes or patterns of psychological conduct, which are associated with discomfort (e.g., pain), disability (deteriorating in one or more areas of functioning), significantly increased risk of death or pain, or loss of personal liberty. This syndrome or pattern cannot merely be a culturally accepted response to a particular event (e.g., the death of a loved one). Whatever the cause, it should be considered as an individual manifestation of a behavioral, psychological, or biological dysfunction.

In recent years, researchers who focus on Puerto Rican mental health, such as Margarita Alegría (1991, 2001, 2002, 2014), Glorisa Canino (1987, 1993, 2004, 2011), Peter Guarnaccia (1990, 1993, 2003, 2005), and Roberto Lewis-Fernández (2002, 2005, 2010a, 2010b) have written extensively on the need for culture-specific analyses of mental illness. Their research has encouraged a critical look at mental illnesses in Puerto Rico not solely within the biomedical milieu, but also as cultural idioms of distress separate from biomedical categories of disease (Guarnaccia 1993; Guarnaccia et al. 1993; Lewis-Fernández et al. 2010), emotional disruptions due to life's stressors (Martínez-Pincay and Guarnaccia 2007; Guarnaccia et al. 2003) and breakdowns in familial relationships (Loue 2011; Vera et al. 1991). Their research also draws

³ A more detailed discussion of health insurance in Puerto Rico will follow later in this dissertation

attention to *ataques de nervios*, a Hispanic idiom of distress that was first described by American army recruiters stationed in Puerto Rico in the 1950s (Guarnaccia et al. 2003). *Ataques de nervios* are characterized by a series of symptoms, such as trembling, heart palpitations, fainting, crying, and seizure-like episodes, and occur during times of conflict or grief, e.g., funerals or family arguments (Guarnaccia et al. 1993; López et al. 2011). Having *ataques de nervios* is a culturally appropriate response to life's stressors and mobilizes one's social networks in times of duress (Durà-Vilà and Hodes 2012; Guarnaccia et al. 2003; Lewis-Fernández et al. 2010). Experiencing *ataques de nervios* is associated with developing depression; it is estimated that 20% of people who reported experiencing *ataques de nervios* also met the criteria for major depression (Durà-Vilà and Hodes 2012; Guarnaccia and Martínez-Pincay 2008). It is interesting to note that according to Article 1.06, an *ataque de nervios* would not be considered a mental disorder due to its nature as a culturally appropriate response to specific events. Depression, on the other hand, does fall within the definition of mental disorders as defined by Article 1.06.

The cultural models of depression in Puerto Rico draw upon gender norms and views of normalcy. The symptoms that are generally associated with depression, such as helplessness, passivity, and dependency, are also stereotypically associated with women, regardless of who has depression (Koss-Chioino 1999b; Loue 2011). Non-depressed people, conversely, were seen as stereotypically male (Koss-Chioino 1999b). Depression is also under-discussed in Puerto Rico, with infrequent television advertisements for antidepressants and stigma surrounding the frank discussion of mental illness (Martínez-Pincay and Guarnaccia 2007; Loue 2011). As such, many Puerto Ricans do not know the symptoms of depression or are willing to consult a healthcare practitioner, or are undiagnosed with depression (Loue 2011).

Obesity

Obesity, a condition characterized by excessive adipose (fat) tissue, has gradually transformed over the past two hundred years from the expression of wealth and beauty into an indicator of ill health and poverty, a cultural shift in the cultural understanding of the health status of fat (Farrell 2011; Greenhalgh 2015; Ritenbaugh 1982). The food subsistence shift to domesticated plants and animals 10,000 years ago marked a change in diet from the nutritionally balanced hunter-gatherer diet to the unstable, nutritionally poor agriculture subsistence model, and began the very gradual development of chronic nutrition-related diseases (Popkin 1996, 2004; Thompson and Gordon-Larsen 2011). In food-scarce societies, bodies with extra fat were often seen as desirable and an indication of wealth and social class in times when the overabundance of food was an extreme rarity. Women in particular were considered especially fertile if they had large bodies, and men who could afford enough food for their wives to be overweight were also seen as clearly wealthy (Lavie 2014; Thompson and Gordon-Larsen 2011). Since the mid-1950s however, obesity has become a hotly debated topic internationally due to both its increasing commonality and to its association with lower socioeconomic status.

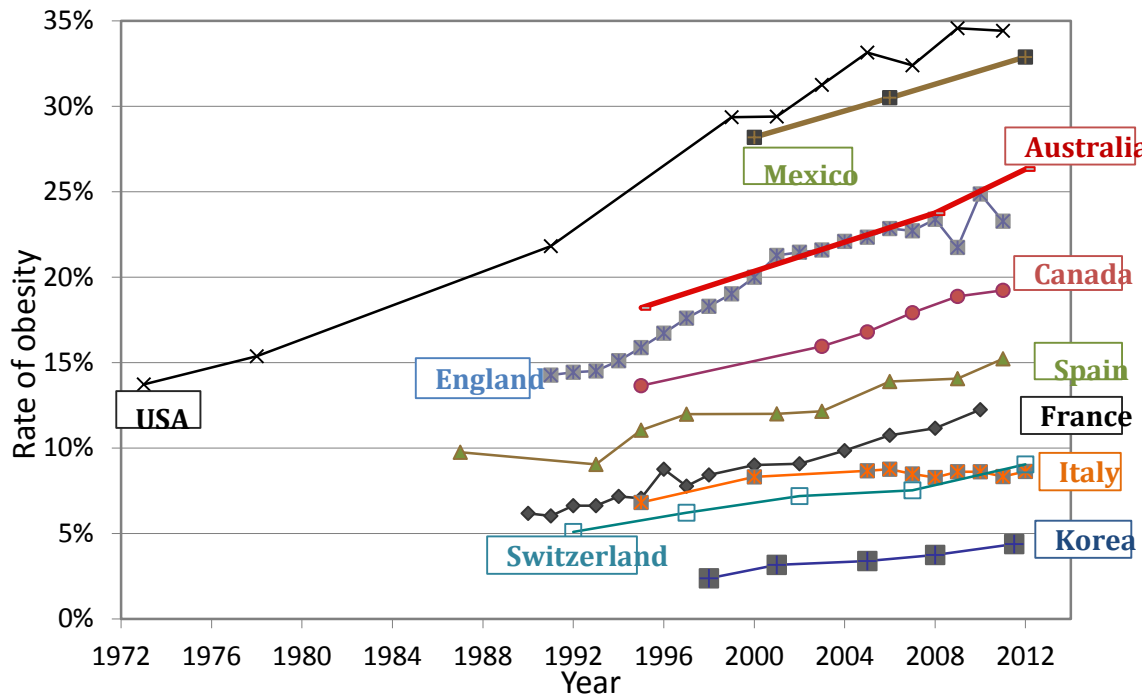


Figure 3: Obesity Rates Among Adults in Select Countries. Rates are per 1,000 people. (Organisation for Economic Cooperation and Development 2014)

While the United States currently has the highest rate of obesity of all the countries listed, the graph clearly indicates that obesity is not limited to the U.S. In addition, there is a global health debate over the magnitude and severity of the obesity epidemic, the actual health risks of obesity, and whether or not obesity constitutes an illness or merely bad lifestyle decisions (Brewis 2014; Burkhauser and Cawley 2008; Cardello and Garr 2009; Chaufan et al. 2015; Swift et al. 2013).⁴ U.S. agencies and medical organizations only started discussing obesity as a disease in the 1990s, prompted in part by pharmaceutical companies and medical firms that stood to gain a profit from the potentially lucrative weight-loss industry (Farrell 2011). Currently, 69%

of adults in the United States are overweight or obese and that cohort includes 35% of adults with obesity (Centers for Disease Control and Prevention 2015).

Adipose tissue (i.e. fat) is a loose connective tissue consisting of adipocytes, which store energy and produce several hormones (estrogen, resistin, leptin, and the cytokine cachectin).

The excessive adipose tissue threshold differs between males and females: for females, 32% or more body fat and higher constitutes obesity, while for males it is 26% or more body fat.⁵

Females require more body fat than males to facilitate estrogen production, which is necessary for menstruation, pregnancy, childbearing, and overall reproductive health (Jensen 2008).

Excessive fatness can lead to obesity, which in turn increases the risk of other illnesses such as type 2 diabetes, stroke, cardiovascular disease (CVD), asthma, sleep apnea, and certain types of cancer (Low et al. 2009; Hossain et al. 2007; Volkow and O'Brien 2007). In this regard, obesity is, in essence, a middleman: "...when it [adipose tissue] is out of balance with other organ systems, it precipitates a cascade of changes likely to worsen health" (Greenhalgh 2015:32).

Excessive fatness is caused by a physical energy imbalance wherein an individual consumes more calories than he or she expends. The extra calories are converted to fat, which is the body's primary source of energy that is stored in the liver, muscles, and fat cells for later use (Moore and Pi-Sunyer 2012). Due to the complexity of factors that contribute to obesity (there are over 600 genes involved in addition to various sociocultural factors), it is difficult to attribute obesity to a single causal factor that influences its incidence and prevalence (Brewis 2011; Ulijaszek and Lofink 2006). Inconclusive research suggests that pathogens ranging from Rous-associated virus-7 (Dhurandar 2004) to the bacteria lipopolysaccharide endotoxin (Fei and Zhao 2013) are obesogenic, but so far, these studies are limited to rats and chickens, and the results

⁵ The use of body mass index (BMI) as a measure of obesity is a heated topic of contention in the medical fields, due to the inability of BMI as a measure to account for muscle mass in the individual as separate from fat (adipose tissue). Therefore, in this paper, BMI will not be used as a measure of obesity.

have not been applied to humans. Additionally, cultural values, including ideal body image, body size and fertility, and which foods are considered acceptable to eat, are necessary considerations in understanding obesity.

Obesity's occurrence in the United States has escalated steadily since the 1950s, particularly with the advent of the TV dinner, the ensuing epidemic of mass nutritional convenience foods, and the general decrease in physical activity due to changing work patterns and lifestyles (Cardello and Garr 2009; Popkin 2009). During the Cold War, competition with the Soviet Union to produce the 'healthiest citizens', coupled with technological innovations and the federal government's heavy subsidization of soy, corn, and wheat, led to the over-consumption of these grains as processed proteins, corn, and wheats that resulted in a gradual increase in average weight (Popkin 2009). It has also been theorized that the thrifty gene (Neel 1962), a trait that is traced back to at least the Paleolithic period and which both encouraged humans to conserve fat in times of food shortage and to actively desire sweets in a time in which sweets were scarce, may still be prompting our fat conservation and preference for sweets, despite the fact that food and sweets are not currently scarce in the United States (Brewis 2011; Brown 1991; Kaufman 2005; Ulijaszek and Lofink 2006).

Equally as important as the biological factors are the social factors that lead to the development of obesity. Individuals living in lower socioeconomic neighborhoods, food deserts, and food swamps, with fewer healthy food options, fewer safe areas in which to do physical activity, and decreased access to healthcare, are more vulnerable to developing obesity (Ford and Dzewaltowski 2008; Kimoto et al. 2014; Sealy 2010; Wang and Beydoun 2007). Forty-five percent of children living with single mothers live in poverty, compared to 21% of children living in single-father households, and 13% of children living in two-parent households (Mitchell

2013). Single mothers make significantly less than single fathers (\$26,000 versus \$40,000, respectively), contributing to the higher rates of poverty among female-led single parent households (Berlatsky 2013). Children of single mothers are at higher risk for developing obesity (23% have obesity), compared to 15% of children of single fathers and 17% of children living with both of their married, biological parents (Augustine and Kimbro 2013; Chen and Escarce 2010; Khazan 2014). The children in that household will remain by themselves for long periods of time, particularly if the parent(s) cannot afford childcare, and if they live in less-safe neighborhoods, will watch television in lieu of playing outside and will thus not get enough physical activity and will also be exposed to advertisements for unhealthy foods on television that are ultimately cheaper than buying healthier, more expensive fruits and vegetables.

Whatever the ultimate causal web of obesity, it is a major health burden in and of itself and contributes to the incidence and prevalence of other diseases, including diabetes, cardiovascular disease, colon cancer, and polycystic ovarian syndrome (Campbell 2009; Carter et al. 2013; McNaughton 2013; Raskauskiene and Clayton 2009; Shakher and Barnett 2009). Thus it also poses a heavy economic burden to individuals, families, and society due to the direct costs of treatment and prevention, the indirect costs of morbidity and mortality (such as missed workdays, higher healthcare insurance premiums, lower wages due to obesity stigma), and the economic burden of treating co-morbid diseases (Gostin 2008).⁶ Indeed, the burden of obesity in 2008 was estimated to be between \$147-\$190 billion, and the numbers are expected to rise in the future (Cawley and Meyerhoefer 2012; Finkelstein et al. 2009; Rudd Center 2013).

From the critical medical anthropology perspective, however, contributors to obesity are rooted in capitalism and its discrimination against those in poverty (Greenhalgh 2015). Jeffrey

Sobal and Albert Stunkard (1989) published the first major literature review about the relationship between obesity and socioeconomic status. They noted, however, that all of the 144 studies they reviewed were searching for relationships other than a link between SES and obesity, which was an accidental finding. Since Sobal and Stunkard's review, other studies have found that obesity, like diabetes and depression, occurs disproportionately among people living in poverty in industrialized countries (Chaufan et al. 2015; Everson et al. 2002; Farrell 2011; Greenhalgh 2015; McLaren 2011; Ogden et al. 2010; Wang and Beydoun 2007). Obesity's relationship with poverty mirrors that of diabetes' and poverty: obesity is common among the poor living in industrialized countries, due to the affordability of energy-dense, nutrient-poor foods. James Levine (2011) found that "counties with poverty rates of >35% have obesity rates 145% greater than wealthy counties" (2667). Hoffman and colleagues (2000) discovered that nutritionally stunted children living in poverty in São Paulo, Brazil had impaired fat oxidation, and since their unoxidated fat was stored the nutritionally stunted children experienced accelerated fat deposition. More recently, Spoer and Fullilove (2016) wrote of the need for more extensive research on obesity syndemics, citing obesity's interactions with diabetes, cancer, cardiovascular disease, neighborhood design, poverty, and crime. While Spoer and Fullilove did not identify any specific syndemic beyond calling for obesity to be studied further, their article highlights the great necessity of researching obesity in syndemics research due to its interactions with poverty, crime, and other structural factors that are conducive to disease development.

Poverty is a key contributor to obesity among women (Brewis 2011; Brown and Konner 1987; Moffat 2010): women who grew up in lower-income families tended to develop obesity as adults, and women with obesity were more likely to live in poverty regardless of childhood economic status (Pudrovska et al. 2014). Moreover, 29% of women with incomes at or above

350% of the federal poverty line have obesity, compared with 42% of women who have incomes below 130% of the federal poverty lines (Ogden et al. 2010). When resources are limited, parents, especially mothers, often restrict their own nutritional intake to provide sufficient food for their children, which makes them more vulnerable to depression. It is also notable that maternal obesity is a predictor of childhood obesity (Janjua et al. 2012; Whitaker 2004). Working long hours, urban slums, limited access to healthcare, a breakdown in social support, and the mechanization of labor-intensive jobs with an ensuing decrease in physical activity all contribute to the development of obesity (Mendenhall 2012). Low-income and ethnic minority families are also more frequently exposed to obesogenic advertising, such as sodas, fast food, and video games (Kumanyika and Grier 2006; Yancey et al. 2009), which propagate norms about culturally acceptable foods and standard body size, and perpetuate the inaccessibility of healthy foods for those communities.

The obese body is intensely politicized and highly stigmatized and has been called the last socially acceptable form of discrimination and stigmatization (Vartanian and Smyth 2013): individuals with obesity are thought to be lazy, unintelligent, uninterested in their own appearance, and lacking in self-discipline. They are less likely to be hired for jobs and to qualify for health insurance than individuals without obesity (Puhl and Brownell 2001; Wang et al. 2007). Women are judged much more harshly on the basis of their appearance than are men, and obese women have reported decreased wages, earlier job termination, teasing, and lower self-esteem, twice as frequently as men with obesity (Brewis 2014; Fettich 2012; Puhl and Heuer 2009). While both men and women feel the economic burden of obesity, women bear the cost nearly twice as much for obesity (\$4,879/year) as do men (\$2,646/year), most of which is due to lower wages (Khazan 2014). Fat jokes and derogatory images of individuals with obesity

abound both in casual conversations and in the media, and the negative treatment of individuals with obesity proliferates in schools and places of employment (Farrell 2011; Puhl and Brownell 2001; Puhl and Brownell 2006). Obesity stigma is particularly common among physicians, who report associating obesity with poor hygiene, non-compliance, laziness, and emotional problems (Huizinga et al. 2009; Puhl and Brownell 2006). Physicians' obesity stigma worsens health outcomes by preventing patients with obesity from having regular checkups, and this can result in the development other illnesses, particularly diabetes, not being detected in time for effective prevention or treatment (Schabert et al. 2013; Teixeira and Budd 2010).

Depression and Diabetes

There is abundant research indicating that individuals with diabetes are at increased risk for depression and vice versa (Chan et al. 2010; Coffman 2008; Gask et al. 2011; Katon et al. 2010; Mendenhall 2015, 2012; Menninger 1935; Rock 2003; Weaver and Mendenhall 2014). English physician Dr. Thomas Willis observed in 1674 that diabetes was associated with “sadness or long sorrow”, life stress, and prolonged anguish in his patients (Egede and Ellis 2010; Katon 2010; Knol et al. 2006; Leone et al. 2012; Nash 2013). More than 40% of people with diabetes worldwide have reported poor psychological wellbeing as a result of their diabetes, particularly reporting denial, shame, guilt, and fear over perceived self-responsibility for their diabetes (Aghamohammadi-Kalkhoran and Valizadeh 2014). Current evidence suggests that slightly over one third of individuals with diabetes will develop chronic depression and that the proportion of individuals with depression who are bound to develop diabetes is approximately the same (Chapman et al. 2005; Gask et al. 2011; Lloyd et al. 2010; Pan et al. 2011; Talbot and Nouwen 2000; Zhang et al. 2013). Individuals with diabetes are twice as likely as individuals without diabetes to develop depression (Chapman et al. 2005; Egede et al. 2005; Gask et al.

2011; McSharry et al. 2013; Nash 2013). Mortality rates among some medical inpatients with both diabetes and depression have been estimated at 47% compared with 14% in patients with neither, 23% in patients with diabetes only, and 22% in patients with depression only (Herrera 2013; Park et al. 2013).

However, a clear cause-and-effect relationship between depression and diabetes has been established. While the bulk of the evidence implicates depression as a precursor and major contributor to diabetes (Coronado et al. 2007, Golden et al. 2009; Mauer et al. 2011, Menninger 1935; Talbot and Nouwen 2000; Weaver and Hadley 2011), diabetes has also been shown to increase the risk for developing depression and to adversely influence depression care (Chan et al. 2010; Katon et al. 2008; Gask et al. 2011; Lustman and Clouse 2007; Shah et al. 2011). Depression, in turn, contributes to decreased diabetes self-care and decreased use of healthcare, including decreased glucose monitoring, missed medical appointments, and increased likelihood of diabetes complications, possibly through inadequate management of the disease (Cabassa et al. 2008; Ciechanowski et al. 2006; Spencer et al. 2006; Weaver and Hadley 2011).

Some depression symptoms, such as fatigue and appetite decrease, are also symptoms of diabetes (Ciechanowski et al. 2000; Held et al. 2010). For example, research suggests that poor or short sleep duration (under seven continuous hours per night) contributes to the development of diabetes (Knutson et al. 2006; Olsson et al. 2012; Touma and Pannain 2011). During the slow-wave sleep process, metabolic changes contribute to glycemic homeostasis so that insufficient sleep leads to increased glucose levels and decreased insulin levels (Knutson et al. 2006; Touma and Pannain 2011). Since short and restless sleep is both a symptom and a side effect of chronic depression (Carnethon et al. 2007; Egede 2004; Eghigian 2010; Park et al. 2013), decreased sleep is one mechanism by which depression may foster diabetes (Pouwer et al.

2013). Furthermore, depression can also cause changes in appetite (APA 2013; Held et al. 2010; Pouwer et al. 2013). For example, individuals with atypical depression present with increased appetite, especially for high-fat, high-sugar foods and less nutritionally balanced foods that over time contribute to increased glucose production (Gagnoli 2012). A physician might not test for both depression and diabetes if all of the symptoms fit one or the other of the illnesses. This can lead to missed diagnosis and one of the illnesses being overlooked and untreated. Hence, failure to detect the coexistence of depression and diabetes simultaneously might lead to a worsening of both (Zhang et al. 2013).

Conversely, diabetes contributes to depression by deteriorating social networks, draining financial resources, evoking a heightened sense of liminality due to having a chronic illness, the stress of taking medications, changing diet, and dealing with the side effects of diabetes (Egede 2004; Katon et al. 2010; Solowiejczyk 2010). The severity and ensuing health complications of depression and diabetes, treatment resistance, increased morbidity and mortality rates, and the cost to both the individual and society are all magnified when the illnesses co-exist than when either occurs separately (Disdier-Flores 2010; Lloyd et al. 2010). One example of this cascade effect revolves around food, which is a cohesive social force. Holidays, meetings, family meals, and casual gatherings often include food sharing (Maclean et al. 2009; Mankekar 2005). When an individual cannot partake due to diabetes-related dietary limitations, the ensuing feelings of guilt or shame may provoke reluctance to attend the event in the first place, further adding to a sense of social isolation. This is particularly true of women who tend to be the primary cooks in their families and do not always receive support from their families to prepare healthier meals, especially if they are the only one eating healthier meals (Garcia de Alba Garcia et al. 2007).

Despite the mounting evidence that suggests a strong positive correlation between diabetes and depression, the exact cultural and genetic pathways are not yet well understood. That said, however, there is an increasing amount of research that suggests specific causal pathways between the two illnesses. The relationship between diabetes and depression is complex, and laden with numerous overlapping factors. The stress involved in diabetes self-care, such as making changes to one's diet (especially if the dietary changes are not in line with culturally appropriate foods) and changing one's relationship with one's body to recognize the existence of a chronic illness, may contribute to the co-occurrence of depression and diabetes, particularly if the sick person does not have an adequate social support network to help support the change in daily routine (Rosen 2013). Conversely, depression, whether through the illness itself or through its side effects (particularly sleep loss), has been shown to increase levels of the stress hormone cortisol, which, in turn, decreases insulin sensitivity and stimulates glucose production, both of which contribute to the development of type 2 diabetes (Brown et al. 2004; Gragnoli 2012; Knol et al. 2006).

Stress activates the hypothalamo-pituitary-adrenal (HPA) axis, which, in turn, triggers a series of neuroendocrine alterations that can contribute to increased fat metabolism and insulin resistance and increased production of cortisol in the adrenal cortex; increased cortisol production in turn contributes to decreased cellular sensitivity to insulin and glucose absorption, although the exact pathways are still under investigation (Brindley and Rolland 1989; Chiodini et al. 2007; Everson et al. 2002). There is also research suggesting that individuals with obesity overproduce cortisol, which may be a pathway underlying its effect on the development of diabetes (Brindley and Rolland 1989). Living in a prolonged state of stress also contributes to increased risk for developing diabetes via the production of the stress hormone norepinephrine,

which inhibits the production of insulin by glycogenolysis (promoting the breakdown of glycogen⁷ in the liver) and gluconeogenesis (production of glucose in the liver), thus contributing to increased levels of glucose (Alonso-Magdalena et al. 2011; Yajima et al. 2001). Treatment options for diabetes focus on the adoption of a healthier lifestyle (particularly a healthy diet and increased physical activity) and losing weight. If the healthier lifestyle is not sufficient to reduce glucose levels, then a healthcare practitioner will prescribe oral medications, such as Metformin; if the oral medication is not sufficient to control glucose levels the patient will need to inject insulin (American Diabetes Association 2013c). Living in a prolonged state of stress also contributes to increased risk for developing diabetes via the production of the stress hormone norepinephrine, which inhibits the production of insulin by glycogenolysis (promoting the breakdown of glycogen⁸ in the liver) and gluconeogenesis (production of glucose in the liver), thus contributing to increased levels of glucose (Alonso-Magdalena et al. 2011; Yajima et al. 2001).

There has also been research on the effect of psychopharmaceuticals (such as antidepressants) on glycemic control in individuals with diabetes (Mendenhall 2015). Some studies have found that selective serotonin reuptake inhibitors (SSRIs), the most common class of antidepressants, increase the risk for diabetes (Brown et al. 2005; Khoza et al. 2012; Pouwer et al. 2013; Rubin et al. 2010) particularly by increasing the stress hormone cortisol, which also contributes to insulin resistance (Khoza et al. 2012; Vrshek-Schallhorn et al. 2013). Poor metabolic control has also been proven to reduce the positive reaction to antidepressants (Katon et al. 2008). Conversely, some research indicates that treating depression with SSRIs has not been shown to increase glycemic levels (Deuschle 2013; Egede and Ellis 2010; Motjabai 2013).

⁷ Glycogen is a form of energy storage produced in the liver, and is converted into glucose.

This has considerable implications for therapies for individuals with both diabetes and depression that I will discuss at greater length later.

In addition to the biological pathways that link diabetes and depression, the diabetes-depression relationship has socioeconomic causes that are rooted in poverty and in socially disadvantaged populations in general (Chan et al. 2010; Mendenhall 2015, 2012; Saydah et al. 2013; Schoenberg et al. 2005; Weaver and Mendenhall 2014). Much of the literature I reviewed explored the socioeconomic factors influencing health problems, such as the lack of access to good quality health care, the influence of ethnicity (Hispanics are disproportionately at risk for diabetes as compared to non-Hispanic whites and Asian Americans), being in a lower socioeconomic bracket, and the lack of culturally sensitive training among physicians that result in their not recognizing depression symptoms that do not align with DSM standards (Cabassa et al. 2008; Ferzacca 2000; Martínez-Pincay and Guarnaccia 2007; Mendenhall et al. 2010; Schoenberg et al. 2005). Considering that syndemics involves the negative, synergistic confluence of diabetes and depression, and not just a co-morbid relationship, it is imperative to understand the bidirectional relationship these diseases have with each other in order to properly address both health problems. Thus, the paucity of research dealing with this bi-directional interaction is troubling. Furthermore, while much of the literature on both diabetes (Ferzacca 2012; Himmelgreen et al. 2004) and depression (Belle and Doucet 2003; Harbottle and Schonfelder 2008; Tsai et al. 2012) acknowledges the role of eating habits in the etiology of both illnesses' and the sufferer's experience, it does not thoroughly examine the depression-diabetes relationship looking at eating habits as a mediating factor. Thus, my research supplies a key piece that has been missing in this body of research by both proving that diabetes and depression form a syndemic in the study population and by suggesting that eating habits play a major role in

this syndemic.

Obesity and Diabetes

Obesity is frequently correlated with diabetes (Brewis 2011; Díaz-Santana et al. 2014; Must and Evans 2011; Puhl and Heuer 2010; Whitmore 2010). I note here that while the term ‘diabesity’ has become popular in recent years to describe the relationship between diabetes and obesity, I refrain from using it due to its implications that people with diabetes are to blame for developing diabetes, due to the assumption that all people with diabetes have obesity and that obesity and diabetes are wholly preventable, lifestyle-based illnesses (McNaughton 2013a, 2013b). Due to the complex interactions of factors explored above, obesity by itself does not cause diabetes (Lavie 2014; Webber 2009). While the full biological extent of the relationship between obesity and diabetes is not fully understood (Lois et al. 2009), what *is* known is that adipose tissue increases insulin resistance in the cells. Insulin receptors are located throughout the brain, particularly in the hypothalamus, where insulin decreases food intake and body weight (Mendenhall 2012). When cells receptors do not acknowledge insulin or receive glucose, the body produces more insulin to make up for the perceived lack (Steinberger and Daniels 2003; Ulijaszek and Lofink 2006). The cell receptors’ inability to acknowledge insulin in the hypothalamus also contributes to increased food intake and resulting body weight. Insulin also inhibits adipocytes’ release of stored fat, but insulin-resistant people, who consequently have extra insulin circulating through their bodies, have an increased tendency to store fat (Kaufman 2005). There is also research suggesting that individuals with obesity overproduce cortisol, which is correlated with increased appetite, especially sugar cravings, and may be a pathway underlying its effect on the development of diabetes through the HPA axis, and as such cortisol also interacts with depression (Brindley and Rolland 1989; Ciodini et al. 2007; Mendenhall 2012).

The structural factors leading to the development of obesity are likewise important in understanding its relationship with diabetes. Populations that have been abruptly introduced to and adopted Westernized lifestyles, such as the Pima Indians in Arizona and the Nauruan Islanders in Micronesia, are exceptionally vulnerable to developing diabetes due to the rapid changes in nutrition and physical activity associated with the Western lifestyle (Schulz et al. 2006; Smith-Morris 2006; Webber 2009). Both diabetes and obesity are correlated with poverty in developed countries (Barnett and Kumar 2009; Hossain et al. 2007).

In terms of diabetes prevention among individuals with obesity, bariatric surgery has been found to be successful in achieving diabetes mitigation or outright remission, which when coupled with significant weight reduction offers a possible route of treatment when lifestyle changes alone are insufficient measures (Moore and Pi-Sunyer 2012; Schauer et al. 2012; Sjöström et al. 2004). However, bariatric surgery is an expensive option that is not accessible without health insurance (Trainer et al. 2015). Because obesity and diabetes are most common in poverty-stricken areas in developed nations, bariatric surgery is not likely to be available to those who need it.

Obesity and Depression

Depression and obesity maintain a syndemic relationship. Individuals with obesity are twenty to fifty times as likely than individuals without obesity to develop chronic depression, and are five times more likely to gain weight than are individuals without depression (Brewis 2011; Heo et al. 2006; Murphy et al. 2009). The social stigma of obesity contributes to the depression of individuals with obesity and contributes to the chronic psychological and physical chronic stress of obesity (Granberg 2011; Lewis and Van Puymbroeck 2008; Maclean et al. 2009; Puhl and Heuer 2010). This stigma strongly inhibits individuals with obesity from seeking health services and treatment and leads them to somaticize the negative consequences of the stigma as depression. The fear of stigma has the additional negative consequence of preventing individuals from being tested for diabetes, as they often do not have regular check-ups. The stigma of obesity may lend itself to either self-imposed or socially sanctioned isolation that can prompt an episode of depression (Hossain et al. 2007; Puhl and Heuer 2010). With depression already being a stigmatized condition in its own right, individuals struggling with obesity and depression are also much less likely to access healthcare than are individuals with just obesity or depression due to the fear of being stigmatized not only by the public but also by healthcare providers (Barney et al. 2006; Corrigan and Kosyluk 2014; Link et al. 2004).

Depression and obesity share several symptoms, such as irregular sleeping and eating patterns (Gong et al. 2013), which makes it easier for healthcare providers to overlook depression by attributing these symptoms solely to obesity. Depression causes the sufferer to either lose interest in eating and to lose weight as a result or to over-consume high-carbohydrate, high-sugar, high-fat foods and to gain weight as a result (Sánchez-Villegas et al. 2012; Westover and Marganell 2002; Wurtman and Wurtman 1995). Sweet, high-carbohydrate, high-fat foods

trigger the production of serotonin, a hormone responsible for both increased mood and suppressed appetite, by allowing the production of tryptophan, the building block of serotonin, at the expense of other hormones competing for access to the brain (Gibson 2006; Popkin 2009; Spring et al. 2008; Wurtman and Wurtman 1995). Food holds emotional meaning: people eat comfort foods to feel better, especially if those comfort foods are linked to happier times (Barthes 2013; Gibson 2006). While individuals with depression may gain psychopharmacological advantages by consuming food that triggers happy memories and the production of serotonin, those same foods also contain a lot of fat and cause substantial weight gain if consumed in large quantities, contributing to the development of obesity (Wurtman and Wurtman 1995). Additionally, leptin, an adipose-produced hormone that controls fat distribution and food intake and a key physiological indicator of obesity, is correlated with depression. Despite elevated levels of the hormone due to increased amounts of adipose, increased leptin resistance contributes to difficulty recognizing satiety (Bornstein et al. 2006; Carter et al. 2013; Milaneschi et al. 2012). Leptin also regulates the HPA axis (Bornstein et al. 2006; Gong et al. 2013); increased leptin has been found to over-stimulate the HPA axis and this places the body in a state of prolonged stress and depression.

Research suggests that trauma, neglect, and stress, particularly in childhood, are precursors to developing obesity later in life (Haskell et al. 2010; Moore et al. 2012). As discussed earlier, stress acts upon the HPA axis and increases production of the hormone cortisol, which in addition to increasing insulin resistance also favors storage of abdominal fat (Espel et al. 2000; Gluck et al. 2004; Moore et al. 2012). However, the mechanisms by which cortisol acts on abdominal fat are not yet fully understood (Dockray et al. 2009; Gluck et al. 2004; Moore et al. 2012).

There is some research suggesting that obesity may be a side effect of antidepressants, particularly SSRIs (selective serotonin reuptake inhibitors), although the exact pathophysiology remains unclear (Patten et al. 2009; Serretti and Mandelli 2010). This research has strong implications for medication adherence, due to the preexisting stigma surrounding both depression and obesity; individuals with depression may not wish to add to their suffering by taking a medication that would cause them to develop another stigmatized condition. However, the exact cause-and-effect biological relationship of obesity and depression has yet to be explained in full; it is uncertain whether depression as an illness is present prior to the individual developing obesity, or vice versa (Granberg 2011; Heo et al. 2006). Regardless of whether or not depression has a direct effect on obesity or vice versa, both depression and obesity are serious health concerns and obesity in particular can lead to a plethora of other diseases.

Until recently, the anthropological literature was far more focused on food insecurity and under-nutrition than on obesity, which is likely due to the focus of anthropologists on societies in less developed countries where hunger is a major concern. However, over-nutrition and obesity have been attracting more attention due to their growing global prevalence (Brewis et al. 2011; McCullough and Hardin 2013; Rodríguez-Soto 2013). Researchers in several related disciplines, including anthropology, psychology, and public health, have recently begun to examine the relationship of obesity with diabetes (Brewis 2011; Brown 1998; Himmelgreen et al. 2004; Kulick and Meneley 2005; Liburd et al. 2004; Steinberger and Daniels 2003) and with depression (Brewis 2003; Brewis 2011; Gavin et al. 2010; Granberg 2011; Thompson and Gordon-Larsen 2011). They also argue that poverty is a contributor to obesity and a barrier to healthy eating (Brewis 2011; Brown and Konner 1987; Moffat 2010) that contribute to the deleterious relationship between depression and diabetes. Female adolescents with obesity are

more likely to turn into adults who earn, on average, less than their non-obese peers, and are more likely to live in poverty, where they are at increased risk for developing depression (Goodman and Whitaker 2002). Changes in our global ways of living -- working long hours, urban slums, limited access to healthcare, a breakdown in social support, and the mechanization of labor-intensive jobs -- have all resulted in decreased physical activity and have contributed to the development of the global obesity problem (Mendenhall 2012). Stigma is also a mediating factor in the relationship between obesity and depression. The stigma associated with obesity contributes to shame, embarrassment, and decreased self-esteem, which in turn increase the risk for depression (Latner et al. 2012). Children and adolescents with obesity did not do as well in school, and adults with obesity had more difficulty finding employment than their non-obese peers, which contributed to feelings of low self-worth and low mood (Latner et al. 2012; Puhl and Heuer 2010). In turn, the isolation and loneliness that develop with depression frequently motivate individuals to eat to consume food to feel better and to gain weight as a result (Goodman and Whitaker 2002).

Eugene Tull and colleagues (1999, 2001) have found that racism plays a substantial role in the perpetuation of obesity and depression among African Americans in the U.S. Virgin Islands and among Afro-Caribbean women, even when controlling for socioeconomic status. Racism has a negative effect on the HPA axis via the triggering of cortisol due to constant stress, contributing to increased levels of depression and obesity, as well as diabetes.

PART THREE: PUERTO RICO

Chapter Three: Introduction to Puerto Rico⁹

Puerto Ricans inhabit a unique position among Americans, other Caribbean islands, and Hispanics in general, due to its status as a United States commonwealth, as well as the impact that that relationship has on Puerto Rico's political, cultural, and economic identity, the relationship that Puerto Rico has with the other Caribbean islands, and Puerto Ricans' overall well-being. Due to the relative ease of travel between Puerto Rico and the US mainland (passports are not required for travel), and to the economic factors influencing travel (e.g. searching for a job, for better jobs, for better health care), there are many individuals from all socioeconomic statuses traveling between Puerto Rico and the mainland United States (Aranda 2007; Organista 2007; Ramos 2005).¹⁰ This phenomenon has been called the "air bridge" (*la guagua aérea* in Spanish) between Puerto Rico and the U.S. (Pérez 2004:114; Sandoval Sánchez 1997:202).

However, despite the importance of understanding Puerto Ricans as simultaneous citizens of and immigrants to the United States and the mounting research looking at Puerto Rican health in the mainland United States, there remains a paucity of literature addressing Puerto Rican health on the island, particularly the effect that Puerto Rican national identity has on Puerto Rican health (Lorant et al. 2003; Pérez-Perdomo et al. 2003; Rodríguez and Vega 2009; Rodríguez-Galan and Falcón 2009). Considering that Puerto Ricans on the island have worse health outcomes than both other Hispanic groups, Asians, and non-Hispanic whites on the

⁹ Due to the complex situation concerning the contested extent to which Puerto Rico is part of the United States, and to avoid confusion, I will refer to Puerto Rico as 'the island', and to the United States as 'the mainland'

¹⁰ The 2010 United States Census defines "Hispanic/Latino" as someone who identifies as being of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race (Ennis et al. 2011). In particular, 'Hispanic' refers to individuals with a Spanish-speaking national origin (which includes Spain but excludes Aruba, Brazil, Guadeloupe, Guiana, Haiti, Martinique, the Netherlands Antilles, Saint Pierre and Miquelon, and Suriname), while 'Latino' refers to those with an origin from Latin America regardless of language (which includes all of Latin America but excludes Spain) (Calderón 1992; Duany 2011; Marrow 2003). This distinction is important in understanding the geographic, linguistic, and socioeconomic diversity that exists among Hispanics/Latinos, and acknowledges that they are not a monolithic ethnicity, particularly in regards to health status (Rogler 1996). For the purpose of this paper, I will be using solely 'Hispanic', due to my focus on the Spanish-speaking Caribbean.

mainland (Thomas 2010; Rodríguez and Vega 2009), understanding the health status of Puerto Ricans on the island is necessary to understanding the circular migration of Puerto Ricans as they travel back and forth between the island and the mainland. It is also important for understanding the effect of colonization and power relationships on health. Furthermore, understanding Puerto Rico's fluid identity as reflecting the relationship between the United States, Puerto Rico, and the larger Caribbean milieu in order to understand why health on the island has changed and what the implications are for further research.

Puerto Rican History

For over five centuries, Puerto Rico has maintained a prominent role at the crossroads of international confrontation. In 1493, Christopher Columbus claimed Puerto Rico on behalf of Spain, in the process ignoring the preexisting claims that the native Taíno inhabitants had on the island (which they called *Borinquen*). As the initial Spanish expeditions did not include women, the Spanish men had sex with Taíno women and with the African slaves that the Spaniards had brought with them, resulting in the *mestizaje*¹¹ that is common in Puerto Rico. The Taíno population had declined radically since Spain's arrival, particularly in the eighteenth century, due to forced assimilation, smallpox outbreaks, riots, slavery, and constant Spanish demands for food and gold. Although the Taíno population has dropped precipitously (some estimates place it at 80-90%), as of 1999, it was estimated from genetic testing that three in five Puerto Ricans were descended from the Taíno (Duany 2002b; Ferrar 1999; Martínez-Cruzado et al. 2001; Tang et al. 2007). This has revived interest in Taíno heritage, particularly in artwork, and, indeed, some people on the island claim Taíno identity.

¹¹ "Mixture" in Spanish; currently the word in Spanish used to describe people of mixed heritage, particularly of Spanish and Taíno heritage

Columbus's arrival launched a 400-year-long period of Spanish colonization that ended only with the Spanish-American War of 1898, which was a result of Spain's brutal suppression of the Cuban War of Independence (Cuba was also a Spanish colony at the time). The United States anchored the battleship USS Maine in the Havana Harbor in 1895 to protect the U.S.'s interests in the region, but an explosion inexplicably sank the Maine on February 15, 1898, killing 260 sailors. Hysteria over the ship's sinking, fueled by the public's assumption that Spain had intentionally sunk the Maine, led the United States to wage war on Spain. In the process, the public conveniently overlooked a report from the President McKinley-appointed Court of Inquiry stating that Spain could not definitively be blamed for sinking the ship (Collado-Schwarz 2012; Guerra 1998; Venator-Santiago 2015). The United States invaded Puerto Rico on July 25, 1898 to fight the Spanish forces on that island; Spain ceded Puerto Rico to the United States as part of the Treaty of Paris on August 13, 1898, after US forces overwhelmed Spain's defenses (Aranda 2007; Guerra 1998; Organista 2007; Picó 2007). Following the annexation of Puerto Rico, the United States permitted Spanish-born Puerto Ricans to choose whether to retain Spanish citizenship or acquire American 'nationality' but prohibited Puerto Ricans born on the island from maintaining their Spanish citizenship, forcing island-born Puerto Ricans into a legal limbo in which they no longer held Spanish citizenship but did not hold American citizenship either (Venator-Santiago 2015). Upon obtaining Puerto Rico as a territory, the United States furthermore embarked on a public health campaign to eradicate tropical infectious diseases – particularly hookworm, dysentery, malaria – from the island, ostensibly in the name of encouraging a healthy and productive population, but, on a deeper level, due also to Puerto Rico's strategic location in the Caribbean as a gateway to Central and South America (Dietrich 2013). In the decades following 1898, Puerto Rico's economy changed rapidly from primarily

agricultural subsistence (Spain had used Puerto Rico as a hub for growing sugarcane and coffee) to a more industrial mode of subsistence, for although Spain had encouraged some autonomy on Puerto Rico, industrialism was not a primary Spanish objective for the island, and Puerto Ricans initially desired greater autonomy from Spain, rather than outright independence (Guerra 1998; Mintz 1984). When the United States first occupied Puerto Rico, the Americans were warmly welcomed after months of port blockades and war. As the newness of the situation and relief at freedom from Spain wore off suspicion and weariness of being under a different colonizer had developed as Americans had firmly established their presence on the island (Guerra 1998; Negrón-Portillo 1997). After Spain transferred authority over Puerto Rico to the United States, Puerto Rican farmers engaged in civil disobedience by destroying Spanish landowners' and merchants' property in a rare demonstration of agreement with the Puerto Rican elite, who also wanted freedom from Spain (Negrón-Portillo 1997). The working classes admired the economic development and political and teaching institutions in the United States and hoped that the United States government would provide fundamental civil rights for all Puerto Ricans, regardless of social class (Negrón-Portillo 1997). However, with Puerto Rico still primarily a poor, agrarian economy well into the twentieth century, the United States government decided to implement Operation Bootstrap in 1948 to industrialize Puerto Rico's economy by pouring money into and creating modern infrastructures for the island (Dietrich 2013; Thomas 2010). Frances Negrón-Muntaner (2007) succinctly described Operation Bootstrap as being motivated by the United States' desire to maximize profits for specific U.S. industries: the federal government provided labor protection laws and other federal programs to the island, which had the ironic benefit of significantly increasing standards of living. Debates over the efficacy of Operation Bootstrap still rage, particularly in the face of the cultural destruction that occurred in

the wake of the ‘successful industrialization’. The loss of Puerto Rico’s traditional economy and lifestyle made way for U.S. capitalist ideals and overall Americanization of Puerto Rico (Dietrich 2013; Duany 2002). Riots and demonstrations have broken out several times after Puerto Rico became a territory, most notably in 2000 when Puerto Ricans held numerous peaceful demonstrations to protest the US Navy evicting the local community and using the island of Vieques (a small municipal island off the eastern coast of Puerto Rico) for military training and as a bombing range and munitions storage area, and to protest the accidental death of a Puerto Rican security guard during a routine military exercise in 1999 (Winter 2007).¹²

Puerto Rico’s proximity to the mainland United States and Puerto Rico’s current status as a US commonwealth have been strong factors in influencing Puerto Rico’s relationships with the United States and in developing a unique Puerto Rican identity as simultaneously *Borinquen*, Caribbean, and American. During the nineteenth and early twentieth centuries, the United States’ policy was to treat the citizens of US-occupied territories, including Puerto Rico, as foreign citizens, (Venator-Santiago 2015). The Foraker Act of 1900 established a limited civilian government in Puerto Rico that replaced the preexisting military regime despite the War Department’s Bureau of Insular Affairs’ continued administration of Puerto Rico’s affairs (Venator-Santiago 2015). On March 2, 1917, President Woodrow Wilson signed the Jones-Shafroth Act, which “collectively made Puerto Ricans [restricted] United States citizens”: Puerto Ricans thenceforth held U.S. passports, paid U.S. federal taxes (minus federal personal income taxes) in addition to Puerto Rico’s taxes, and were conscripted for U.S. military service, but could not vote in presidential elections or have congressional representation, retaining instead a non-voting Resident Commissioner representing the island in the U.S. House of Representatives

¹² In response, the United States Navy ended its operations on Vieques in 2001, and in 2003, the Navy fully departed the island and turned over complete control of Vieques to the Puerto Rican government.

(Duany 2002; Venator-Santiago 2015). The United States declared war on the German Empire in April 1917, a mere month after President Wilson signed the Jones- Shafroth Act, making Puerto Ricans eligible for the draft (Dávila 1997; Grosfoguel 2003; Negrón-Portillo 1997). This was not coincidental, but rather an attempt to simultaneously win Puerto Ricans' loyalty and make Puerto Ricans eligible to be drafted for World War I (Dávila 1997; Duany 2002; Negrón-Muntaner 1997). In 1947, President Harry S. Truman granted Puerto Ricans the right to democratically elect their own governor. In 1950, President Truman authorized Puerto Rico to draft its own constitution, although the constitution still needed to adhere to the United States Constitution and relevant federal legislation, and in 1952, the US government approved and ratified Puerto Rico's Constitution and changed Puerto Rico's status to US Commonwealth instead of a territory (Dávila 1997; Duany 2002b; Smith 2007). In 1952, President Truman also approved federal law 8 U.S.C. §1402, which declared all Puerto Ricans born after January 13, 1941 to be U.S. citizens at birth (Duany 2002; Duany 2011; Negrón-Muntaner 2007).

Several attempts have been made to change Puerto Rico's status as a commonwealth: most recently, the island held plebiscites in 1993 and 1998 to vote on the topic of either remaining a commonwealth, attaining statehood, or attaining full independence (Negrón-Muntaner 2007; Picó 1997). The 1993 plebiscite ended in the commonwealth status winning a plurality, although not the majority, while in the 1998 plebiscite, a fourth option ("none of the above") won the majority vote (Dávila 1997; Picó 2007). In the 2012 election, Puerto Ricans voted on a two-question referendum: the first question asked if voters were happy with the island's current status, and the second question asked if voters wanted statehood, independence, or 'sovereign free association', a status similar to the commonwealth but would grant Puerto Ricans more autonomy. Fifty-four percent of voters voted 'no' to the first question, and 61% of

voters who answered the second question voted for statehood. However, this election is bitterly debated in Puerto Rico, as over 500,000 voters skipped the question entirely, and the pro-statehood governor, Luis Fortuño, was not reelected (Fox and Coto 2012; Koebler 2012). Despite the vote and President Obama stating that he is firmly committed to whichever decision Puerto Ricans make, Puerto Rico's status has not yet changed. Non-voting Resident Commissioner Pedro Pierluisi introduced H.R. 2000 to the House of Representatives on May 15, 2013. H.R. 2000, also known as the Puerto Rican Status Resolution Act, would have authorized the State Elections Commission of Puerto Rico to vote on Puerto Rico's potential admission as a U.S. state, but this bill died during the 113th Congress (United States GovTrack 2015a). Puerto Ricans in the United States tend to vote for Democrats, a trend which does not sit well with the Republican-majority House of Representatives (Koebler 2012).

Each of Puerto Rico's primary political parties is a reflection of a different direction for Puerto Rico's identity (Morris 1995; Pantojas-García 2013): the *Partido Nuevo Progresista* (PNP, or New Progressive Party in English) is pro-statehood, the *Partido Popular Democrático* (PPD, or Popular Democratic Party in English) is pro-commonwealth, and the *Partido Independentista Puertorriqueño* (PIP, or Puerto Rican Independence Party in English) is pro-independence (Duany 2002b; Flores 1993). The current governor of Puerto Rico, Alejandro García Padilla, is a member of PDP. García Padilla's election into office in November 2012 is somewhat ironic, considering that in the same election, Puerto Ricans voted for statehood in a state referendum.

Despite these changes, the island's status is still liminal: Puerto Rico is, according to the US Congress in 1901, "belonging to... but not a part of" the United States, and the US Government has not changed this policy in the past century: the US federal government still

controls laws of citizenship, currency, and diplomacy on the island without granting the island the full rights and privileges of the fifty states (Duany 2011; Duany 2002b; Thomas 2010; Thompson 2002). U.S. citizenship is not granted to Puerto Ricans through the fourteenth amendment, which protects born and naturalized U.S. citizens from having their privileges or immunities as citizens abridged or revoked, but is rather derived from the Jones Act, which permits Congress greater control over Puerto Ricans' rights and permits Congress to revoke Puerto Ricans' citizenship with greater ad hoc liberty (Duany 2002; Grosfoguel 2003). Congress' policy has led to what Jorge Duany has called a "legally domestic, but culturally foreign" attitude toward Puerto Ricans that has done little to mitigate the effects of colonization (Duany 2011), some certain view Puerto Rico as a modern day U.S. colony (Collado-Schwarz 2012; Denis 2015; Planas and Usero 2015). The United Nations Special Committee on Decolonization has appealed to the United States in 2006, 2008, 2009, and 2010, to either make Puerto Rico a state, or to grant Puerto Rico its independence, to no avail (Duany 2011).

Many colonized nations maintain some connection to the land of their colonizers, and Puerto Rico is no exception (Aranda 2007; Bartlett 1990; Dávila 1997; Duany 2011). Puerto Rico maintains ties to both Spain and the United States in different ways: Spanish is the predominant language used on the island, and Catholicism is widely practiced there (as it is in Spain); by comparison, Protestantism is the primary religion and English is the dominant (albeit unofficial) language, on the mainland (The Pew Forum on Religion and Public Life 2010). This connection has been especially noticeable in the migratory patterns between Puerto Rico and the mainland.

There have been at least three major migration spurts following Puerto Rico's incorporation as a United States commonwealth: 1900-1945, 1946-1964, and 1965-the present.

During first wave, from 1900 to 1945, the first Puerto Rican “pioneers” moved to the mainland to look for better economic opportunities, mostly to New York City: Brooklyn’s Atlantic Avenue, the South Bronx, and Manhattan (particularly the Upper West Side, Chelsea, the Lower East Side, and East Harlem’s *El Barrio*). In the second wave of 1946-1964, also known as “The Great Migration”, the existing Puerto Rican communities from the first migration increased exponentially in population, while other Puerto Ricans moved to other areas in the mainland, particularly Illinois, Connecticut, Florida, and New Jersey.

The current migration wave (1965-the present) follows a fluctuating pattern, with fewer Puerto Ricans coming to the mainland and, indeed, some returning to the island after not finding (mostly economic or academic) opportunities on the mainland (Duany 2002a; Rodriguez 1994). By 1980, over forty percent of Puerto Ricans lived outside of Puerto Rico, mostly on the mainland United States; by 2010, 4.6 million Puerto Ricans lived on the mainland, more than the population of Puerto Rico itself (four million) (Ennis et al. 2011; Rodriguez 1994). Several factors have influenced the increase in migration to the mainland, including an increased economic and political reliance on the mainland, a mainland demand for more labor at decreased wages, unemployment rates on the island, the Puerto Rican government’s encouragement of migration to the mainland, and Puerto Ricans’ status as US citizens, enabling easier migration (Rodriguez 1994). These factors may have contributed to the “push and pull” migration theory that appears to be a driving force in Puerto Rican migration: several factors, such as a population overflow and high rates of poverty and unemployment in the home culture, may ‘push’ people to migrate, and factors such as higher wages and better public services (e.g. schools, electricity, etc.) may ‘pull’ migrants into a new land (Sanjur 1995).

The spike in unemployment, and the subsequent increased poverty in the population and decrease in socioeconomic opportunities, shifted the “push and pull” migratory pattern to go in both directions, from Puerto Rico to the mainland, and then back to the island. Puerto Ricans live in higher rates of poverty and lower overall socioeconomic status than do other Hispanics on the mainland even though they theoretically have more legal access to resources such as public health insurance and public education. The poverty levels in Puerto Rico reached new levels in the 1980’s, with as many as 50% needing governmental assistance of some sort; the unemployment levels were at 23% in 1983, and at 17% in the early 1990’s (Organista 2007). According to the 1993 United States Census Bureau, the poverty rate in the United States was 13.1% in 1989, which was not significantly better than the poverty level in Puerto Rico at the same time.¹³ However, by 2011, the national poverty rate was 15%, while the 2010 poverty rate in Puerto Rico was 45%, adding further incentive for Puerto Ricans to migrate to the mainland to search for work (Bishaw 2011; Ennis et al. 2011). The 2008 economic crisis contributed to the changes in poverty levels on both the island and the mainland, although Puerto Rico was disproportionately affected due to high crime and suicide rates, multiple health issues, and a bankrupt government (Collado-Schwarz 2012). Many of the Puerto Ricans in the United States, especially those in New York, worked in manufacturing jobs during the third migratory cycle, yet nearly half a million manufacturing jobs in the United States were lost between 1960 and 1990, causing an unequally high unemployment rate in the Puerto Rican population compared to that of other Hispanic subgroups and non-Hispanic whites, and on par with African Americans (Organista 2007).

¹³ United States Census Bureau 1993, Bureau of the Census Brief Report:
http://www.census.gov/aprd/www/statbrief/sb93_15.pdf

Current Puerto Rican Status

This circulatory pattern that marks the third migration spurt, from Puerto Rico to the mainland United States and back including some movement between mainland states has led to increasingly blurred cultural and political boundaries on both the mainland and the island, wherein Puerto Ricans consider both Puerto Rico and the mainland to be “home bases” (Duany 2002a). This back-and-forth movement has become known as *el vaivén*, a specific kind of circulatory migratory pattern reminiscent of a pendulum swinging back and forth, in which Puerto Ricans move back and forth between Puerto Rico and the mainland in search of better opportunities (Aranda 2007; Duany 2002b; Grosfoguel 2003). This pattern encompasses not only the search for better professional, economic, and academic opportunities, but also encompasses experiences with discrimination while on the mainland that would spur Puerto Ricans to return to the island bringing with them the life-condition habits (such as walking or driving; smoking; dietary choices) that are transported between the island and the mainland (Pérez 2004).

In addition, is the effect that the search for better opportunities on the mainland has on one's relationships on the island and on one's health. *El vaivén* demands that travelers be bilingual and bicultural and that the definitions of citizenship be redefined to include a broader interpretation of cultural membership, one which includes individuals that live away from their country of origin and have experience living in other cultures, and yet retain their culture of origin and physically return to that culture on occasion (Acosta-Belén 2006; Duany 2011; Duany 2002). In her seminal ethnography on Puerto Rican culture and politics, Nancy Morris (1995) found that her respondents identified Puerto Rico as a nation with a distinct history and culture, due largely to Puerto Ricans choosing to remain in Puerto Rico despite having easy access to the

mainland and a dwindling population as more Puerto Ricans decide to live on the mainland than in Puerto Rico itself. Puerto Ricans who remain in Puerto Rico are also active in island politics (Morris 1995), which provides both a sense of community and a sense of ownership in the political process.

Benedict Anderson's classic definitions of an imagined, limited community are useful to understanding Puerto Rico's identity, especially in light of the impact that *el vaivén* has on Puerto Rican identity. Imagined, because not all members will know one another, and yet all will recognize one another as members of a unique community. With the influence of *el vaivén* and the ensuing constant movement, Puerto Ricans are dispersed over a larger area than in Puerto Rico and are surrounded by non-Puerto Ricans, and yet the struggle for a unique identity has united Puerto Ricans regardless of whether or not they know one another. Limited, because no matter the community population size, there are finite boundaries and borders beyond which lie other cultures or nations. Puerto Rico's borders – its politically defined spatial delimitations – do not limit its boundaries, or its cultural delimitations that separates it from other cultural groups (Duany 2011). Despite, perhaps because of, the relationship that Puerto Rico has with both the mainland and with other Caribbean islands, Puerto Rico's borders and boundaries are both finite and porous: both the borders and boundaries are open to citizens of the mainland, and yet the island's geographic distance from the mainland and proximity to Latin America make Puerto Rico accessible to non-American Hispanics as well. Despite all of the variations that may (and often do) exist between members, all members share a deep comradeship that binds them together as a community.

The relatively easy mobility of persons and cultural practices between Puerto Rico and the mainland has thus led to a profound reconstruction of geographic and cultural space (Gupta

and Ferguson 1992). To cross a boundary is not the same as to cross a border as one can cross many borders within the boundaries of one political entity. When borders are repeatedly crossed due to globalization and repeated interactions with other cultures, however, those borders often become blurred and reinterpreted. While other Hispanic islands in the Caribbean, particularly Cuba and the Dominican Republic, have more distinct borders and boundaries, Puerto Rico's borders are more blurred due to Puerto Rico's political status and due to *el vaivén*'s effect on Puerto Rico. With Puerto Ricans having a 'home base' of sorts on both the island and the mainland, nationalistic cultural identity has blurred to the point where identity became a unique construct of cultures: predominantly Puerto Rican and American, but also Taíno, African, and Spanish. Individuals from other Caribbean islands oftentimes use Puerto Rico as a steppingstone for moving to the mainland United States, due to Puerto Rico's geographic and cultural proximity to Latin America, and they often impact Puerto Rican culture in the process. At the same time that Puerto Rico is idealized for its relationship with the United States and the economic benefits that that relationship brings, the island is held somewhat in contempt for that very relationship, for not being "sufficiently Hispanic" to have an entirely independent nation (Aranda 2007; Duany 2011). This constant articulation of a distinct island identity while incorporating elements of other cultures (particularly American fast food eating establishments, a developed tourism industry, and media) and at the same time attempting to justify being 'sufficiently Hispanic' to other Latin American nations and 'sufficiently American' to those on the mainland, creates a seeming paradox of differing and sometimes conflicting identities that Puerto Ricans are trying to coalesce into a coherent and unique Puerto Rican whole.¹⁴

¹⁴ Anderson's fourth addendum to the definition of community, sovereignty, is precisely the issue of contention between Puerto Rico and the mainland that has yet to be resolved: who has the right to govern Puerto Rico.

While Puerto Rico is a non-autonomous commonwealth, its government falls under the jurisdiction of the United States government in a similar fashion but not entirely equal status to that of one of the fifty states. In addition, the geographic distance from the mainland, and the fact that Spanish is the predominant language on the island, have fostered a unique culture on the island that is distinguishable from that of the mainland. It is therefore not sufficient to understand the unidirectional effect of the United States on Puerto Rico, but also the way in which Puerto Rico has affected the United States. Puerto Ricans are articulating the struggle for a distinct island identity and culture even as they refuse to fully assimilate into mainstream mainland culture (Flores 1993). Puerto Ricans remain rooted in Puerto Rican culture and politics whether in Puerto Rico or on the mainland, maintaining active participation in Puerto Rican politics, fostering activities that develop Puerto Rican culture (such as the annual Puerto Rican Day Parade in New York City), and leading what Gina Pérez (2004) calls “deeply local lives” (pg. 94). Because these cultural crossovers between Puerto Rico and the mainland are frequent (Flores 1993), Puerto Ricans are actively introducing their own culture into the mainstream American culture, just as the American mainstream has influenced Puerto Rican culture. Puerto Rican Day parades, grocery stores, music, food, and dances, entertainers, and bilingual programs in schools and workplaces have become more common on the mainland, particularly in the tri-state area.

Just as Puerto Rican culture has become more Americanized, regional American culture has become Puerto Rican-ized, and yet this bidirectional influence is not entirely equal. Puerto Ricans still report experiencing discrimination on the mainland, due to being automatically grouped with other Hispanic subgroups and being discriminated against as such by non-Hispanics: Hispanics generally earn lower wages, lose jobs and get detained or deported at

higher rates, and are at higher risk for substance abuse, domestic violence, and police abuse than non-Hispanic whites and Asians (De Genova and Ramos-Zayas 2003; Dovidio et al. 2010; Santiago-Irizarry 2001). The United States Census Bureau also groups Puerto Ricans with other Hispanics under the ethnicity category (Ennis et al. 2011), which contributes to the mainstream inability to acknowledge the different experiences that Puerto Ricans have compared to other Hispanic groups. Other Hispanic groups have also reported considering Puerto Ricans politically and linguistically inferior (the Puerto Rican Spanish dialect is considered inferior), and, particularly for Puerto Ricans, culture-less due to their long exposure to American culture (Aranda 2007). Puerto Ricans have also reported discrimination from other Hispanics, as they are seen as “owned”, powerless, and they themselves are viewed as not fully Hispanic (Aranda 2007). Differences of opinion have also arisen between Puerto Ricans on the island and Puerto Ricans on the mainland, as the two groups struggle with maintaining identities that are unique from American colonialism. In February 1997, Mattel introduced Puerto Rican Barbie® (Appendix 1), a doll with brown hair and dark eyes and wearing a white and pink ruffled dress, as part of the company’s “Dolls of the World” line (Navarro 1997; Pérez 2004). This doll, which was introduced in time for the 100th anniversary of the United States acquiring Puerto Rico as a territory, was a hit in Puerto Rico and considered a sign of Mattel honoring Puerto Rican culture as distinct from American culture. Puerto Ricans on the mainland, however, were outraged at the doll’s light-colored skin and her colonial-style dress, and especially at the background of Puerto Rico that was provided on the back of Barbie’s box: “Puerto Rico was granted permission to write our own constitution in 1952, and since then we have governed ourselves” (Navarro 1997; Negrón-Muntaner 2004). Puerto Ricans on the mainland, who as minorities have struggled against ethnic stereotypes, objected to the portrayal of Puerto Ricans as stuck in a

colonial past (Negrón-Muntaner 2004; Pérez 2004). What has emerged from this upheaval of movements and beliefs is a confused and liminal state of identities in which Puerto Ricans on the mainland are simultaneously part of ‘us’ and ‘them’. This “have and have not” status has created an identity which has fostered a unique form of cultural dissonance in the Puerto Rican population in which despite being U.S. citizens, the feeling of being ‘Other’ remains, a sense of being betwixt and between identities in the struggle to incorporate two cultures with unequal balances of political and economic power.

Puerto Rico’s relationship with the United States is a manifestation of what Aníbal Quijano (2000, 2007) and Ramón Grosfoguel (2003, 2009) call the “coloniality of power”. The coloniality of power, or the social discrimination that is the embodiment of the stratified legacy of former colonialism (Grosfoguel 2003; Quijano 2000, 2007), embodies the discrimination that so many Puerto Ricans experience, and the struggle they face as they negotiate a unique identity in the face of extreme mainland reluctance and Latin American ridicule. Puerto Ricans on the mainland are treated with the same paternalistic disregard, for although they can access programs such as Medicare and do not need to apply for US citizenship, they still face suspicion from both non-Hispanics and Hispanics alike and are constantly monitored and judged as being not quite American. Their limited power and state of being constantly monitored and controlled creates a feeling of dissonance between the mainstream American culture and Puerto Rican culture that often creates friction. Puerto Ricans are in a liminal state of simultaneously trying to break away from their subaltern position, and benefitting from the island’s association with the mainland (Rabasa 2008).

As previously mentioned, the United States has political and economic control over Puerto Rico, including over currency, taxes, and businesses. Puerto Rico’s economy has

benefited greatly from its relationship with the mainland United States: restaurants and businesses have opened branches on the island at greater rates than on other Caribbean islands, and American tourists are drawn to the large cruise port and the ease of transport between the mainland and the island, bringing more money to an economically unstable island. Puerto Rico's economy never fully recovered from the 2008 recession and is dangerously close to bankruptcy: the island owes \$72 billion to lenders and has almost reached one of the worst debt defaults in history; credit agencies have already lowered Puerto Rico's bond rating to near-junk status (Beyer 2015; Flannery 2015; Gomez 2015). Puerto Rico's constitution states that the island cannot pay for other government services before paying off its debts, leaving the island in limbo if its government cannot fully function (Gomez 2015). The island is also subject to U.S. minimum wage laws, and Medicaid benefits outpace a standard four-person family's annual income, offering no inducement for working adults to enter the workforce (Flannery 2015; Quintero and Rodríguez 2014). Despite Puerto Rico's economic crisis, the federal government has not bailed out Puerto Rico and has otherwise not expressed any strong concern for the island's woes (Venator-Santiago 2015). Despite the economic crisis in Puerto Rico, the United States government continues to not be invested in improving Puerto Rico's living conditions, which affords the U.S. the economic benefits of having a territory without needing to dirty its hands with a poverty-stricken island.

In addition to concerns over the island's high poverty rates, Puerto Ricans' politics on the mainland also impact the island's chances for a change in status. The following chart indicates the political party preferences for Puerto Ricans living in the United States:

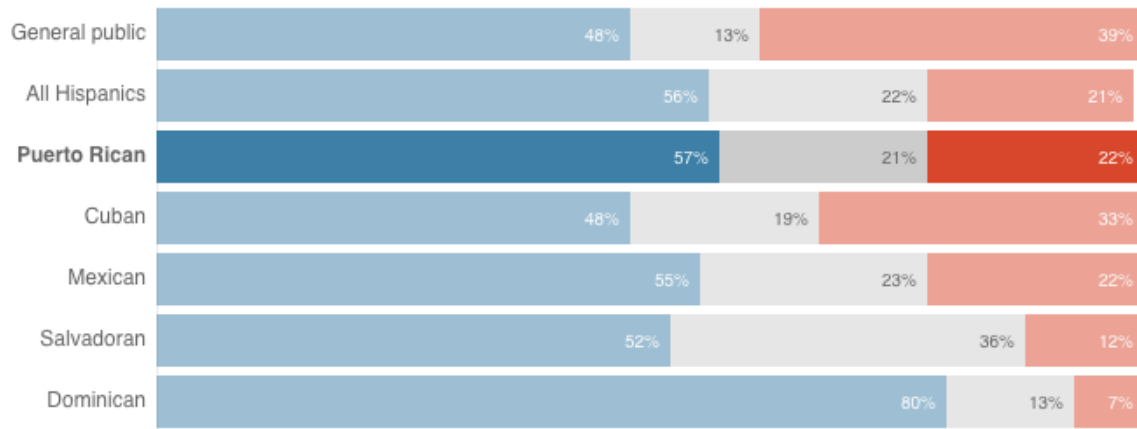


Figure 3:
Puerto Ricans' Political Leanings, 2014 (Khalid 2015; Park 2014)

Blue indicates Democrat; Red indicates Republican; and grey indicates no preference

While Puerto Ricans on the island cannot vote in presidential elections, Puerto Ricans on the mainland are majority-Democrat and are active in politics: almost 90% of the island's population vote in elections and Election Days are frequently celebrated with fireworks and parties (Venator-Santiago 2015). By ensuring that Puerto Rico maintains its current status, the Republican-led Senate avoids the risk of adding a predominantly-Democrat state (Khalid 2015).

As such, I add on to Jorge Duany's conceptualization of Puerto Rico as "on the edge of a productive site of the multiple intersections of critical variables" (2005:178) by including discrimination as a factor in Puerto Rico's sociopolitical location. This structural discrimination woven into the United States' relationship with Puerto Rico contributes to both depression and obesity in the population and prevents these diseases from being fully eradicated in Puerto Rico.

Chapter Six: Puerto Rican Identity, Migration, and Health

Epidemiological research indicates that Puerto Ricans on the island have higher rates of diabetes and depression than the United States national averages (Colon et al. 2013; Disdier-Flores 2010; Ortiz et al. 2011). As part of the circulatory migration pattern between the mainland and the island, Puerto Ricans bring Americanized/mainland foods (especially highly processed snack foods) back to the island, contributing at least in part to changing dietary patterns and obesity rates on the island (Duany 2002a; Sanjur 1995; Thomas 2010). Mainland-based fast food restaurants also established a permanent foothold on the island in the late 1950s (Rosa 2005), influencing the types of foods that are economically and geographically available to Puerto Ricans. With the federal government heavily subsidizing corn and soy products and the retail prices of fruits and vegetables increasing, processed foods are economically and energetically cheaper than homegrown and home-cooked foods (Gottlieb and Joshi 2010; Nestle 2007; Popkin 2009) and Puerto Ricans are rapidly transitioning into a population that consumes more and more processed foods in lieu of local, fresh, home-cooked foods. In particular, ‘nostalgic gastronomy’ is a means of remaining connected to the home culture in the face of gastronomic changes while eating mainstream foods is a way to easily, visibly assimilate (Aranda 2007; Mankekar 2005).

Likewise, with the drastic difference in weather patterns between Puerto Rico and many of the colder places in which Puerto Ricans have settled (especially the tri-state area New York, New Jersey, and Connecticut), there is much less walking and overall physical activity resulting in increased rates of obesity and diabetes in the population of Puerto Ricans on the mainland as compared to back on the island, which has put a strain on the healthcare systems of both the mainland and the island (Sanjur 1995). The diabetes prevalence rate in Puerto Rico is 15.42%,

and diabetes accounts for 7.7% of all deaths on the island (International Diabetes Foundation 2014; CDC 2012b). With Puerto Rico transitioning to a high-fat, high-calorie processed diet while still retaining characteristics of the high-fat, high-calorie characteristics of indigenous diets as a way of holding on to a unique culture, Puerto Ricans are caught between two worlds and partaking of the ‘worst’ of both (Pilcher 2005). Puerto Ricans do not engage in sufficient physical activity to make up for the calories consumed and are not getting the full benefits of consuming a diet high in fiber and nutrients. Additionally, they consume processed foods that are now part and parcel of the globalized food market (potato chips, soda, candy, and fast food) and the energy-dense home-cooked foods that dominate traditional Puerto Rican cuisine, such as *plátanos*¹⁵, *arroz con habichuelas*¹⁶, and *alcapurrias*¹⁷. Traditional Puerto Rican cuisine is known in Puerto Rico as *la comida criolla* (literally “Creole food”). High rates of poverty and the cheapness of processed unhealthy foods combine and contribute to an inability to maintain a healthy diet. This is also true for many Americans in poverty (Czyzewski 2011; Labonté and Schrecker 2007; Langellier et al. 2012) but particularly for Puerto Ricans when they need to buy produce instead of growing it as they have in the past. Unhealthy food and life conditions and an increased reliance on cars have created an environment in which Puerto Ricans on the island now live surrounded by poor air quality, little access to physical activity, and little time to spend on their health as many are working several jobs to pay the bills.

Health insurance in Puerto Rico is a reflection of its disjointed healthcare system. More than 3,000 physicians have left Puerto Rico for the mainland in the past five years searching for better-paying, less stressful jobs (Alvarez and Goodnough 2015). Physicians in Puerto Rico

¹⁵ Plantains, which Puerto Ricans prepare in a variety of ways

¹⁶ Rice and beans

¹⁷ Fritters, generally filled with chicken or beef

reach much lower reimbursement rates than do physicians on the mainland, contributing to the Puerto Rican physicians' exodus to the mainland in search of better working conditions (Guzman 2015). Jessica Mulligan (2014) observes that Puerto Rican healthcare service users are increasingly called upon to act like consumers and make informed choices regarding their care. However, the labyrinthine health care policies and frequent changes make it difficult. For consumers to keep informed, contributing to a disconnection between health care users and their health maintenance. Puerto Ricans originally relied on their local provincial governments for healthcare, but this became too expensive and too bureaucratically lethargic for the Puerto Rican government to sustain, and in 1994 Governor Pedro Rosselló proposed an overhaul of the healthcare system on the island (Alegría et al. 2001; Mulligan 2014). The Puerto Rican Health Reform (*Reforma de Salud de Puerto Rico* colloquially known as *La Reforma*) privatized health insurance policies and provided insurance for the poor population of the island by contracting with private health insurance companies Triple-S, Inc., Medical Card System, and Humana (Mulligan 2014). *La Reforma* covers approximately 1.54 million Puerto Ricans (about 38% of the population) and, for the first time, created a population of uninsured individuals, owing partly to the policy's inability to reduce health costs (Mulligan 2014). *La Reforma* has been a controversial decision in Puerto Rico. The island's College of Physicians spoke out adamantly against the plan's reliance on capitation of primary-care physicians, which was intended to provide a monthly payment to each primary care physician for each patient that the physician managed, but resulted in physicians not referring their patients to specialists. This in turn resulted in patients not receiving the full care they required.

The Affordable Care Act (ACA) does not cover Puerto Rico (or any other United States territory), but still requires healthcare insurers to comply with federal regulations (Millman

2014). In response, Puerto Rico decided to adopt ACA rules anyway but with the caveat that individuals are not required to have health insurance. This exception raised premiums for the insured, as only those who needed insurance accessed it. Since the ACA does not cover Puerto Rico, islanders are also ineligible for insurance subsidies (Kelto 2015).

Medicare and Medicaid also serve the island; with more than 60% of Puerto Ricans enrolled in one of the two programs, the aging, ailing population reflects the exodus of younger generations of Puerto Ricans moving to the mainland looking for work and better healthcare (Alvarez and Goodnough 2015). However, the island only receives 75% of the Medicare rates that the mainland states receive from the U.S. government. Moreover, the federal government plans to cut payments to Puerto Rico's Medicare Advantage programs (which serves 75% of Medicare recipients on the island) by 11% in January 2016 (Alvarez and Goodnough 2015; Mulligan 2014). Thus, there is mounting anxiety over the population's inability to afford doctors' appointments and hospitalizations. Medicaid in Puerto Rico is now funded by a government grant that will expire in 2017, and if the island cannot come up with the \$1.8 billion needed to fund Medicaid, lawmakers will need to drastically cut Medicaid services (Fletcher 2015; Guzman 2015).

La Reforma and Medicare are singularly under-equipped to manage mental health care in Puerto Rico. Both plans contract mental health treatment with APS Healthcare, a managed behavioral health organization (MBHO), the only one in Puerto Rico, but it is and based in the mainland United States, adding layers of bureaucracy that create barriers to accessing and coordinating care (Alegría et al. 2001; Mulligan 2014). Members could not always obtain approval for care with the speed that their care sometimes required for mental health emergencies, furthering to the underutilization of privatized mental health services. An

estimated 75% of members (adults and children) who needed mental health care did not received services in 2012 (Mulligan 2014).

Diabetes, Depression, and Obesity in Puerto Rico

Understanding the complex relationship between diabetes, obesity, and depression in both island and mainland Puerto Ricans is necessary to address the three health problems adequately,¹⁸ since Puerto Ricans travel often between the mainland and the island and bring their health behaviors with them. Thus, understanding the illnesses on the island will offer a better understanding of their baseline health condition when they migrate to the mainland.

The diabetes prevalence rate for Puerto Ricans living in the United States is 13.8%, which is higher than for Mexicans (13.3%) or Cubans (7.6%) (ADA 2011; Henkin et al. 2011). Seven percent of Puerto Ricans in the United States have depression (Henkin et al. 2011), and both on the mainland and on the island, Puerto Ricans are nearly twice as likely as non-Hispanic whites to have depression (Delgado et al. 2006; Diefenbach et al. 2009; Disdier-Flores 2010; Henkin et al. 2011). However, few actively seek out treatment for depression because of a combination of the following factors: depression is a stigmatized condition, linguistic barriers to care, concerns regarding racism in the medical system, social isolation, poverty, and because depression is a stigmatized condition (Alegría et al. 2007; Guarnaccia et al. 2010; Martínez-Pincay and Guarnaccia 2007; Ramos 2005). Puerto Ricans describe depression symptoms manifesting not only as internal issues (e.g., feelings of sadness or loneliness, guilt) but also experience it as physical aches and pains (Cabassa et al. 2008; Fitzgerald 2010; Lewis-Fernández

¹⁸ United States Census Bureau 2006 American Community Fact Finder:
http://factfinder.census.gov/servlet/DTTable?_bm=y&-geo_id=01000US&-ds_name=ACS_2006_EST_Goo_&-redoLog=false&-mt_name=ACS_2006_EST_G2000_B03001

et al. 2010; Ramos 2005) in contrast to the DSM's description of depression as primarily a mental illness.

The International Diabetes Foundation (2014) estimates that the prevalence rate of diabetes on the island of Puerto Rico is 15.5%, which is higher than the overall mainland prevalence of 11.4%. Residents of Puerto Rico are roughly 1.8 times as likely as non-Hispanic whites in the United States to develop the disease, and diabetes accounts for 7.7% of all deaths in Puerto Rico (Acosta-Pérez et al. 2012; Ortiz et al. 2011).¹⁹ Puerto Rico also has a high incidence of psychiatric disorders at an estimated 28% of the population as of 2000. Mood disorders are currently the fourth most prevalent psychiatric disorder in Puerto Rico (Disdier-Flores 2010; Koss-Chioino 1999a; Rodríguez-Gómez et al. 2006). Specifically, major depression afflicts 15% of the adult population in Puerto Rico.²⁰ Despite the high need for mental health services in Puerto Rico, government-funded mental health care on the island is fragmented and unorganized, and does not fully meet the high need for mental health care services (Colon et al. 2013; Vera et al. 2010). In terms of diabetes and depression together, 14.6% of individuals with major depression also had diabetes, compared to 9.7% of individuals with diabetes that do not have major depression (Disdier-Flores 2010). Obesity is a major health crisis in Puerto Rico; currently, 65% of Puerto Ricans are overweight or obese, and over a third are obese, rates that reflect the obesity rates in the United States (Acosta-Pérez et al. 2012; Soltero and Palacios 2011). Research suggests that obesity is correlated with depression (Acosta-Pérez et al. 2012; Laborde and Sáez-Santiago 2013) and diabetes (Díaz-Santana et al. 2014; Disdier-Flores 2010)

¹⁹ Centers for Disease Control and Prevention, 2005, <<http://www.cdc.gov/diabetes/pubs/estimates05.htm>>.

²⁰ Centers for Disease Control and Prevention, 2005, <<http://www.cdc.gov/Features/dsDepression/>>.

in Puerto Rico, and the existing literature merely analyzes comorbidities and does not delve into the structural factors that form the foundation of these illnesses' etiologies.

Food preparation and consumption reveal a lot about how people identify their cultural groups, their political, religious, and socioeconomic identifications, and the lens through which they interpret the world (Ortíz Cuadra 2013). These processes allow people to 'partake each day of the national past' (Barthes 2013:27) and unite them under the banner of nationality that offers cultural continuity in the face of change. They also offer insight into how people interact with and perceive others (Ortíz Cuadra 2013). In terms of obesity in Puerto Rico, it is insufficient to contextualize food access solely within the socioeconomic milieu. I frame obesity, diabetes, and depression within the struggle to break away from American colonialism and create a unique Puerto Rican national identity by consuming the traditional Puerto Rican diet in the face of biomedical health practitioners' warnings to the contrary and the changes in physical activity that originally underlined the need for high-calorie diets.

Given that illness etiologies and diagnoses are due as much to cultural as they are biological factors (Tseng 1996), we need a greater understanding of the cultural contexts in Puerto Rico in which these diseases develop. Puerto Rican sociocentricity (Barrio 2014; Manson 1996) affects the development of depression on the island, particularly within the context of the political liminality and poverty affect Puerto Rico as a whole and Puerto Ricans individually. I construct to conceptualize both the broader structural factors that support the development of these illnesses and the personal narratives surrounding illness etiology and perpetuation. Because diabetes and depression are both correlated with unequal socioeconomic status and other social inequalities, the framework used must particularly incorporate political and economic factors. As I described earlier, racism plays a role in the propagation of depression

and obesity in marginalized communities. I maintain that racism highlights the relationship that the United States has with Puerto Rico, which in turn contributes to the diabetes-depression-obesity syndemic on the island.

PART FOUR: THEORETICAL FRAMEWORKS

The syndemics framework is an essential tool for understanding the social, economic, and political implications of developing and living simultaneously with diabetes and depression (Mendenhall 2012). This concept, developed by medical anthropologist Merrill Singer, examines “the deleterious interaction and health outcomes of two or more health conditions that coexist in a population, particularly (but not only) as a consequence of social inequality and unjust implementation of power” (Singer 2009:xv). Syndemics theory is based in critical medical anthropology (CMA) as a lens through which to approach a larger spectrum of issues surrounding illnesses (Baer et al. 1986; Singer and Clair 2003). Thus, a critical medical anthropology approach places micro-level individual health concerns within the broader political-economical contexts in which they occur and recognizes that the experience of suffering is individual, cultural, and structural (Pfeiffer and Nichter 2008; Singer and Clair 2003). Syndemics goes beyond looking at comorbidity: it examines the ways in which diseases actively interact with one another to worsen each other and cause poorer health outcomes than they would by simply coexisting. It also investigates the social pathways that contribute to and worsen the side effects of health conditions and make populations more vulnerable to disease (Mendenhall 2012; Weaver and Mendenhall 2013). Social inequality incorporates, but is not limited to, differential access to healthcare and healthy food, difficulty in obtaining employment or education, disease as a result of exposure to crime and poverty, and the accessibility of health care and hospitals in neighborhoods.

Social inequality also includes structural violence (Farmer et al. 2006; Page-Reeves et al. 2013) and together they perpetuate the synergistic cycle of illnesses (Mendenhall 2012; Singer 2009). Both structural (institutionally sanctioned) and symbolic violence (internalization of implicit inequalities) are also essential factors in the development and perpetuation of syndemics.

Violence includes a category of inequalities that “are so destructive to physical and mental health, to social interactions, and to overall wellbeing, that they magnify pain and suffering to the level of state-sanctioned brutality” (Singer 2009:33, 140). The factors that form the foundation of syndemics, the –isms and phobias that underlie the social inequalities that increase the incidence and prevalence of illnesses, form both a foundation of structural violence (Mendenhall 2012:15) and the underlying reason for individual and group exclusion that result in social isolation and stress (Belle and Doucet 2003; Flores et al. 2008; Martínez-Pincay and Guarnaccia 2007).

Poverty is a prime example of structural violence, particularly in that it leads to “...disproportionate social suffering for the marginalized” (Sarang et al. 2010:815). Examples of policies resulting from structural violence that widen the poverty gap include unaffordable privatized healthcare that excludes people in lower socioeconomic statuses, policies that prohibit institutions from hiring non-citizens, and the differential delegation of goods and services based on neighborhood (e.g., the quality of schools). Poverty is also intricately interwoven with the concept of identity and draws a stark line between those with sufficient resources and those with insufficient resources, which creates marked social categorization particularly along ethnic lines (Mosse 2010). Structural violence as an actualization of syndemics is a driving force of disease in Puerto Rico. Puerto Rico has a staggeringly high poverty rate and high rates of diabetes and depression, and all three contribute to and reinforce one another’s existence on the island. With Puerto Rico attempting to construct a coherent identity in the face of a complex relationship with the United States that is defined in part by the unequal distribution of financial resources, structural violence is central to the continuing identity struggle and the effect of that struggle on illness perpetuation.

In addition to poverty, I also incorporate racism and stigma as social components of syndemics in Puerto Rico. Racism manifests as residential segregation, lack of career and social mobility, and the uneven distribution of money, valued resources, and foodstuffs. A well-established history of mistreatment, rooted in racism, exists in the United States; for example, the Tuskegee Syphilis Study, still has a profoundly negative effect on the African American community's trust in the medical community and willingness to access healthcare (Brandon et al. 2005; Freimuth et al. 2001).

Furthermore, symbolic violence, or the 'socially invisible' inequities that impair wellbeing, also contributes to syndemics (Mendenhall 2012; Singer 2009:140). One pathway in which symbolic violence is actualized is through domestic violence (Hagan et al. 2008): men may abuse women out of pent-up frustration because the men are unable to provide for their families due to unemployment and feel that their identities as men and breadwinners are thus compromised. The men's need to assert their masculinity through domestic violence helps them affirm their own identities at the expense of women's health. The unemployment rate in Puerto Rico was 11.75% in February 2016, which is slightly lower than the overall average of 15.40% unemployment between 1976 and 2016. By comparison, the average unemployment rate in the United States was 5.80% (1948-2013), with a 4.90% unemployment rate in February 2016 (Trading Economics 2016). This is notable, given that men's unemployment rates tend to be higher than women's during recessions, such as the recession that hit both the United States and Puerto Rico during the 2008 financial crisis (Albanesi and Sahin 2013). The high unemployment rate, coupled with unsafe neighborhoods, an inability to consistently afford healthy food, and disparity between unemployment rates in the United States and Puerto Rico has contributed to domestic violence and indirectly to structural violence.

The complexity of syndemics lies in both the structural and the biological pathways that form the foundations of the theory. Depression, obesity, and diabetes are health conditions that interact structurally and biologically, and I highlight both pathways. However, I focus more on the structural pathways in this dissertation, for two reasons. Firstly, as Singer and Clair (2003) claim, "...social factors, like poverty, stigmatization, racism, sexism, ostracism, and structural violence may be of far greater importance than the nature of the pathogens or the bodily systems they infect" (pg. 428). Secondly, it is the nature of the OVIDD syndemic that, while the health conditions do interact biologically, the nature of Puerto Rico's status and relationship with the United States necessarily draws more attention than do the biological pathways that underlie the illnesses' relationship.

Medical anthropologist-psychiatrist Arthur Kleinman's ideas about the usefulness of illness narratives, or the ways in which individuals make sense of their illnesses and their experiences in living with them, provide excellent opportunities to understand individual lives from an emic perspective. Illness narratives provide an opportunity for individuals "...to give coherence to suffering", and include symptoms, contexts, culturally salient illnesses, personal and interpersonal histories, and relationships (Kleinman 1988:49). Illness narratives consist of

- Life histories (synopses of individuals' lives, including major life goals and obstacles, personality, illness history, and family history of the three illnesses),
- Patient explanatory models (informal descriptions of the occurrence of a particular of knowledge about the body and self),
- Personal and interpersonal significance (external factors that influence how the individuals live with an illness),
- A culturally marked disorder (the classification of an illness as not part of normal life).

(Hunt and Arar 2001; Liburd et al. 2004):

I will use illness narratives to enliven the syndemic understanding of how Puerto Ricans adjust to living with depression, obesity, and diabetes and how the illnesses affect and interact with both other illnesses and other aspects of the participants' lives (Lewis-Fernández et al. 2005; Liburd et al. 2004).

Kleinman's Explanatory Models of Illness (EM), a part of an illness narrative that examines the cognitive models of illness centered on the meanings that they attach to their illness (Ferzacca 2000; Kleinman 1980; Weiss et al. 1992), will also be employed. An explanatory model includes an individual's perceived etiology of and appropriate treatment for an illness, healthcare providers, all of the emotions attached to experiencing an illness, and attempting to derive meaning from a profound shift in control of one's body (Kleinman 1988). While much has been written on the sufferer's explanatory models, physicians also carry explanatory models of both illnesses and sufferers. Patients and physicians bring these models to their interactions, and any incongruence between the models often negatively influences patient compliance (Hunt and Arar 2001). With diabetes and depression prevalent in Puerto Rico and depression stigma a pervasive force that prevents individuals from seeking healthcare in Puerto Rico (Cabassa et al. 2008; Cohen 2004; Pérez-Perdomo 2003), defining explanatory models will help identify what prevents individuals from seeking healthcare, negative provider attitudes toward their patients, and the perpetuation of the illnesses in question.

PART FIVE: STUDY DESIGN/METHODOLOGY

Background

I designed a mixed-method, two-stage approach to address my three main research hypotheses.

- 1) Individuals with both diabetes and obesity have greater prevalence and severity of depression than individuals with only diabetes or obesity.
- 2) Type II diabetes mellitus, obesity, and depression contribute to and reinforce each another's negative lived experiences. .
- 3) Puerto Rico's politically liminal status underlines and propagates diabetes, obesity, and depression on the island, creating a four-pronged syndemic that I entitle the OVIDD Syndemic (Obesity, structural and symbolic Violence, political Instability, Diabetes, and Depression).

Qualitative data collected included semi-structured interviews, illness narratives and the Explanatory Model Interview Catalogue (EMIC)[®], which ask individuals how they interact with and make sense of their illnesses (Kleinman 1980; Weiss et al. 1992). Interview questions centered on experiences of illness, on the neighborhoods in which the participants resided, and on the built environment in Puerto Rico. Quantitative data were collected by questionnaire and physical measurements. The questionnaire asked about age, gender, income, education, and depression (the Beck-II Depression Inventory (BDI)[®]). Physical measurements were taken for height, weight, Body Mass Index (BMI), and percent body fat. Free listing and pile sorting were also used to understand the cultural domains of diabetes, depression, and obesity.

I recruited all participants through El Centro de Diabetes Para Puerto Rico, a government-funded clinic based at the University of Puerto Rico's Medical Sciences campus, between January and August 2014. I collected data in two stages, Stage One and Stage Two, with Stage One a screening process for Stage Two. I conducted my interviews in two stages in order to compare responses from the participants in Stage One to the participants in Stage Two, and due to the length of the interviews conducted during Stage Two.

Stage One (January 21-May 16 2014): The first stage collected data on 60 participants' and 12 health care providers' general models of diabetes, depression, and obesity and aspects of their neighborhoods and health care system that might affect care. Participants completed a short demographic survey the Beck Depression Index BDI[®], and the Explanatory Model Interview Catalogue (EMIC)[®]. During Stage One, I also interviewed the clinic staff (receptionists, physicians, nurses, dentists, and dietitians) and administered the EMIC[®] to them and interviewed them about issues like healthcare access, their recommendations for patients' weight control, depression, and diabetes, and how their relationships with their patients affect those recommendations.

Stage Two (March 4-August 1 2014): During this stage I collected qualitative, meaning-centered data regarding the lived experience of disease. I made home visits to 15 participants consisting of a subset of participants from Stage One who met eligibility criteria for participation in Stage Two (i.e., those with diabetes alone, obesity alone, or both diabetes and obesity and with a score of at least 20 on the BDI[®], the cutoff for diagnosis of moderate depression, and who also self-identified as currently having depression. Diabetes was defined as formal diagnosis and treatment for diabetes. I determined obesity by asking each participant for height and weight to

calculate BMI; a BMI ≥ 30 kg/m² is the cutoff for obesity.²¹

Informal interviews with participants covered illness narratives, accessibility to supermarkets and neighborhood safety (for physical activity), free listing (a participant listing all of the words and concepts related to a broader topic), pile sorting (a method in which participants categorize items according to their perceived likeness), and weight and body fat measurement using a Tanita Scale Innerson BC-568 to ascertain obesity. I used free listing and pile sorting to elicit responses from participants and providers on diabetes and depression symptomology, and from participants on Puerto Rican and American foods. I used the pile sorting as a jumping-board to discussing Puerto Rican and American identities.

I additionally asked the participants for their weight, but since adults tend to over-report their height and under-report their weight (Jensen 2008; Moore and Pi-Sunyer 2012; Must and Evans 2011), I used the Tanita Scale to assess obesity as well.

Sample Size Justification

While there is no anthropological consensus on the number of interview participants sufficient to achieve data saturation (Bernard 2006; Creswell 2009; Fetterman 2010; Guest 2006; Schensul et al. 1999), a sample size of at least sixty participants is suggested in order to measure the degree of association between two or more illnesses, (Cresswell 2009; Guest 2006). The sample size selected in my study had to accommodate measuring three health variables, rather than two. For the first stage of interviews, 60 adults were deemed sufficient to form an understanding of the relationship between obesity, depression, and diabetes in the population, based on the work of Cresswell and Guest. For the second stage, a minimum of 15 adults was

²¹ While I use percent body fat as a more accurate assessment of obesity, it takes longer to determine, and as such, I used BMI as an initial assessment of obesity in order to determine whether participants in Stage One were eligible for Stage Two.

sufficient to achieve data saturation (Guest 2006). Based on power calculations, estimates, and previous experience, 20 participants per group sufficed to detect difference in prevalence and severity of depression between the groups with 80% power. Due to the time-consuming measures in the second stage, it was infeasible to conduct home visits for all Stage One participants; instead, during Stage One, I screened participants for the second stage. Conducting interviews in two stages also allowed for comparisons between two groups of participants (Gask et al. 2011; Guest et al. 2006): those with or without all three illnesses. For Stage Two, I recruited participants from three groups (n=20 in each): those with diabetes alone, obesity alone, or both diabetes and obesity. Diabetes is defined here as formal diagnosis and treatment for diabetes. I determined obesity by asking each participant for height and weight to calculate BMI; a $\text{BMI} \geq 30 \text{ kg/m}^2$ is the cutoff for obesity.²² Participants must also have scored at least a 20 on the BDI®, the cutoff for diagnosis of moderate depression, and also self-identified as currently having depression.

Participants were recompensed \$5 at the end of Stage One and \$15 at the end of Stage Two. These sums are small enough to not be a confounding factor in encouraging individuals to participate (Bernard 2006; Schensul et al. 1999). The University of Connecticut's Institutional Review Board approved this study on April 22, 2013 and was renewed on April 18, 2014.

Research Site

As noted, I recruited participants through El Centro de Diabetes para Puerto Rico, a government-funded clinic based at the University of Puerto Rico's Medical Sciences Campus in

²² While I use percent body fat as a more accurate assessment of obesity, it takes longer to determine, and as such, I used BMI as an initial assessment of obesity in order to determine whether participants in Stage One were eligible for Stage Two.

San Juan, Puerto Rico. Each month the clinic manages care of approximately 75-80 patients per month, who are referred to the clinic by primary care physicians due to metabolic issues. This venue was selected due to its emphasis on both research and clinical practice (Disdier-Flores 2010; Rodríguez et al. 2007) and due to my positive experience collecting preliminary data at that clinic. Additionally, the clinic is centrally located on the campus, making it an accessible location for patients and myself to access. The clinic employs nurses, primary care physicians, ophthalmologists, dentists, and nutritionists; patients have regular check-ups and diabetes/metabolic management: glucose levels checks, eye drops (to prevent the eye dryness typically associated with diabetes), and nutrition classes for newly-diagnosed patients on adjusting their diets.

Recruitment and Interviews

I approached potential participants in the lobby of the clinic, briefly explain the study, and solicited participation. The clinic's healthcare providers and receptionists also informed their patients about the study. If the participant agreed to participate, I guided him or her through the informed consent immediately and walked the participant through the BDI® and ensuing demographic questions directly after obtaining consent. I had a private interview room in the clinic that was close enough to the lobby so participants did not miss their appointments. I conducted all of the interviews in Spanish.

Introductory Methodology

I took daily field notes in order to capture more of the fieldwork experience: scratch notes

taken during the day/interviews; a log to record how time and budget are spent; and descriptive notes of observations of processes, transcriptions of recorded interviews, and descriptions of events and places (Bernard 2006). I conducted participant observation in public spaces, particularly in eating establishments and around the hospital where the clinic is located, and observed which groups of individuals (gender, age, etc.) consumed which types of food and how much. I also observed physical activity around eating establishments to determine if certain places are easily accessible on foot or by public transportation and encourage physical activity. Furthermore, I took photographs of eating establishments to record the physical space, arrangement and activities of people in that space.²³ Having visual records is an essential tool of observation (Cresswell 2009; DeWalt and DeWalt 2002) that helped me draw conclusions about food-consumption decisions, such as which restaurant is closest to the door (if in a food court), and whether the eating establishments are well lit and have sufficient seating, which would encourage or discourage potential consumers from consuming food at those establishments and return to them.

Recruitment

I collected participant observation data from January 13–August 11, 2014 and conducted interviews between January 21–August 1, 2014. When I first started conducting interviews, the clinic was open Monday through Friday, 7:30 AM to 4:30 PM. In May 2014, the clinic changed its hours of operation to be open 7:30 AM to 7:00 PM, Monday to Thursday, 7:30 AM to 5:00 PM on Fridays, and 8:00 AM to 3:00 PM on Saturdays. I arrived at the clinic at around 9:30 AM and stayed until around 4:00 PM, Mondays through Thursdays. Once the clinic began seeing

²³ I took photographs with my phone in order to be more discreet. Phone photography was common in San Juan, so I did not stand out while taking photographs.

patients on Saturdays, I went to the clinic two Saturdays a month. I dedicated Fridays to participant observation, data analysis, and Stage Two interviews. Tuesdays and Thursdays were the busiest days in the clinic. On average, I conducted three or four Stage One interviews per day and one Stage Two interview per week.

Since this research focuses primarily on adults, all participants were at least 18 years of age. I excluded people who were only at the clinic to pay bills or pick up medications, since I found that such individuals were generally not willing to stay at the clinic to participate in the study when they were only intending to be at the clinic very briefly. I also excluded non-Puerto Ricans, which I determined during the screening process. As this study focused in part on Puerto Rican identity, I wanted to control for citizenship and limit the responses to Puerto Ricans. Since diabetes and depression affect individuals of both genders and all ages, no individuals were excluded on those accounts except those under age 18. The interview search ended when the interviewer and participant finished the questions or when the participant chose to withdraw from the study, whichever came first. None of the participants, however, chose to withdraw from the study once the interviews had commenced.

Since the interview questions were semi-structured, the time frames of the interview depended on the participant's and the clinic's schedules and lasted approximately 60 to 90 minutes. On several occasions, I paused the interview because the participant was called to an appointment and returned to finish the session after his/her appointment.

Since the interviews were held in the clinics, transportation money was not provided. Individuals were offered the same remuneration regardless of the length of the interview. If I met Stage Two participants in a coffee shop or other eating establishment, I also paid for their food.

The consent forms were the only documents that identified individual names. Each participant received a consecutively assigned alphanumeric code and a pseudonym to protect his or her identity. All consent forms and hard copies of interviews have been kept in separate locked filers in my office at the University of Connecticut at Storrs. All electronic versions of the interviews are kept on my password-protected computer. A copy of the consent form can be found in Appendix A.

I determined eligibility for Stage Two while conducting the Stage One interview. If the participant was eligible for Stage Two, I recruited the participant at the end of the interview. I met the participant in a location of his or her choosing: either at home or a public place, such as a coffee shop, restaurant, or park. If I was to meet a participant at home, I recorded the participant's address in my password-protected phone, and deleted it upon completing the interview in order to maintain my participant's privacy.

Variables

After obtaining informed consent, I asked the participant several sets of questions. (A copy of the interview instrument is in Appendix B.) The first set of interview questions used the Beck-II Depression Inventory (BDI)²⁴, which has been validated for Puerto Ricans (Kerr and Kerr 2001; Rodríguez-Gómez et al. 2006; Van Voorhis et al. 2007). The BDI consists of 21 questions that ask the participant whether he or she has experienced the following feelings or changes in the past two weeks: sadness, pessimism, failure, lack of pleasure, feelings of guilt, feeling punished for something, self-criticism, suicide ideation, crying, changes in appetite and sleep patterns, agitation, indecision, lack of interest, lack of energy, fatigue, irritability, and difficulty concentrating. Each question had answers organized in a Likert Scale to describe

²⁴ See Appendix B for a copy of the BDI.

increasing intensity of the question: 0 indicated “not at all” and 3 indicated “always”. Scores ranged from 0-63; 13-19 indicates mild depression, 20-28 indicates moderate depression, and 29-63 indicates severe depression. I allowed each participant to take the BDI independently, although I read the BDI out loud to two participants who had impaired vision due to eye drops. I scored the BDI at the very end of the interview, rather than immediately after the participant completed the BDI, in order to not disrupt the flow of the interview.

After administering the BDI, I asked the participants four sets of questions. The first set focused on the participants’ experiences in living with diabetes, the second on the possible presence of depression (allowing the participant to self-diagnose with depression), the third set (contingent on the answers to the second set) asked participants for their experiences in living with both depression and diabetes, and the last set focused on dietary intake. In order to determine whether beliefs about diabetes and depression changed with disease status, I asked participants about diabetes and depression regardless of their disease status and skipped the questions about personal experiences with the illnesses for participants without diabetes and/or depression. I found that taking the BDI at the beginning did not appear to impact participant responses to the self-reported depression question set, as many of the participants either reported having depression on both the BDI and the self-reported depression question set or did not report having depression in either interview. Furthermore, many informants without depression informed me why they responded as they did to certain questions that would otherwise raise their scores on the BDI (which would provide a false positive). For example, the BDI has a question on changes in sexual activity and several of the older participants informed me that their sex drives had decreased because they were older and did not have the same energy for sex that they did when they were younger, rather than not wanting to have sex due to mood changes.

Analysis

Quantitative data included information on diabetes status, age, gender, BDI-II scores, free listing findings, pile sorting findings, and self-reported depression. I analyzed the quantitative results using the computer program software Statistical Package for the Social Sciences® (SPSS®), version 17.0.1. Data are shown as means \pm standard deviation and range. Consistent with standard practice (Beck, Steer, and Brown 1996), BDI scores were recoded into 0 (scores of 0-12) for no evidence of depression and 1 (scores of 13-63) for evidence of depression in order to run statistical tests between participants who scored above and below the threshold for depression. I also recoded the BDI data of informants who scored above the threshold for depression into the different categories of depression: 1 for mild depression (scores of 14-19 on the BDI), 2 for moderate depression (scores of 20-28 on the BDI), and 3 for severe depression (scores of 29-63 on the BDI). Participants were also grouped into three categories for not having diabetes (0), having diabetes (1), and being tested for diabetes (.50). Statistical tests such as independent t-test, two-tailed t-test, Pearson's chi-squared test (chi-squared goodness-of-fit), and ANOVA were used to answer research questions, using a 95% Confidence Interval, power of 0.80, and statistical significance of 0.05. Using Grounded Theory I coded the qualitative data manually using Grounded Theory into the software program MAXQDA®, which is adept at analyzing qualitative data. Grounded Theory is the social science approach of identifying a theory after the collection and analysis of data (Bernard 2006; Cresswell 2009). The researcher is guided by a set of questions, and upon analyzing the data, identifies codes in the data. Codes are then grouped into categories. While using Grounded Theory can produce new theories, I used Grounded Theory to determine whether my data constitute a syndemic, a preexisting

theory. I read the first interview and recorded themes in a Microsoft Word document. While reading subsequent interviews, I either included themes within preexisting theme categories from the first interview, or created new theme categories. I recorded the interview number under each theme. Since there were only 60 interviews and I conducted all of the interviews myself, I was very familiar with the data and was also able to categorize themes into broader categories based not just on the text but also on my knowledge of the participants' body language and intonation during the interviews on which I had taken notes on participants' body language and intonation during the interviews. I then grouped codes into the categories that I present in this dissertation.

Quantitative Results

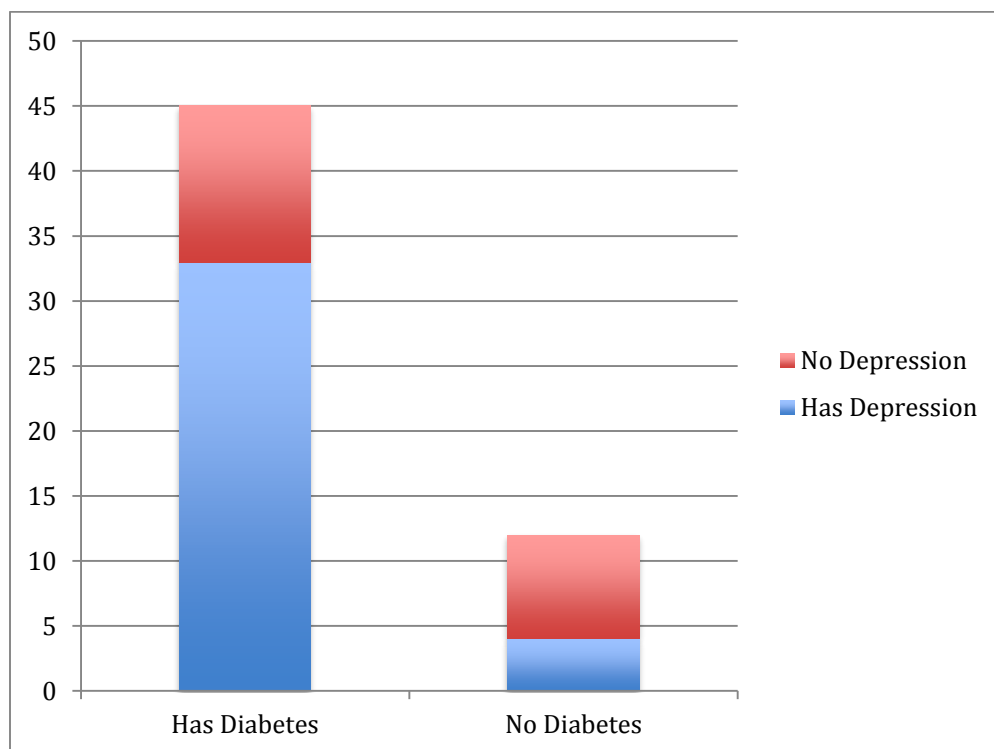
Stage One

For all the quantitative analyses, I used the standard statistical significance threshold of 0.05 to determine if there was a statistical difference between diabetes, depression, obesity, and the associated social and structural factors, indicating a syndemic relationship between the three diseases being analyzed²⁵.

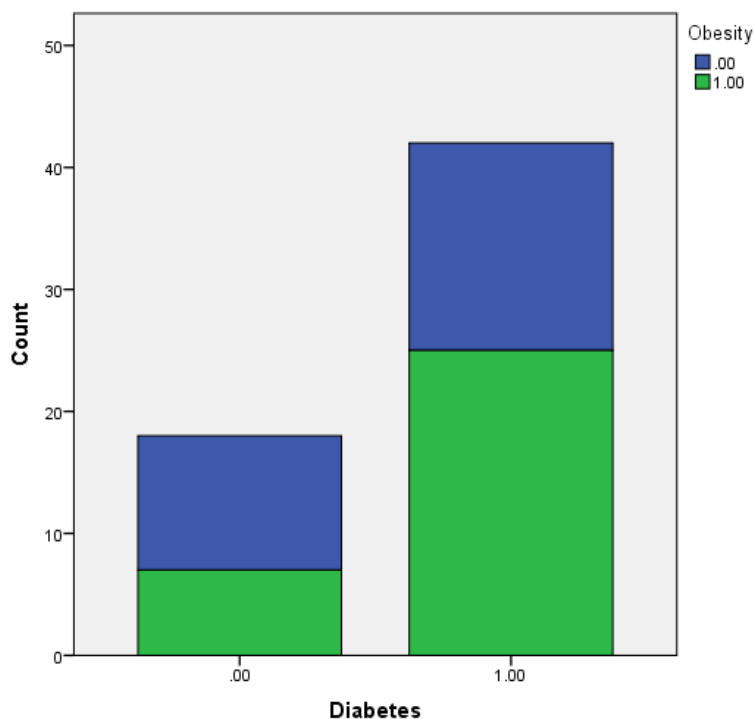
A total of 60 people participated in my study of the obesity-diabetes-depression syndemic. There were 36 females (60% of the participants) and 24 males (40%). All participants were born and raised in Puerto Rico. The age range of participants was 28 to 74 years, with a mean of 49.88 (SD 10.84). The average household income was \$21,384 (range \$1,546-65,719), and 68% of the participants (n=41) had high school diplomas. One participant (2%) had a Master's degree, 11 (18%) had earned bachelors degrees and the remaining seven (12%) had dropped out of high school. Forty-two participants (70%) self-reported diabetes and 18 (30%) did not have diabetes. All of the 42 participants with diabetes had Type II Diabetes. The informants without diabetes were at the clinic to be treated for other illnesses, such as thyroid problems, or were accompanying family members to the clinic for appointments and waited at the clinic until the appointment was finished. Data for participants without diabetes was included in order to compare the depression and obesity results of the participants with and without diabetes. While the majority of the participants were at the clinic for diabetes or other endocrine conditions, 52 participants (87%) reported coexisting problems, primarily migraines, asthma, and high blood pressure. The average age among participants with diabetes was 61 years (SD 9.57), and the average age among participants without diabetes was 37 years (SD

²⁵ See Appendix 1 for a full list of variables

9.50). The depression (BDI) scores ranged from 2 to 40; the mean was 13.25 (SD 4.71). The average age of participants with BDI scores above 13 (the cutoff point for having depression) was 55.02 (SD 3.21), and the average age of participants with BDI scores below 13 was 41 (SD 4.03). Thirty-two participants (53.3%) reported having obesity, compared with 28 participants (46.7%) who reported not having obesity. Fifty-five percent (n=33) of the general participant cohort scored at least 13.0 on the Beck-II, indicating at least mild symptoms of depression. Sixty-eight percent (n=41) of participants reported having experienced depression, regardless of their BDI scores. Among participants with diabetes, 33 (55%) scored at least a 13.0 on the BDI, compared to only four participants without diabetes (25%). Thirty-four participants (57%) reported having both diabetes and depression, compared with eight participants (13%) with diabetes but without depression, and seven participants (12%) with depression but without diabetes. The following chart illustrates the diabetes-depression relationship:



Twenty-four participants (40%) who reported depression, also reported having obesity, compared to 17 participants (28%) who reported having depression but reported not having obesity. Eleven participants (18%) reported having neither depression nor obesity. The following chart illustrates the diabetes-obesity relationship: obesity was more common (25 out of 42; 59%) among participants with diabetes (the 1.00 column) than among participants without diabetes (the .00 column, 7 out of 18; 39%).

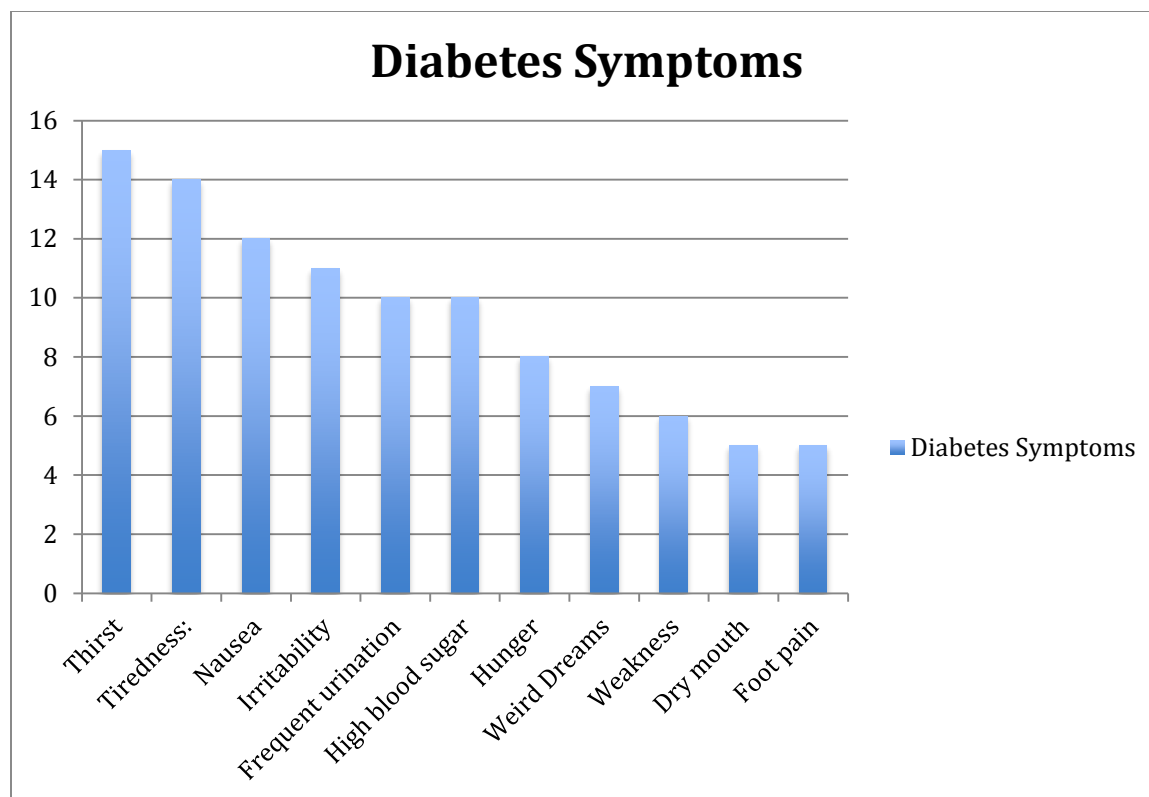


Of the 60 participants in Stage One, 65% reported their health was 'very bad' (N=26, 43%) or 'bad' (N=13, 22%). Six (10%) reported their health as being 'good', but none of the participants reported their health as being 'very good'. The remaining 15 participants (25%) reported their health as being 'acceptable'.

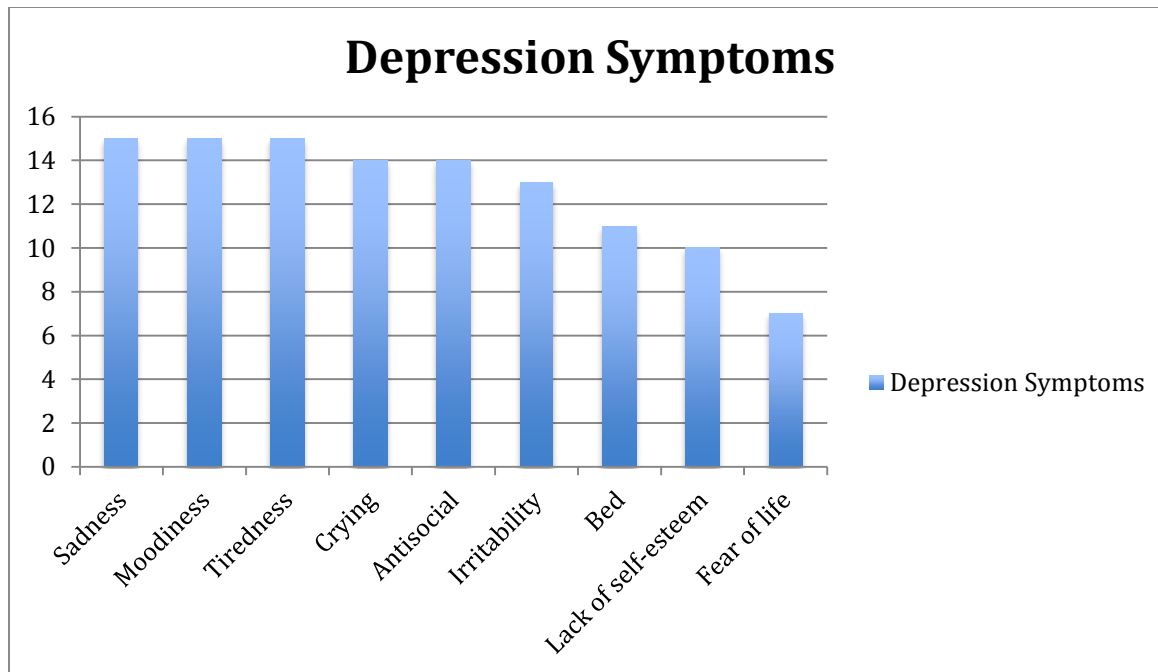
*Quantitative Data: Stage Two**Participant Characteristics*

I conducted my interviews in two stages in order to compare responses from the participants in Stage One to the participants in Stage Two, and due to the length of the interviews conducted during Stage Two. I recruited the 15 participants in this stage of the research from among the 60 participants in Stage 1. Eligibility for participation in this stage included scoring at least a 13 on the Beck-II Depression Inventory[®], having a clinical diagnosis of diabetes, and identifying as having obesity. The age range of participants was 48 to 74 years, with a mean of 60.1 (SD 3.45). There were 10 females (67% of the participants) and 5 males (33%). All participants were born and raised in Puerto Rico. All of the participants have diabetes. The average age among participants with diabetes was 60.1 years (SD 3.45). The average percent body fat percentage was 35.9% for women and 27.6 for men; both averages exceed the obesity thresholds for their respective sexes.

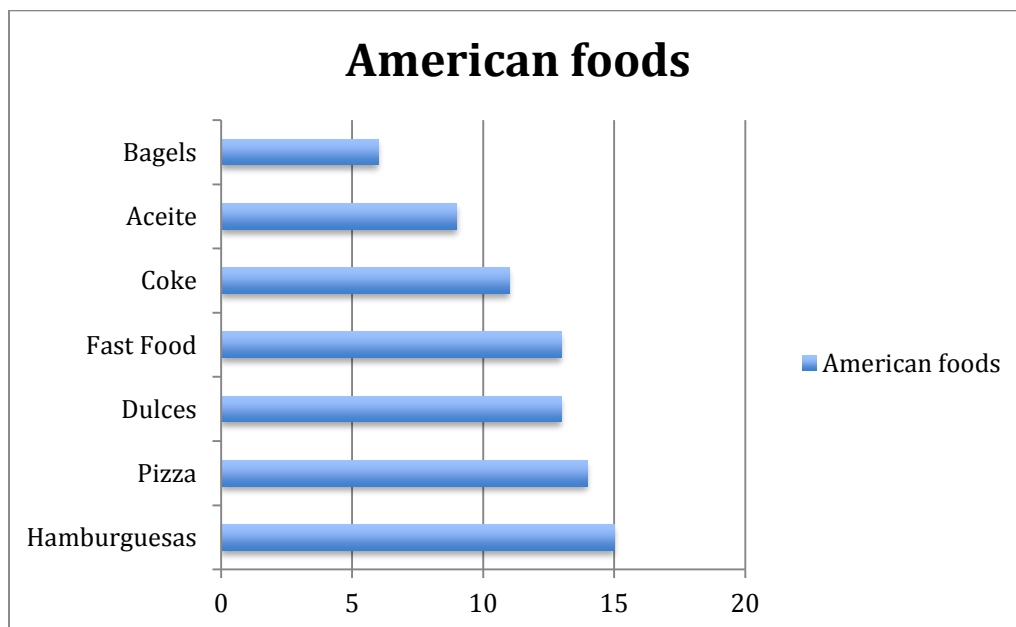
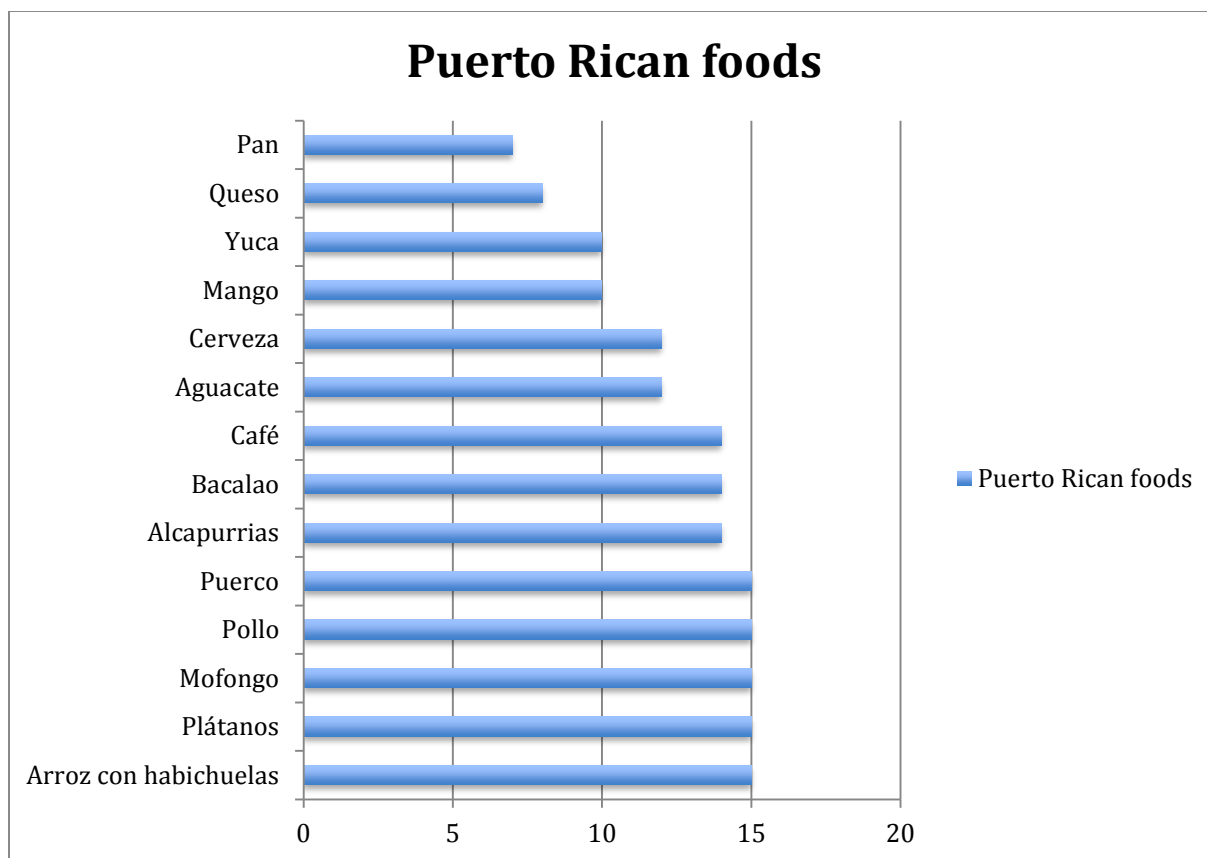
For the pile sorting data, the most frequently mentioned diabetes symptoms that the 15 participants mentioned were thirst (100%), tiredness (93%), nausea (80%), irritability (73%), and frequent urination (67%). These data can be found in the following chart:



The most frequently listed depression symptoms were sadness, moodiness, tiredness, (each 100%), crying, and antisocial behavior (each 93%).



Participants differentiated between Puerto Rican food and American food. The most commonly listed Puerto Rican foods were *arroz con habichuela* (rice and beans), *plátanos* (fried plantains), *mofongo* (mashed and fried plantains filled with seafood, meat, and/or vegetables), chicken, and pork (all five $n=15$). The most commonly listed American foods were hamburgers (100%), pizza (93%), candy and fast food (each 87%), and Coke (73%).



Qualitative Data

Responses in this section are from the 15 participants in Stage Two, classmates in the clinic's nutrition classes I attended (n=20), and the clinic's healthcare providers (n=30), total n=60. I asked my participants for the etiologies of and their experiences in living with diabetes, depression, and obesity in Puerto Rico. I additionally asked my participants about Puerto Rico politics in general and the island's political status in particular. I measured my participants' percent body fat during the interview process. I also attended rallies, protests, and strikes in San Juan, although I did not actively participate beyond marching alongside whichever group was protesting in order to continue collecting data.

Disease Etiology

Diabetes etiology was the second question to reach data saturation in my research (the first was whether participants trusted the government, to be discussed later): the two factors that were most often mentioned in participants' understandings of diabetes etiologies were genetics (n=31; 52%) and *alimentación (diet)* (n=42; 70%), the consumption of nutrients for the body's health. Regardless of their own diabetes status, almost everyone (all but four people) mentioned having family members²⁶ with type 2 diabetes. Thus because of the genetic link, participants were not too surprised when they developed diabetes²⁷ as Luisa, a 49-year-old housewife, notes that she found she was not surprised that she had diabetes and conveyed her story in a calm manner:

²⁶ Parents, siblings, aunts, uncles, grandparents, and cousins

²⁷ I asked all participants about diabetes etiology, regardless of their own diabetes status

I was not surprised to learn that I have diabetes, because I have a lot of family members with it. My mother died of it, my father has it, and three of my brothers have it; two of them are already on dialysis. You can't avoid it here.

Luisa's family history of diabetes is emblematic of the shared history of diabetes in Puerto Rico. In Puerto Rico diabetes is a national illness and, while it is not a pleasant experience by any means, it also affects so many families as to be commonplace. The calm manner in which she discussed her family history of diabetes was echoed in others' descriptions of learning of their own diagnosis, which is indicative of a disconcerting acceptance of the illness. I asked Marcos, an engineer, about his diagnosis experience:

I was not surprised, because everyone in my family has diabetes: my grandmother died from it, and my mother had it for more than forty years, and my dad had it, too.

Marcos went on to explain that his job kept him quite busy and that he often did not have time to eat healthy meals, relying instead on food purchased from vending machines. While he was unhappy with his eating schedule, Marcos was afraid to discuss the matter with his boss, worried that his boss would fire him and hire someone else who was willing to work the long schedule:

There are so many unemployed people here that I am afraid to risk my job simply by asking for a lunch hour. They'll fire me and hire someone who is willing to skip lunch, and sometimes also dinner. There are more engineers than there are engineering jobs, and that's true of other jobs as well. So I work overtime and eat whatever I can from the vending machines, and sometimes I manage to eat a few bites of whatever my wife packs for me, while working at my desk. I need to hide it from my boss, though. He's not a bad guy, my boss, but he has to follow the rules from *his* boss or *he'll* get fired. So I eat bad food to keep my boss, and now I have diabetes because of it. I didn't have diabetes when I started this job.

In addition to genetics, like Marcos other participants also attributed diabetes to dietary factors. Diet was a frequent topic of conversation during the free nutrition classes I attended at the clinic. Jimeno, who was one of the most garrulous members of the class, was uncharacteristically succinct:

Sugary food affects the sugar levels in the blood and that's the problem with diabetes.

Jimeno would often discuss diabetes in general, and his own experiences in particular. When I asked him to elaborate on his answer, he said that he had spent a lot of time thinking about why he had developed diabetes. After having diabetes for almost 25 years, eating sugary foods was the biggest contributor to his diabetes that he knew.

"I ate absolute crap when I was a kid," he said. "My parents didn't care, so I didn't, and now I have diabetes. That's what I get for not caring about my health."

I asked the other classmates for their opinions, and Mariela, a quiet woman sitting near me, explained that,

When someone eats a lot, that food will influence the development of diabetes. I was not surprised [to develop diabetes] – it was as if it was supposed to happen because I didn't lose weight, an "I told you so." Weight caused my diabetes.

The class's consensus was that sugary foods were more to blame than healthy foods for causing diabetes although an overconsumption of food in general was also negative. The two etiologies (*alimentación* and genetics) were not seen as conflicting; rather, in many cases, participants considered both genetics and *alimentación* to be coexisting factors in the development of diabetes. Mariela told me,

No, it's not an either/or situation. Genetics makes you at risk for diabetes, and *la alimentación* puts you over the edge for developing diabetes. If someone in your family has it, you'll probably develop it, too. You can try to prevent it, but if your diet's bad, then it's a sure thing. I wasn't surprised when I developed diabetes, because everyone in my family has it, but I also ate horribly, and that made my diabetes from a possibility into a certainty.

While genetics underlined a sense of fatalism about whether or not someone would develop diabetes, *la alimentación* was the catalyst for how *soon* someone would develop it. There was resigned acceptance of the diagnosis of diabetes among my participants, since their family members before them had had diabetes as well and the participants expected that they, too, would eventually develop the illness. There was a general awareness of diabetes among the participants because most of them had experience interacting with family members with diabetes. There is also a rising public awareness about diabetes from exposure to public announcements on television, in grocery stores, and on trains (photograph, Appendix B). These public health announcements often linked food intake with diabetes, insisting that people watch their food intake so as not to develop diabetes and that individuals with diabetes would need to change their diet in order to be healthy. Oftentimes, participants mentioned both hereditary and dietary etiologies for diabetes. However, it was less common for participants to have knowledge about the biological aspects of diabetes before they were diagnosed with the illness. People did not commonly discuss the specifics of the illness with their family members, so while individuals were familiar with the general etiology and side effects of the disease and with the stress of taking care of someone with diabetes, they did not know about insulin's role in diabetes or precisely why diet was so influential in diabetes development. Older participants often commented that in their parents' generation, sharing personal information with children was uncommon and that the younger generations did not pay much attention to their own health and

were not interested in learning about diabetes. Oftentimes, participants' first in-depth exposure to the biology of diabetes was from their doctors. This is also significant because individuals often learned the specifics about diabetes after they were diagnosed with it, which has obvious problems for prevention efforts. It is difficult to prevent a disease if people do not understand how or why it develops or the enormous impact it can have on one's life. In addition, taking the proper steps to prevent the disease obviously has less importance after the fact, although in some cases a change in weight and diet can reverse the process.

Diabetes Management

Control of their disease was the most important aspect of diabetes care for the participants. Although developing diabetes was seen as an inevitable outcome of a combination of factors, once diagnosed the locus of control was placed firmly upon the individual to visit the healthcare provider on a regular basis, take his/her medications, change his/her diet, and exercise. Anabel, an undergraduate Spanish literature major at the University of Puerto Rico, emphasized this when she noted:

If you don't control [diabetes], you can die of it. My mother has a friend who died from it because she didn't want to change her life; she lost her sight, then they amputated her foot, and finally she died from it. But if you take medications and eat healthier foods, you can live with it. It's a decision.

Anabel was worried about developing diabetes due to her weight, and the death of her mother's friend, coupled with the friend's loss of both her eyesight and a foot, left a stronger impact on Anabel than advice from a doctor. It was her mother's friend's death, and some pushing from her mother, that prompted Anabel to go to the clinic to get tested for diabetes. Anabel told me

that six of her friends at school had already developed diabetes, and that diabetes had become a common problem among people her age. The problem, she thought, was control:

Diabetes is a serious illness if you don't control it. I see a lot of people dying of uncontrolled diabetes; they didn't want to take care of themselves. Controlling diabetes can be difficult, there are people that can't buy their medicine, and it can be a shock to need to change one's lifestyle, especially if one doesn't have help.

She thought that several intersecting factors, such as unemployment, under-education, and a profound disillusionment with life in Puerto Rico all contributed to uncontrolled diabetes among her peers.

It's not that simple, that everyone just eats too much sugar. I listen to what my friends say. Some of it's the unemployment and under-education, which I'm sure you've heard about from everyone else. No one can afford healthy food and a lot of people don't have enough education to get good jobs, so there's that. There's only so much money available for garbage collectors and secretaries. Everyone has so much going on that they've given up. They know that they *shouldn't* give up, but they have, it's easier. If you're stressed out about everything else, then at least there's one thing that you don't need to worry about, even if it's bad for you.

One of the themes that Anabel mentioned was a consistent topic with other participants. Managing diabetes is complicated by coexisting, primarily job-related obligations. Andrea, a taxi-driver in her late thirties, echoed Marcos' sentiments by explaining to me that because of her job, she could not stop to use the restroom, something she needed to do frequently because of her diabetes:

I often need to stop [for the bathroom], but I can't because if I stop, then I lose customers, which I can't afford to do on my salary. So I hold it, which isn't healthy, either, but if I'm going to be unhealthy either way, then I might as well be unhealthy and have a paying customer. It's not right, but what else can I do?

Andrea took me for a free ride in her taxi, showing me her usual route to emphasize the lengths of time that she would remain in her vehicle before taking a break. Like many of her fellow taxi-drivers, Andrea normally drove between the airport, Viejo San Juan, and the upscale, touristy neighborhoods of Condado and Isla Verde, where she would have a higher chance of picking up passengers. She would drive ten to twelve hours a day, with an average of 20-25 passengers per day, sometimes more during the busy Christmas season. She would generally take an hour lunch, stopping in *La Plaza de Colón* and eating outside with other taxi drivers. Other than her lunch break, Andrea stopped twice for bathroom breaks, much less frequently than she needed. Andrea's description of her employment's incompatibility with her health needs was a common one, born of the conflict between the stark lack of employment in Puerto Rico and the poor health that afflicted so many of the island's inhabitants.

In addition to job-based obstacles to diabetes management, finding a doctor for Puerto Ricans living outside of San Juan has also proven to be problematic. For example, in the east-coast city of Fajardo, there is one endocrinologist serving the city's population of almost 37,000 (Horan 2012). Marisa had to take a day off of work to travel an hour from Fajardo to San Juan to visit a doctor in the city, as she could not make an appointment with Fajardo's sole endocrinologist:

There's one diabetes specialist in Fajardo, and he's only in his office twice a week. On those two days, 60 or 70 people will wait in his office all day to be seen, and Fajardo is a metropolitan area. Doctors don't really want to come out here because it's rural compared to San Juan, and the only doctors that do come out here do so for humanitarian reasons. I decided to call a doctor to be seen because my A1C1 got up to 6%, but I couldn't get an appointment with the doctor that comes out here – I don't want to wait in a clinic all day. I got a reference for a doctor here in San Juan, from the doctor in Fajardo. He couldn't take any more patients, anyway.

While Puerto Rico is a small island (230 kilometers/142 miles between the two farthest points), the cost of travel and the inconvenience of taking a day off of work to travel to a doctor's

office in another city interfere with diabetes management. In addition to Marisa, I met participants who had come to the clinic in San Juan from Ponce, Mayagüez, and Aguadilla, often either waking up early to brave the traffic or coming in the previous day and spending the night with friends or family. This time and travel impediment for non-urban dwellers underlies their unwillingness to come to the clinic for regular checkups, despite the doctors' exhortations that their patients come to the clinic every three-six months.

Marisa, an unemployed mother of four and a former secretary at an elementary school, was able to obtain Metformin at a local pharmacy due to having *La Reforma*, but could not consistently follow the dietary changes that her doctor recommended, due to high food prices and her unemployment. Marisa had been let go from her position due to budget cuts at her school, and due to similar budget cuts across the island, Marisa could not find a similar job at another school, and was untrained for the jobs that *were* hiring. Like other participants, Marisa found it cheaper to live with diabetes and have Metformin be covered by her health insurance, than to buy healthy foods to prevent diabetes from developing. Marisa was indignant, explaining:

It's also hard because Metformin is covered under my health insurance, but it's harder to buy healthy foods. Why is it easier to get Metformin than it is to buy fruits and vegetables on a regular basis? The pharmaceutical companies, that's why.

Marisa's indignation stemmed from the incongruousness of receiving free medications but being unable to afford healthy food to prevent diabetes from developing in the first place.

Many participants described struggling with the side effects of diabetes. Tiredness was the most commonly mentioned side effect (n=12), followed by frequent urination, nausea, body pain,

foot pain (mentioned separately from body pains), and changes in appetite. As a result, many, like Anabel, did not feel healthy:

I have a lot of problems I didn't use to have: I don't sleep well, my knees hurt, my body hurts. I'm young; my body shouldn't always hurt.

Participants were keenly aware of losing control of their bodies, and as a result, they noted that their moods often changed for the worse after they were diagnosed. Marisa told me that the anxiety and uncertainty about how she would feel each day was utterly demoralizing:

I dislike not knowing if I'll wake up one day and my eyes will be too dry or I'll be too nauseous to get out of bed. I worry about my feet getting gangrene. I worry that I'll die soon and leave my children without a mother. My body is falling apart; it's awful. I'm constantly sad and upset.

Mariela also experienced anxiety and uncertainty about how her body changed after developing diabetes:

I never know what's going to happen with my body. Maybe it'll feel good one day, but maybe it won't. I do what I can to control the diabetes: I take my meds, I try to control my diet, and I try to go for a walk on occasion. It helps prevent the diabetes from getting worse. I still feel frustrated sometimes, though, because I'm tired of needing to constantly monitor my blood sugar and be careful about what I eat. I miss being able to have a margarita with friends on occasion and have some *comida criolla*. It bothers me.

Mariela and Marisa's descriptions of their experiences with diabetes, were common among my other participants as well. While participants discussed control as the best approach to diabetes management, it proved to be difficult for them to do so, especially with the associated mood changes that often interfered with the control of self. Decreased moods were recurrent, often leading to the development of depression.

The clinic staff, on the other hand, took a different view on their patients' diabetes management. According to the records that Josué the clinic's epidemiologist sent me, between and including January and June 2014 the Centro de Diabetes para Puerto Rico had 6,915 scheduled visits and 3,775 actual visits, for a 55% appointment success rate. May 2014 was the busiest month, with 1,298 scheduled appointments and 678 kept visits: 212 new patients and 466 follow-ups. January 2014 and June 2014 were the slowest months, with 541 and 561 actual appointments, respectively. January was the end of the Christmas season in Puerto Rico, and June was the beginning of the summer season, and many people took vacations during June and July. Josué told me that these statistics are par for the course for the clinic, and that despite the staff's best efforts to remind patients of their appointments, patients often made appointments and then simply did not show. "I think it's because they don't want to tell us no," Josué told me. "That's how Puerto Ricans are. They'll nod and smile and say yes, yes, yes because they want to look good in front of their doctors, but they have no intention of showing up." Lea, the clinic's head nurse, confirmed this when talking about whether patients take their medications:

Well, we always ask them [the patients] about their medication intake when we see them for their checkups. They always say that they take their medications, but their blood-work says otherwise: they have no traces of their medications in their systems and their glucose and HbA1c levels are out the roof. The patients can say whatever they want, but their blood doesn't lie.

Lea's coworkers echoed her blunt description of her patients. Jorge, the lead nutritionist at the clinic, told me that he lead the three-week nutrition classes every other month for patients who had recently been diagnosed with diabetes, and that while he enjoyed leading the classes, he sometimes found them exasperating.

I say the same thing to every class I teach: it's up to you now. You can't reverse diabetes and you need to always be aware of what you're putting into your body, because diabetes doesn't take vacations. It's there to stay. So we focus on behavior

modification and we start from the very beginning, because oftentimes, the patients know next to nothing about their health. I teach them what carbohydrates and proteins are, how much food they should be eating at every meal, and how to check their glucose levels. The patients ask a lot of questions because my class is often the first time they're hearing this information, and it helps them manage their diabetes: diabetes doesn't look as intimidating if you have someone speaking to you frankly about how to manage it. Even so, I often find myself repeating the same information to the same patients. They don't always listen. There's a lot of resistance to what I'm saying because change is hard, and if you're accustomed to eating a certain way and you can't *see* diabetes, then it's easy to ignore the fact that you have it. It's a hard transition for them. I've talked to a lot of patients who are depressed for a while after learning of their diagnosis.

Sonia, the clinic's accountant and cashier, made the same observations as Jorge about the patients' mental states.

A lot of the patients are depressed when they get diagnosed. It's a huge change for them! They get angry, they argue, they're miserable at first. I've been working at this clinic for ten years and I've seen a lot of angry people in here! They talk to me sometimes as they're paying for their items. Sometimes they're nasty because they've only just been diagnosed, but I don't take it personally. They're not angry with *me*, they're angry at their situations.

Jorge and Sonia's acute observations raise the topic of depression as the second part of the OVIDD Syndemic.

Depression

I asked each participant, regardless of depression status, about depression etiology and management, side effects of depression, medication accessibility, and depression prevalence in Puerto Rico. Participants described depression as a contributing factor to feeling unhealthy. They framed depression as both an individual struggle and as an interpersonal conflict. It was expressed as a choice to not take care of oneself mentally and physically. Factors influencing the development of depression included unemployment, the economy, the stress of caring for family

members, divorce, negative relationships with children and partners, stress, and abuse.

Magdalena contextualized her depression within the stresses of family and the myriad problems of living in Puerto Rico, particularly the financial strain of affording treatment for depression.

She is a quiet woman in her mid-50 who lives in a modest part of Río Piedras where she works as a janitor for the University of Puerto Rico. She and I meet in her apartment on her day off from work where we talked over coffee.

Well, stress caused my depression. My mother has Alzheimer's, and it's very difficult for me to take care of her. My daughter has a baby but the baby's father left and doesn't want to help her take care of him, so I need to help her take care of the baby as well. It's very difficult to live in Puerto Rico; there are no jobs, and the economy's bad. Also, my health insurance doesn't pay the full bill to see a psychologist, and psychologists cost a lot of money.

The fact that Magdalena's daughter was raising her own child by herself was especially stressful for Magdalena as she had been a single mother herself for over a decade before meeting her second husband and she wanted better for her daughter. Her husband worked two jobs and was taking care of his own parents. Her siblings lived in other parts of Puerto Rico, so Magdalena was stuck taking care of her mother by herself. She could not afford to hire a home health aide to help her take care of her mother because she was already in debt paying the bills for the psychologist whom she had seen after her first husband had left her. Her psychologist wanted to hospitalize her for a couple of weeks for severe depression, but Magdalena had *La Reforma*, which did not cover the cost for mental illness-related hospitalizations. Instead, because her health insurance covered a generic antidepressant that she took instead of the recommended hospitalization. The medication was cheaper and permitted her to stay home with her family but left Magdalena with awful side effects that included nausea, listlessness, sleepiness, suicidal ideation, and weight gain. She decided that having depression was better

than living with the side effects from the antidepressants and stopped taking them. “Better to be sick,” she decided. “It’s too expensive to be healthy. Who has the time and energy for it, anyway?”

Magdalena’s story is a common one, a thread in the tapestry of intersecting factors that contribute to the high prevalence of depression in Puerto Rico. Luis, an electrician and boys’ afterschool soccer coach, elaborated,

With the economy and crime as they are, there are a lot of problems here. People don’t want to talk about it: they don’t go to the doctor to talk, and politicians don’t want to do anything. Puerto Rico used to be a giant village, not only in that we all knew each other, but also because we all helped one another. No one’s willing to do that anymore. Everyone’s depressed as a result.

Luis’s wife had died of breast cancer 19 months before our interview, leaving him with three children, a large stack of hospital bills, and a spiraling depression that he could not control. He credited his children and coaching his boys’ soccer team with giving him a sense of purpose and a reason to leave the house. Even so, he worried, and his depression lingers.

I’m still paying off the hospital bills from my wife’s cancer. I’m thinking of taking another job to afford the bills, but it’s hard to find jobs nowadays. My wife and I were saving up to send our kids to college, but who knows when I’ll have enough money for that now. I have two boys and girl. The boys, they’ll be alright, but I need to keep an eye on them to make sure they go to school and treat others with respect. I worry more about my daughter. She needs a feminine role model, and all she sees are her older brothers’ girlfriends. What kinds of things is she going to learn from them? I worry so much that it makes me sick. I miss my wife; she was much better at handling the kids. I’m rather useless at such things.

Participants reported that there were fewer social support networks for individuals with depression in which to build a sympathetic community, since doing so would publicly acknowledge having depression, and would indicate either a weak character or not being fully in control of one’s reactions. Because of this, the feelings of loneliness that were already part of

depression were exacerbated, intensifying the depression experience and making it more difficult for participants to recover. For example, Luisa described her reluctance to discuss depression:

No one talks about depression, you know? It's not like diabetes, where you hear about it all the time on the news. No one wants to admit to having depression. You don't talk to others to see how they're dealing with it. I wouldn't even know where to look for other people with depression. It makes depression worse, being so isolated. If you have support groups for alcoholism, why not for depression as well?

Gustavo, an accountant, separately corroborated Luisa's point, adding that depression emasculated him:

I still have depression, and I think that being lonely makes it worse. We Puerto Ricans like to talk, but no one talks about depression because it's seen as not being very strong, especially not manly. There are just people floating around, pretending to be all right, but no one supports one another for this kind of thing.

One of the contributing factors to the perpetuation of depression in Puerto Rico is the lack of open discussion about the illness. There are no public announcements about depression beyond the occasional television commercial for antidepressants. Furthermore, participants thought of depression as a personal process, oftentimes not telling anyone beyond a spouse if they had the illness. Gustavo downplayed his depression, stating that it was no one else's business:

No, I haven't told anyone about having depression. Why should I? I don't need to make a big deal about it, because it's nobody else's business. I take a pill and that's it. Only my wife knows.

Jimeno confirmed this:

I think maybe my mother had [depression], but we didn't talk about it. I was a kid, you know? Parents don't tell their kids about it, kids don't need to know that kind of stuff about their parents. I don't even know if she told my dad. I'm not sure what caused it for her. We don't hear about depression on the news, no one talks about it.

The lack of open communication about depression, both in public and between family members, highlighted how negatively depression is seen. Thus, depression symptoms were often perceived psychosomatically. Changes in appetite were the most commonly cited depression side effect (73%), followed by tiredness (60%), not wanting to get out of bed (53%), and changes in mood (particularly increased irritability, sensitivity, and crying) (53%). Because depression primarily affects mood, unlike the case for diabetes for which participants perceived the physiological inevitability about developing the disease, no such perception was associated with depression and blame for the illness's etiology was placed firmly on the individual, regardless of extenuating circumstances that contribute to depression.

Anabel told me,

Well, things happen in life, I left my boyfriend because we fought a lot, and that caused a lot of stress. I'm also at university, there were a lot of difficult classes, I have to balance classes and having a life, you see? I have to take care of my mother, because she's old now and she has diabetes, I need to help her do certain things.

Depression was an overwhelming experience, due to a series of catastrophes. Many of these catastrophes, such as crime, unemployment, and abuse were beyond the participants' control. Depression arose when participants tried and failed to control these uncontrollable factors in their lives. As these factors were broad in scope and not easily fixed, depression became a long-term and worsening presence in participants' lives.

Furthermore, many of these catastrophes involved fundamental changes in relationships that caused loneliness and isolation. Because many of these factors were breakdowns in social relationships, many participants often experienced depression alone. They were arguing with their children and partners, trying to take care of their ill and aging parents without extra resources, and did not have additional social support networks from employment. Abuse of all

kinds was a particular problem. Due to the structural nature of many of these problems, there was no specific person or organization that people could blame, and in many cases, the government was unable to fix the problems due to insufficient financial resources. Thus, pent-up anger and frustration were directed at people whom individuals knew personally, most commonly partners and children. Being abused made it more difficult to heal, due to the lingering side effects of fear and mistrust.

Depression was seen as a result of life's stressors, particularly interpersonal stressors that could not be easily fixed. However, while the stressors were significant, and oftentimes long lasting, many participants emphasized not changing the stressors themselves, but rather how they themselves responded to the stressors. Depression was thus seen as a lapse in someone's control over his or her reactions, and it was each person's responsibility to get the help they needed. Informants reported these results regardless of depression or diabetes status.

In sum, participants understood depression as a separate entity that affects mood and as something that could be fixed with enough effort. They also thought of it as a temporary response to structural problems that could not be easily fixed.

Diabetes and Depression

Participants identified a link between diabetes and depression. Although there was no firm consensus on which illness they thought developed first, all participants saw both diabetes and depression as major and negatively synergistic problems. A sense of control over and responsibility for one's body was the common theme about the relationship between of diabetes and depression, and the one that merged the two illnesses in the participants' minds as the following quotes suggest:

My pregnancy was stressful, and I developed diabetes from that pregnancy. I developed depression from that, because not only I was dealing with a baby, but I also had this illness I didn't want. (María)

People sometimes have problems changing their lives, and they feel that it's their fault that they have diabetes because of the way they ate. They get depressed. (Marcos)

Developing diabetes is a big change, as is learning to live with diabetes. It's easier to die because of it, of not taking care of oneself, of not taking medications because they cost too much, of not wanting to eat better. Yes, it costs more to buy medications, and yes, healthy food costs more. A lot of people here don't make much, and if you live by yourself, you won't have the motivation. These things can influence someone with diabetes to have depression as well. And people with depression can eat more and not want to care of themselves, and not walk. (Luisa)

Depression has made my diabetes worse. Sometimes I don't want to eat healthy food, I don't want to go to the doctor's office, I don't want to take care of myself, I need to force myself to take my medications. (Mariela)

The aforementioned interview excerpts about the diabetes-depression relationship consider depression to be the result of diabetes, particularly due to the stress of maintaining the ensuing lifestyle changes and to the loss of full physical functioning resulting from the effects of the disease. Notably, the unwillingness expressed by some of the participants to take diabetes medications could lead to decreased diet and medication adherence that results in exacerbation of diabetes symptomology and contributes to earlier diabetes complications and a more rapid overall health decline.

People with depression snack a lot, they don't want to pay attention to what they're eating, and food intake goes with diabetes. (Andrea)

It's frustrating to experience the consequences of high sugar levels, and culture contributes – people don't know what diabetes is: you develop an addiction to food, and there is a connection between food and pleasure, people want to eat to feel better. (Gabriel)

When someone has depression, s/he person will eat more than s/he used to, which affects weight and obesity, and that affects diabetes. (Zaina)

Depression was also seen as the cause of diabetes due to the lack of control over one's diet: food was seen as a source of comfort, a way to temporarily keep one's problems at bay.

Depression also indicated an inability to care for one's health: individuals were less likely to go to their doctors' appointments on a regular basis, shower, buy groceries, and adhere to medication regimens due to a lack of interest in their bodies.

Tiredness and changes in appetite were frequently mentioned side effects of both diabetes and depression, making it easier for one or both of the illnesses to be missed during a doctor's appointment if the side effects are misinterpreted and incorrectly attributed to another illness. This is especially pertinent for diabetes, which is a silent illness and develops slowly, and for depression, since its diagnosis is based on a list of symptoms, all of which could be attributed to other illnesses if the healthcare provider does not otherwise suspect it. Furthermore, since diabetes develops gradually, participants did not normally feel unwell enough to go to the doctor's until diabetes had already developed, contributing to a sense of frustration at the inability to prevent the illness.

Participants connected both depression and diabetes with unhealthy lifestyles, economic instability, high crime rates, and political inaction. Political and social instability were major stressors that contributed to a sense of helplessness and lack of control. People developed depression as a result of the high unemployment and crime rates, ate large quantities of cheap high-fat food to cope, and developed diabetes as a result. Julián, a baggage handler at the airport who worked odd hours, told me,

No one has jobs, it's dangerous to be on the streets at night, and it's hard to keep up the façade of normalcy. We eat a lot of that crap food because it's cheap and available and it tastes good, and it makes us feel better temporarily, but we need to keep eating it to feel good. Ultimately, we don't feel better permanently, but because we're eating crap, we develop diabetes.

Julián told me that because of his work schedule, he would sometimes return home to his apartment by the Sagrado Corazón bus terminal at odd hours.

How much do you think they pay me to be a baggage handler? Not a lot, that's how much. I do it because it pays and because rich *gringos* like to come here to travel on cruises, which they tell me is good for our economy, although our economy's crap. You look alright, though. You speak Spanish pretty well, much better than some Puerto Ricans who were actually born here. Some of these punks are still out and about when I return home at 3:00, 4:00 in the morning. They make me afraid to walk down the street in my own neighborhood, and I'm not a small man.

Zaina, who lived in the Llorens Torres public housing project (coincidentally very near to where I was living) described her experience with living in Llorens Torres:

I lost my job a few years ago and became depressed. I could only afford to eat cheap food, and I wasn't in the mood to cook anything healthy. I was afraid to leave the house because there's this gang that hangs out near my building, so I wasn't getting any exercise, either. I would hurry out of the house very rarely to get food, or have my son buy my food. I developed diabetes because of the fear of leaving the house.

Llorens Torres is the largest housing project in the Caribbean and has a local reputation of being so dangerous and riddled with drugs and crime that the San Juan Metropolitan Police refuse to enter the area. Zaina told me that while the area isn't *quite* as bad as the rumors suggest, it still has its dangerous moments, and that when she first moved to her apartment, she heard gunshots every night for a month. She lived on canned vegetables that her son had given her until she had worked up the courage to leave her apartment building to buy food and then only bought what she could carry. When I offered to go grocery shopping with her, she told me

that my presence, while noted and tolerated in the area on account of my being a student and being fluent in Spanish, would not go so far as to extend any protection.

“Besides, what will happen when you leave? No, I need to buy groceries. I’m already depressed and unhealthy, I can’t live like this forever,” Zaina said firmly.

The participants reported/felt that developing diabetes either caused depression or perpetuated a preexisting depression, due to the difficulty of maintaining the healthy lifestyle necessary to living well with diabetes. However, healthy food was also becoming inaccessible due to price, contributing to growing social discontent. Upon my prompting, participants defined healthy foods as fruits, vegetables, salads, chicken, and fish; they considered water to be the healthiest beverage. They also considered home-prepared food to be healthy. However, participants admitted to eating what they considered to be unhealthier food, such as fried food, due to a lack of time, energy, and finances to constantly prepare healthy food and to an occasional predilection for fast food.

Participants also perceived unhealthy food consumption to be correlated with depression:

A depressed person doesn’t care what he or she is doing, what he or she is eating, the person just eats and gains weight. They don’t want to leave the house, they don’t do anything but cry, they don’t move their bodies. Fat people suffer from having fewer friends, from body pain, from being able to do less with their bodies, so they become depressed. (Marcos).

Fat people have depression, they don’t want to leave the house, they don’t exercise, they don’t like their bodies, they complain. Also, depressed people eat more at home, where they can eat whatever they want. (Magdalena)

Depressed people eat to feel better, to get pleasure, they don’t want to think that their lifestyles could cause illnesses. (Luis)

People get depressed and eat a lot, they don’t have control over what they eat, they don’t want help. They don’t want to eat healthy food, they just want to eat junk. (Anabel)

The topics of food access and neighborhood safety arose during my interview with Andrés and María, a married couple in their late forties, while we were discussing diabetes etiology. Andrés explained:

No one has jobs, it's dangerous to be on the streets at night, and it's hard to keep up the façade of normalcy. We eat a lot of that crap food because it's cheap and available and it tastes good, and it makes us feel better temporarily, but we need to keep eating it to feel good. Ultimately, we don't feel better permanently, but because we're eating crap, we develop diabetes.

María corroborated Andrés, discussing how losing her waitressing job impacted her health:

I lost my job a few years ago and became depressed. We could only afford to eat cheap food, and I wasn't in the mood to cook anything healthy because it takes time and money, and I wanted to look for work instead. I was afraid to leave the house because there's this gang that hangs out near my building, so I wasn't getting any exercise, either. I would hurry out of the house very rarely to get food, or have my son or husband buy food. I developed diabetes because of the fear of leaving the house.

Andrés was a construction worker and busboy, and María was a seamstress and music teacher; both picked up jobs wherever they could to support their family of six. Their experiences of eating whichever food was most easily economically and geographically accessible were a common theme. Other respondents reported that developing diabetes was due to the difficulty of maintaining a healthy lifestyle necessary to either prevent or live well with diabetes and to consistently obtaining healthy food. Healthy foods were, however, becoming inaccessible, contributing to growing discontent. Alejandro, for example, owned a small, local clothing store, and talked to many of the customers who passed through his store. Both Puerto Rican politics and food are popular topics of conversation in Puerto Rico about which Alejandro talked to a wide range of people and knew what was on people's minds:

A lot of people here [in Puerto Rico] have diabetes – it has to do with habits and food, and to do with working a lot and being in a hurry, and the eating Fast Food. We work a lot, we don't have time to cook, we can't rest and enjoy life and do exercise. Everyone used to walk, but now we have cars – it's the time we live in. Healthy food is very expensive – we can't always buy food like that.

Gabriel was more passionate during his interview. A bus driver, history buff, and active union member, Gabriel cut to the core of what he saw as the primary reason behind the high diabetes rate in Puerto Rico:

A lot of people don't care what they eat. There's a lot of bad food here. Granted, a lot of *comida criolla* is tasty and healthy, but a lot of people don't know how to prepare it. Also, a lot of young people eat in Fast Food restaurants almost every day because it's quick and you can find them on every corner, and the food's cheap. Puerto Rico's sick because we've lost touch with our roots, because the United States doesn't care about our being sick.

Andrés', María's, Alejandro's, and Gabriel's accounts are indicative of deeper social issues in Puerto Rico: stress, a lack of economic access to healthy foods, not taking care of one's health, and dissonant perceptions between what was thought to cause diabetes, and what people actually did. Unhealthy food consumption was a common factor underlying diabetes etiology, socioeconomic status, and Puerto Rican identity.

Food was both the mediating factor between diabetes and depression, and a major contributor to the development of each illness independently. Individuals were thought to be more likely to eat without paying attention to what they were eating when depressed. Participants frequently discussed food access and food preparation, especially a lack of time to prepare healthier food at home and a plethora of Fast Food restaurants and corner markets with junk food. Not everyone lived close to a supermarket with healthy food options, and even for those that did live close²⁸ to such supermarkets, healthy food was economically inaccessible. A bad economy resulted in

²⁸ The participants defined “close” as either a ten-minute walk or a twenty-minute drive or bus ride. The time difference between walking and driving/riding the bus is due to the need to carry heavier food items, such as milk and potatoes.

difficulty purchasing healthy food, and contributed to food deserts. Participants often described how much of the foods that they considered to be healthy were not fully economically accessible to them.

Sebastián, a high school math teacher, was practical in his characterization of the problem:

Look, to eat healthy food, we need to be able to buy healthy food. Supermarkets have healthy food, but they're located mostly in the touristy areas, which are expensive. You can buy the fruits off the side of the street [from vendors], but there aren't always quantities to prepare food for your family. The bus system in San Juan is crap, and nonexistent in the rest of Puerto Rico. No one likes carrying heavy food home every day. We need cars, and not everyone can afford one. The healthy food is expensive, too. Canola oil is maybe \$3, and olive oil is maybe \$10. If you have a large family to feed on a small income, which are you going to buy? Sometimes it's cheaper to take your family to McDonald's, where you can buy a meal for \$2. Canola oil, even for \$3, isn't a full meal; it's just oil. I'm a big supporter of *la comida criolla*, but sometimes it's impractical. We're poor and unhealthy.

Magdalena, who worked two jobs as a supermarket cashier and a school janitor, wearily informed me,

I have five children. I would rather buy a big bag of rice that feeds us for four or five days, than buy a bag of apples that would last a day, if the kids even ate the apples. The apples might spoil because the kids wouldn't want apples. I'd pay more money for less food and wasting some food. I work two jobs, and don't always have time to go to the supermarket. The closest supermarket is a twenty-minute drive in rush-hour traffic, and I need to then go home and cook all of it before my night job. It's exhausting. My husband works two jobs and comes home too exhausted to go grocery shopping. We barely make enough to do all of this, much less buy all the healthy food the doctors tell us we need to eat.

Magdalena's and Sebastián's accounts were emblematic of the structural factors underlying diabetes in Puerto Rico. Sebastián used food prices as homework assignments in his classes and many of his lectures shifted away from mathematics and into discussions on whether food prices were justified. Magdalena and her husband earn barely enough money to afford rent and to save money to send her children to a local university so they would have better job opportunities, but

even so, all of her children will need to take out substantial loans to afford university. Structural factors were the most frequently cited causes of ill health: a bad economy and high rates of unemployment, poverty, and crime in Puerto Rico. The Puerto Rican and United States governments were blamed for the inordinately high healthy food prices, for the soaring taxes and unemployment rates that made poverty a stark reality on the island, and for keeping Puerto Rico in its current status and dependent on the U.S. government for financial handouts.

Obesity

Of the myriad interweaving factors leading to chronic disease conditions discussed in this dissertation, obesity was the easiest of the three illnesses in my research to discuss, as my participants loved talking about it. I used the weighing process as my introduction to the topic, explaining to the participant why I was taking his or her weight and percent body fat. All of my participants were curious about the Tanita Scale I used to measure obesity, as it also measured percent body fat, a more accurate assessment of obesity than BMI. None of my participants were familiar with percent body fat as a measurement of obesity, and my reasons for including it often sparked conversations about the definitions and perceptions of obesity. The decisive definition of obesity (n=15) was ‘somebody who’s too fat’. The most popular definition (n=11) of ‘too fat’ was someone who could not go about his or her daily activities due to his or her body fat.

I met with Zaina in her apartment, where we drank *café con leche*, ate *besitos de coco*²⁹, and talked about her health and the politics of the day. Zaina, who had both diabetes and depression, had been talkative during our Stage One interview and I was happy to meet with her

²⁹ A popular dessert in Puerto Rico: coconut macaroons

again. Zaina needed no coaxing to discuss obesity and was more forthcoming about obesity during our Stage Two Interview than during our Stage One Interview:

My daughter is heavy. She's really smart – a pharmacist – but she has so much trouble getting a job! No one wants a fat pharmacist. They ask why they should take advice from someone who can't take care of her own weight. Everyone else here is fat, so is everyone lazy, too?

When I asked Zaina why she was more forthcoming about obesity during this interview she explained that obesity was an awkward topic for her to discuss in a diabetes clinic, especially one with nutritionists.

I'm worried about being judged about what I say. I slip up sometimes – don't we all? – but they have all of these rules about what we are and are not allowed to eat, that even though they say we're allowed to have *pasteles* on occasion, I still feel bad. So I don't mention it in the clinic. I know that I'm not the only one, either. I talk to the other people that were in my nutrition class, and to my friends. The doctors mean well and they're doing what they've been taught, but there are different ways to do it. Food is such a big part of our identity and it's such good food, so we don't want to give it up completely.

Zaina's concerns about obesity stigma in both the health and the lay environments resonated in other participants' interviews. Olga, a legal aide, pointed out people and foods to me as we sat at a café enjoying *tres leches*³⁰.

We show love through food and we feed skinny babies so they'll grow. It's normal in Puerto Rico. Do you see what those people over there are eating? The chicken, the *pasteles de yuca*, the yellow rice? That's very popular here, and everyone here eats it all the time, no matter your health. But now the doctors tell us that we're all fat, that we must lose weight, and that we should eat healthier foods. They shame their patients into feeling guilty about enjoying life and eating good food with their families... People who don't eat it are judged as being snobby, but then we're all judged for being unhealthy. The thought is that we all might as well be unhealthy rather than one person be snobby, because we all need to live in this community, and if someone is snobby, then they're shunned. I'm not saying that being really heavy is healthy, mind you. I see

³⁰ A sponge cake soaked in three different kinds of milk: evaporated milk, condensed milk, and heavy cream

some of the really heavy people and they have trouble walking. But we don't need to be really skinny, either! We can enjoy *tres leches* on occasion.

Luis took a broader view. He often fixed televisions as part of his job as an electrician, and he told me how his customers would discuss their favorite television programs with him while he worked. The television program that his customers watched most frequently, Luis told me, was the *telenovela*, an observation that I had noticed in the constant stream of *telenovelas* playing in the clinic where I worked. *Telenovelas*, Luis opined, represented the body issues that so many Puerto Ricans have developed in the last three or four decades:

Obesity is relatively new in Puerto Rico, at least as a problem. Girls want to be skinny because of what they see on TV and they make fun of the overweight girls. These girls who are teased, they try to become skinny by limiting what they eat, but they eat bad food, and they grow up with huge self-esteem issues. So they're depressed, and they try to push their own daughters to be really skinny. It never stops.

The difficulties of healthy food access manifested as obesity, and while my participants were cognizant of the ramifications of obesity, they were unable to make the changes needed. All fifteen participants defined 'healthy food' as food that was prepared at home.

All of my participants drew connections between obesity and depression, interpreting depression as both a consequence of and a contributor to obesity. As Luis mentioned, much of the obesity stigma that he and others have noticed stemmed from observing body sizes on TV, which are noticeably thinner than body sizes in the general population (Harrison 2000; Ferguson et al. 2011). There is demonstrated research linking obesity, body surveillance, body shame, and disordered eating, particularly among adolescent girls (Neumark-Sztainer et al. 2006; Tiggemann and Kuring 2004). Adolescent girls who experience obesity stigma are more likely to engage in disordered eating, such as binge eating, vomiting, and abusing diet pills (Puhl and Latner 2007).

Adolescent girls are also more likely to experience depression on account of experiencing obesity stigma, and depression is independently correlated with disordered eating, especially anorexia nervosa and bulimia nervosa (Neumark-Sztainer et al. 2006; Thompson 1992). In Puerto Rico, the desire to be thin exists concurrently with depression as more and more people struggle with obesity but idealize the thin body type that they regularly see on TV. Depression has also developed as a result of the attempted changes made to the Puerto Rican diet and identity. Participants emphasized unhealthy food consumption as both the prerequisite to and perpetuation of obesity and suggested it was correlated with depression. In particular, individuals with depression were thought to be more likely to eat without paying attention to what they were eating. María emphasized the laziness stereotype:

Fat people have depression, they don't want to leave the house, they don't exercise, they don't like their bodies, they complain. Also, depressed people eat more at home, where they can eat whatever they want.

Alejandro shrewdly remarked to me:

Depressed people eat to feel better, to get pleasure, they don't want to think that their lifestyles could cause illnesses.

Alejandro's assertions underlie the stigma surrounding the cyclical depression-obesity relationship in which individuals could either develop depression, eat a lot due to apathy and develop obesity, and then sink deeper into depression as a result of the weight gain and associated stigma, or they could consume large quantities of food as a result of other factors, gain weight, and then develop depression as a result.

Obesity, rooted in the conflict between the meaning of traditional foods and healthy food inaccessibility, is the mediator between depression and Puerto Rican political changes. As

mentioned earlier, the traditional Puerto Rican diet developed in part as a result of the need to ensure that slaves received sufficient energy while working, but the diet has not been adjusted to reflect the changes in energy output following the prohibition of slavery. Puerto Ricans hold on to their traditional diet as a representation of their identity and see the attempts at changing that diet as attempts to change Puerto Rican identity, and in any case are unable to consistently afford the healthy foods suggested by nutritionists and other healthcare officials.

Puerto Rican Identity

“It all come down to *las leyes de cabotaje*³¹,” Cristina informed me.

Cristina and I were sitting at a café on Calle Loíza, a busy commercial street in the San Juan neighborhood of Santurce. We had been introduced through mutual friends at an open mic night at an artists’ workshop/coffee shop in Old San Juan and she agreed to meet with me to discuss her views on Puerto Rican politics. When I asked her to explain her statement, she told me that *las leyes de cabotaje* were the key to understanding Puerto Rico’s relationship with the United States.

“Think about it,” she encouraged me. “The U.S. government is forcing us to pay more in taxes for them to ship us produce when they monopolize the market. We don’t have any say in the matter! We can’t just buy produce from the Dominican Republic instead. So we’re punished for being a territory, when it wasn’t our decision in the first place! These laws represent the U.S.-Puerto Rico relationship. You can ask anyone else you want and they’ll tell you the same thing. Puerto Rico’s status is on everyone’s minds, that’s all we talk about here.”

³¹ Section 27 of the Jones Act, informally known as the Cabotage Laws, which states that all goods transported over seas to Puerto Rico must be transported on vessels flying the U.S. flag

Cristina's words proved to be prophetic as I continued my interviews asking about the government. The first interview question to reach data saturation was whether my participants trusted their government to which the answer was a resounding 'no'. Participants did not trust either the Puerto Rican or the U.S. federal government, regardless of who was in power in which government. Antagonism towards García Padilla and his government were high, with graffiti and signs around the city proclaiming their unrest with the government. One sign clearly depicts García Padilla as Judas, a traitor to Puerto Rico:

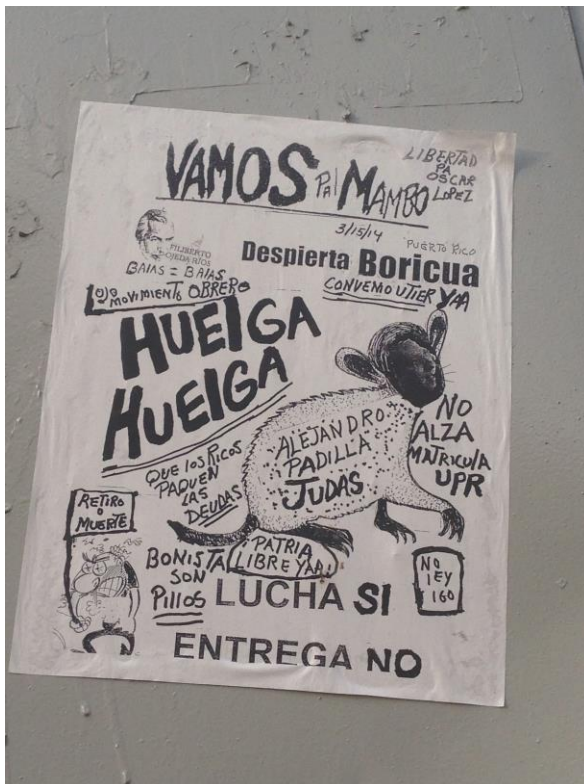


Figure 1: a sign calling for Puerto Rico to wake up and strike against the government and calling García Padilla 'Judas'; March 2014

The antagonism towards García Padilla and his government are not limited to my participants. In December 2015 the Puerto Rico Herald reported the results of a poll conducted among 805 Puerto Ricans; of those polled, 70% had an unfavorable view of the governor. The

poll also asked its respondents how they would vote if a status plebiscite were to be held at that time; 58% indicated statehood, 22% for maintaining the current status, and 9% indicated full independence. Twenty-nine percent of those supporting statehood believed that statehood would improve the quality of life on the island, while those opposed to statehood feared to lose their Puerto Rican identity and worried over increased taxes.

One specific worry over Puerto Rican identity centered on sports teams. Puerto Rico currently has its own Olympic[®] and FIFA[®] (World Cup soccer) teams, and 46% of the poll's respondents were anxious that Puerto Rico would lose their teams if it were to become a full U.S. state. Coincidentally, the Olympics and the World Cup have long connected Puerto Rico more closely with other Hispanic nations than with the United States. I was in Puerto Rico for both the 2012 Olympics and the 2014 World Cup, and for both sporting events Puerto Ricans supported Hispanic nations' teams more than the United States. While my participants did not discuss the Olympics too much during my 2012 fieldwork (I suspect because the Olympics have no final match; each sport is separate), the World Cup was a common topic of conversation during my 2014 fieldwork. Julián very emphatically told me,

Yeah, I know. Baseball's big here because the U.S. has such a big presence here. But soccer is *huge* here too, and everyone gets really excited every time the World Cup happens. We always cheer for the Hispanic teams, because soccer is what draws us all together. The U.S. doesn't really follow soccer. Everyone's been cheering for Argentina more than for the U.S. We feel Hispanic that way.

I watched the Brazil-Germany semi-finals match on July 8, 2014 with María and Andrés at a bar in Ocean Park, and Andrés took the opportunity to explain the symbolism of the game to me. Germany beat Brazil 7-1, and the game has subsequently become one of the well-known games of the World Cup due to the high final score (uncommon in soccer) and the difference

between Germany and Brazil's scores. Andrés told me that this, for Puerto Ricans, represented Hispanic countries being downtrodden.

Look at a team like Brazil. It's one of the best teams in the world and it got absolutely smashed. I mean, 7-1? And by a country like Germany, too, with its history. I hope that Argentina makes it to the final game so we can be represented; Argentina has been doing really well so far. Puerto Rico has never qualified for the World Cup because we're not good enough yet, although I always hope that we will be one day. Until that happens, we cheer for Brazil and Argentina and whatever other Hispanic country, because we live through them.

Below are two pictures (Figures 2 & 3) of people watching the World Cup final game between Germany and Argentina on July 13, 2014, which Germany won (1-0). I provide the pictures to indicate the intense interest in the game and the support for Argentina. Figure 2 is of people watching the final match outside on a projector in the Starbucks Plaza in Condado. Figure 3 is of people watching the final match in a Quiznos/Convenience Store in Ocean Park. I had watched most of the game with friends in the Quiznos/Convenience Store so we could enjoy the store's AC, which provided to be a popular decision with other residents of Ocean Park. During a commercial break, I decided to walk the short distance to the Starbucks Plaza to see if anyone was watching the game there, as I had heard that there would be a large outdoor screen in the plaza with the game projected on it. None of the stores in the plaza were large enough to seat the large crowd, but the plaza was a popular meeting place, with a central fountain and the eponymous Starbucks providing incentives for gathering. The Starbucks Plaza was as crowded as the Quiznos/Convenience Store, and the spectators as passionate about the game. I took photos of the people watching the games, rather than of the televisions, as my interest was in how people reacted to the game, the teams, and the results, rather than in the game itself. The 24-hour sandwich shop/convenience store shown in Figure 2 (with Quiznos in the background)

sold jerseys of other Hispanic nations' teams. These jerseys can be seen in the left-center part of the picture (seen are Brazil and Spain's jerseys).



Figure 2 (above): Starbucks Plaza, Condado, San Juan.

Figure 3 (below): Quiznos Subs/Convenience Store, Ocean Park, San Juan



I went to the World Cup final game with my friend Camila, an Argentinian woman who had moved to Puerto Rico six years ago earlier with her husband and was able to provide me with a broader point of view.

I'm supporting Argentina because I'm Argentinian, obviously, but I think that I would have cheered for Argentina even if I were born and raised in Puerto Rico, too. They [Puerto Ricans] don't have much else to cheer for, and if they can have a good role model like the Argentinian team, then they should have it. I know that sounds narcissistic, but I've lived here long enough to have Puerto Rican friends and see what the culture's like. Puerto Rico's a Hispanic place, and Hispanic countries support one another, especially when one is playing in the final match of the World Cup. They're [Puerto Ricans] trying to do their best with what they have, but they don't *have* a lot. A lot of my friends in Argentina ask me why I was moving to the U.S. and when I would be returning home, and I've been trying to explain to them that Puerto Rico's not *quite* part of the U.S. Not fully. I thought as my friends at home did when I first moved here for my husband's job, but now I see that Puerto Rico's also Hispanic. Puerto Ricans need to have the opportunity to prove themselves. If that means that they get statehood or independence or whatever, then that's fine.

Both María and Camila framed the World Cup game within Puerto Rico's struggle for a Hispanic identity and as a political statement in which Puerto Rico supported Hispanic countries

more than it did the United States. My participants reflected this preference; all 15 identified as Hispanic.

“Well, I *guess* I’m American. My passport says so, anyway. But of course I’m Hispanic. I speak Spanish and love *fútbol*³² and eat *arroz con habichuela*,” Magdalena summarized.

Luis contextualized Puerto Rico’s Hispanic identity within the island’s history:

We identify as being Hispanic because Spain colonized us first, and left us their language, their religion, and their food. We’re American because we have American passports and currency, and because they won us from Spain. But I ask you this: which counts more for an identity: language and food or currency and passports?

When I asked Luis whether he felt emotionally connected to Spain, he admitted

I’ve thought about applying for Spanish citizenship. The Puerto Rican government published this certificate of Puerto Rican citizenship a few years ago and the Spanish government will recognize it, which makes it easier for Puerto Ricans to apply for Spanish citizenship if they want. I have a friend who did it. Would I actually do it? I don’t know. Puerto Rico’s still my home, and having Spanish citizenship won’t solve any of our problems. Everyone’s already leaving for the U.S.; if everyone leaves for Spain as well, then there won’t be anyone left here.

Marisa connected her identity with current politics:

I’m Puerto Rican and Hispanic and American, all at once. You can be more than one thing at once. Being Puerto Rican is the most important one, but I’m the other identities as well. Puerto Rico is so many things that you can’t narrow it down. That’s why it’s so hard for us to decide whether we want statehood or independence: we see the good things in all options and want the best of both worlds. If I *had* to choose, I’d want statehood, we’re not ready for independence.

Puerto Rican politics also came up in one of the nutrition classes during a discussion about food prices. Marcos described them to me from the lens of his job as a radiology nurse who worked overnight shifts at a local hospital. He told me that he would sometimes talk with

³² Spanish for ‘soccer’

his patients when they could not sleep. Conversations often turned to current politics that were contextualized within the health sector:

We always vote for people we hope will do a better job, although we're all pretty fatalistic about the entire process. Fortuño didn't do a good job, and neither does Padilla now. Obama says he'll do whatever we choose, and we try, but... nothing. It's as if the United States government wanted us to remain poor so they won't need to spend money on us. Regardless of what you want to happen to Puerto Rico, we've all given up a bit, as nothing ever changes. It's depressing. We eat and we drink and we don't work, because honestly, what else can we do? That's why I support having full independence. We've been a part of the United States for over 100 years and we don't have anything to show for it. We'll be poor, but we're poor now, so it won't make a difference.

Luisa was more heated:

We have protests and strikes all the time – have you seen them? You have? That's the new normal for us. I want us to be a full state because then the United States will give us more money for things like schools and better-paved roads, and because we're too poor to be independent. Other people want us to be independent because they're afraid of losing our culture. I say that our culture is laziness and complaining. We're all so frustrated with the way things are now, but people have given up. We talk and talk and talk, but nothing changes. I've heard that the U.S. government is afraid of having a Hispanic state, but there are Hispanics all over Texas, Florida, and California. We're already part of the country, we should have full rights. It's very stressful. You were asking me about depression earlier. This is why everyone has depression.

Andrea, the taxi driver, had a different perspective on Puerto Rican politics. She talked with her passengers about their experiences flying through the airport and had herself recently flown to the Dominican Republic to visit friends. Andrea was frustrated with the differences between flying to the United States and flying to other countries, and what that signified:

You know the USDA area in the [Luis Muñoz Marín International] airport? It's interesting that they only make us go through USDA when traveling to the States, like they don't trust us. I didn't need to go through USDA when flying to the Dominican Republic. That's the whole attitude that the United States has about Puerto Rico: distrust. They don't trust us to be Puerto Rican, so they send down American restaurants and American stores and we get diabetes from the American

food because it's cheaper than buying fresh, which the American government makes more expensive.

The Jones Act, which dictates that only ships flying the U.S. flag may dock in Puerto Rico, contributes to the island's economic and food dependency on the mainland: all foreign ships must dock at mainland U.S. ports first even if they are carrying goods intended for Puerto Rico, and Puerto Ricans are required to pay additional taxes to compensate for the transportation of those goods, which account for 80% of all of the island's consumer goods (Duany 2002; Thomas 2010; Yost 2013). This severely impacts Puerto Rico's economy as tourists from places with higher taxes will visit more affordable locations. Anabel was poetic:

A lot of other Hispanics hate us because we're a U.S. Territory, they don't think that we're Hispanic because we get the privileges. How do we explain to our kids that they should be proud of being PR but that when they go to get a passport, they need to get a US passport instead of a PR one? Everyone's very frustrated because the US has been like this for a long time. They don't hate US citizens, but they hate the government. We can't keep going with our current status. I so wish we could have full independence, but we won't get any better. Statehood would help us with the economy, at least.

Anabel had worked at her coffee shop in Viejo San Juan for three years to support herself through college and was active in local protests and union meetings. Anabel was careful to distinguish between the U.S. government and regular Americans, acknowledging that, like in Puerto Rico, private citizens are not the same as the government that represents them.

Her views were echoed by many of her customers, local poets who participated in the coffee shop's weekly open mic nights and frequently discussed Puerto Rico's status in their work. Strikes and demonstrations were held on a regular basis to protest, among other things, low wages, labor rights, releases of political prisoners³³, and healthcare. The bus drivers' union

³³ In particular, demonstrators protest the continued imprisonment of Oscar López Rivera, a Puerto Rican nationalist and Fuerzas Armadas de Liberación Nacional Puertorriqueña (FALN) member who was

alone went on strike at least once or twice a month over livable wages and union benefits; this was such a common occurrence that bets would be placed over the length of time between strikes. The first time that I experienced a bus strike (January 17, 2014), I waited at my bus stop for almost 90 minutes before a passerby informed me that the buses were on strike. I normally took one or two buses and a train to get from my residence to my clinic, a process that could take almost two hours and depending on the day (or on how the bus driver felt that day) my first bus would take between 30-75 minutes to arrive after the arrival of the previous bus. Waiting 90 minutes for a bus did not seem like an excessively long wait under the circumstances.

Other protests were larger, incorporating several unions. One protest I attended, on June 5, 2014 started across the street from the Department of Labor's Santurce office and spilled over to PR-2 (Puerto Rico Highway 2), the longest highway in Puerto Rico. Protesters stopped traffic and started throwing water bottles at passing vehicles, while weary police officers merely redirected traffic. The following two photographs³⁴ are from the June 5th protest, to both illustrate the number of people who attended and the extent to which the protesters were able to temporarily stop traffic without repercussions.

sentenced to 55 years in 1981 for seditious conspiracy against the United States and for creating bombs to use against the United States to attain Puerto Rican independence.

³⁴ I took both photographs; no permissions are needed to include them here.



Figure 4 (above): protest in front of the Government Center on Ave. de Diego in Santurce

Figure 5 (below): the same protest on PR-2



Many of the issues that participants discussed are reflective of problems that Puerto Rico as a whole has been experiencing since the 2008 economic crisis. The 2008 economic crisis contributed to the 45.4% poverty level in Puerto Rico and has led to high crime and suicide rates, multiple health issues, and a bankrupt government (Collado-Schwarz 2012). Many participants lost their jobs and were unable to afford healthy food and the unemployment rates and tough economic climate contributed to participants experiencing a loss of control over their lives, which, in turn, led to increased domestic problems as families attempted to make do with fewer resources. The fighting and domestic abuse that participants reported were a manifestation of the anger and fear that many felt after the economic crash, which the government was unable to prevent. The fighting and domestic violence were attempts to regain control over life, particularly over known factors: family members. Since no changes have been immediately forthcoming, and with no changes in the near future, participants reported losing hope that their situations would improve and this contributed to the higher depression rates. The economic crash and ensuing fewer resources also contributed to the high crime rates, particularly among the younger generation who could not find jobs and did not have any money saved.

I asked my participants whether they felt American, Puerto Rican, both, neither, or something else, and the response was a resounding ‘Puerto Rican’ but they did not feel fully American due to geographic, cultural, and political distances from the mainland. Attitudes towards the United States were markedly mixed. One reason had to do with Puerto Ricans not being permitted to vote for U.S. president (“Why should we listen to him? None of us voted for him!”), which contributed to a distinct lack of enthusiasm for the American political process. Coupled with the limited power that Puerto Rican politicians have on the American political stage, the lack of enthusiasm furthered a cynicism about the efficacy of politicians, either

American or Puerto Rican, to actually *do* anything for Puerto Rico. A notable conversation that exemplifies this cynicism centers on an elderly Puerto Rican gentleman, José, who was speaking to an American couple in English while on the bus. A drunken man had been sitting next to the American couple and he started engaging the tourist couple. José sat near the couple to keep an eye on the drunken man and to keep the American couple's attention diverted from the drunken man (apparently, I was not sufficiently American to require minding). After the American couple left the bus, three young Puerto Rican men began to berate José as being 'not really being Puerto Rican' for speaking in English and being polite to the American couple, to which José angrily replied that he was more Puerto Rican than the young men berating him because his Spanish was better and because he was respectful, that being rude was not the Puerto Rican way. "This island has lost its compassion," José diagnosed regretfully.

This incident, aside from providing for a somewhat tense bus ride, highlights the myriad intersecting frictions that construct the United States-Puerto Rico relationship. The belittling of English, the protection of the American couple as guests in Puerto Rico and personifications of the island's dependence on tourism, and the palpable tension in the air all made for a Puerto Rico that was turned both against the United States and against itself. Puerto Ricans are seeking a radical change in their relationship with the United States but are in stark disagreement about how to do so, giving little reason for the U.S. government to take any decisive course of action.

Structural Factors

Structural factors, manifested through high rates of poverty, unemployment, crime, and abuse were the most frequently cited causes of ill health. María described the problems she saw in Puerto Rico:

Depression is a big problem in Puerto Rico. There's a lot of suicide, a lot of problems, child abuse, men abusing their wives, a lot of fighting. We all have the same problem here, with the economy and problems with the family, and there's a lot of crime. I don't feel very safe living here, but it's my home, I want it to get better. It hurts me that the country I love, has so many problems. There are a lot of problems here, but nobody does anything to help. The government doesn't do anything, the people don't do anything. Aren't we part of the United States for a reason? We complain and complain and vote and vote and nothing. We've all given up thinking that something will happen, even in this crisis. Puerto Rico's broke and can't pay back its debts, and they [the U.S. government] just sit there and laugh.

Gustavo expressed his frustration over loving Puerto Rico but seeing the island mired in problems and watching friends and family move to the mainland:

There are a lot of people here that suffer from depression. The economy's bad, there's no work, everyone's leaving Puerto Rico for the United States to look for work, but they don't have family in the US. Spouses, parents and children, friends. It's a beautiful island with a lot of problems, an ugly paradise.

Structural factors were the most frequently cited causes of ill health: a bad economy, abuse, and high rates of unemployment, poverty, and crime in Puerto Rico. Luisa was indignant:

With the economy and crime as they are, there are a lot of problems here, and people can't understand why. They don't want to talk about it: they don't go to the doctor to talk, and politicians don't want to do anything. Everyone's depressed as a result. Why doesn't the United States help us? They're supposed to help. Otherwise, why be part of them?

Luisa's plaintive question, *Why doesn't the United States help us?*, underscores an essential underlying theme of the interviews. The relationship that Puerto Rico has with the United States was a constant thread of conversation, both among my participants and among the Puerto Ricans that I encountered in general. The countless conversations that people had on the street, in bars and restaurants, on the bus, and in supermarkets across the island reflected the same frustrations and anxieties about both Puerto Rico's political status and its economic crisis.

The Spanish term that Puerto Ricans use to describe the island – *un país*, the same term that is used for independent, sovereign nations, highlights Puerto Ricans’ distancing from the United States. With Puerto Rico’s \$72 billion dollars in debt but unable to pay without assistance from the United States, many are calling for reforms, but the United States has thus far proven unwilling to make any changes to Puerto Rico’s current status.

Many of the issues that participants discussed are reflective of problems that Puerto Rico as a whole has been experiencing since the 2008 economic crisis. In 2006, Puerto Rico’s median household income was \$20,095 (Pew Research Center 2014); and then between 2010-2012, Puerto Rico’s median household income was \$19,518, which is statistically unchanged from the 2007-2009 recession (United States Census Bureau 2014). In comparison, Puerto Ricans in New York between 2010-2012 had a median household income of \$36,613, while the overall median household income in the United States between 2009-2013 was \$53,046 (United States Census Bureau 2014). The 2008 economic crisis contributed to the 45% poverty level in Puerto Rico in 2010 and has led to high crime and suicide rates, multiple health issues, and a bankrupt government (Collado-Schwarz 2012). Many participants lost their jobs and were unable to afford healthy food, and the unemployment rates and tough economic climate contributed to participants experiencing a loss of control over their lives, which, in turn, led to increased domestic problems as families attempted to make do with fewer resources. The fighting and domestic abuse that participants reported, were a manifestation of the anger and fear that many felt after the crash, which the government was unable to prevent. Since no changes have been immediately forthcoming and with no changes on the horizon in the near future, participants reported having lost hope that their situations would improve, which also likely contributes to the high depression and suicide rates. The economic crash and ensuing fewer resources also

contributed to the high crime rates, particularly among the younger generations who could not find jobs and did not have any money saved. In a December 2015 Puerto Rico Herald poll, 54% of the respondents felt that the economy was the biggest problem facing the island; 20% felt that crime was the biggest issue, and 17% felt that government corruption was the island's biggest problem. Respondents also correlated the state of the economy with Puerto Rico's political status: 65% reported that Puerto Rico's status as a U.S. territory was at least partly to blame for the current economic crisis. These results are in line with my participants' responses; they too connected Puerto Rico's economic crisis with the island's political status. Julián had a 'Liberación ¡Ya!' ("Liberation Now") sign, an independence movement sign in his living room (see Appendix C), and our interview soon turned to the 2013 privatization of the island's biggest airport, Luis Muñoz Marín International Airport (FAA code: SJU). I admitted that when I arrived in San Juan in January 2014 I worried that I had landed in the wrong city, as the airport was completely different from its previous incarnation.

"What did you think of the new airport?" Julián asked me.

"It was pretty," I said. "And a lot bigger. It looks like it can handle more flights than the old one." Julián enlightened me:

There was a *lot* of controversy surrounding that. A lot of people were against it because a lot of jobs would be lost. It was done for the sake of making the airport look prettier and so more tourists would come, but at what cost? We're not allowed to make decisions about our own airport? We don't have economic control over our own buildings anymore! The profits wouldn't reach us, anyway.

The first privatized airport in the United States was Stewart International Airport in Newburgh, NY, which was privatized in 2000 and un-privatized in 2007 when the Port Authority

of New York and New Jersey bought back the airport. Two other airports besides SJU are privatized: Chicago's Midway Airport and Airglades Airport in Hendry County, Florida (Sechler 2013). Two companies co-operate SJU: Highstar Capital and Grupo Aeroportuario del Sureste SAB de CV, neither of which is Puerto Rican-owned (Highstar is mainland-based and Grupo Aeroportuario is Mexican). Alejandro García Padilla, the current governor, has expressed profound reservations about the privatization of the airport but has stood by the deal made by his predecessor, Luis Fortuño (Sechler 2013). Whether SJU will remain privatized or whether San Juan will buy back the airport like the Port Authority of NY and NJ with Newburgh remains to be seen. Considering the current economic crisis, however, it appears unlikely that San Juan has the funding necessary to buy back SJU.

Gabriel took a broader view on the subject of the economy and Puerto Rico's status, telling me as he made coffee,

We'd be better off if the U.S. would help us. We're still a part of that country and they're obligated to help us, but because we're not a *full* state, they don't get us as much as they would to another state. I was in Florida a few months ago and the roads were better paved, the schools had teachers, and everything looked *clean*! Florida gets enough money to pay all of its workers. What do we get? We get to pave the roads for Obama's visit [in 2011], and then only along the route he took in the touristy areas.

Better-maintained roads were not the only things that were more "affordable" in the tourist zones. Puerto Rico experienced a drought in June and July 2014; in some parts of the island rainfall was 20 inches below the normal 65-70 inches during the summer (Quintero and Rodriguez 2014). *La Primera Hora*, a popular San Juan newspaper, warned on July 31, 2014 that if sufficient rain didn't fall by August 6, 2014, water rationing would begin in San Juan, beginning with the neighborhoods of Río Piedras, Hato Rey Sur, and Cupey, which together have some 82,000 people. If the drought continued, then the neighborhoods of Trujillo Alto and

Carolina (85,000 people) would commence water rationing on August 7, 2014, Bayamón Sur (45,000 people) on August 14, and Bayamón Norte and parts of Toa Baja (92,000 people) on August 15 (Pacheco 2014). The tourist neighborhoods of Old San Juan, Condado, and Ocean Park, however, were spared the water rationing on account of the large amounts of money that would be lost if tourists changed their travel plans due to water rationing. Puerto Rico's neighborhoods jostle cheek-by-jowl with each other, the poor *La Perla* sitting almost on top of the touristy Old San Juan and the notorious public housing project Luis Llorens Torres running up against the affluent Ocean Park. The jumble of neighborhoods is a constant reminder that poverty and wealth go hand-in-hand on the island and that wealth is tenuous in a place where employment is uncertain.

Americanized Lifestyle

In addition to being disproportionately affected by the economic crash, the younger generation was also experiencing other marked lifestyle changes. The types of lifestyles that the participants described among young people indicated a noticeable shift from how the older participants reported living when they were younger. Participants considered generational differences in lifestyle to be a common theme underlying the development of both diabetes and depression. Consuming healthy food and getting physical activity were both constant parts of life for the older participants and many of them, regardless of diabetes status, reported that the lifestyle changes that they have observed have been contributors to both illnesses. When I asked Julián for his thoughts, he was silent for a moment as he organized his ideas,

My grandmother died of diabetes. She was 87 years old. When she was younger, diabetes wasn't a problem. The way of life was better, with clean air, fewer cars, less stress. There are a lot of fat young people – they eat bad food and don't walk – they drive a lot. When I was younger, I walked everywhere: school, church, the

supermarket. Those of my age, we ate at home, and we used to have to walk to the supermarket to buy food. Now, everyone drives, we all have cars. Everyone's in a hurry and eats in restaurants.

María and Andrés exchanged a glance before María answered me,

If the person is relatively young and has bad lifestyle habits, such as unhealthy *alimentación* and being lazy about using insulin, that person can suffer from depression as an adult. It's harder to adapt to that lifestyle [incorporating diabetes] as an adult. When I was a girl, there weren't so many restaurants as there are today – it was more expensive to eat in restaurants, including Fast Food. Now, young people can eat in Fast Food restaurants because they're less expensive, and diabetes is much more common in young people these days. Diabetes was not a big problem when I was a girl.

María told me that it was something that she and Andrés discussed regularly, both as a couple and with their friends. It was a discernible shift from the way that they had grown up, and it was troubling for many of their generation who wanted better for their children and were unable to account for how much worse things had become since they themselves had been younger. The changing lifestyle habits in Puerto Rico have had a profound effect on the participants' health. Decreased time spent walking and more time spent driving, and increased consumption of unhealthy food at Fast Food restaurants have become more common in Puerto Rico, leading to an overall decrease in health, particularly among the younger generations who have grown up with this current lifestyle. Jennifer was blunt:

Nobody walks anymore! I understand that it's hot – we *do* live in the Caribbean – but you can walk outside in the mornings before it gets too hot. You don't need to walk in the snow like in New York. People complain when it's too hot, but they also complain when it's too cold. People will get in their cars and drive to Burger King, pick up their food in drive-through, and then drive home to eat their extra-large cheeseburgers and fries. It's not like it used to be. Why's it changed? A lot of people live in urban areas now, where they have the opportunity to drive and the sidewalks and things aren't so good. I'll admit that it's harder to walk when sidewalks are unevenly paved. There's always construction, and nobody wants to breathe in the dust. And the kids these days grew up living like this with the

driving and the bad sidewalks and the Burger King, and they like it like this, they don't know anything else. So they're healthier than their parents and grandparents, but they don't have the money to fix their health.

Andrea recalled her grandparents as we drove past their old apartment in her taxi:

I remember walking a lot with my grandparents. It was the way they did things, no one drove all the time. Now, everyone's lazy. I think that the kids have given up. There are no jobs for them, the roads are bad, the economy's bad, the education's bad. Everything's bad. If you grew up in an area where everything's bad, you'd give up, too. We try to support our kids, but it's hard, no one has money. So these kids eat at McDonald's and hang out on the streets. They drive everywhere because it's faster than walking. They don't know any better.

Older participants described the trouble they had adapting to Puerto Rico's shift in lifestyle and suggested that diabetes was a natural consequence of this lifestyle change, particularly the decrease in physical activity and the increase in unhealthy food consumption. However, the older participants would then mention that the younger generations seemed to develop diabetes at an accelerated rate compared to their elders, due to decreased physical activity, changes in diet due to a surfeit of fast food consumption, a lack of exercise in schools that reinforces a lack of exercise post-school, and a general lack of concern for their own health.

The OVIDD (Obesity, structural and symbolic Violence, political Instability, Diabetes, and Depression) Syndemic unfortunately has a firm grip on life in Puerto Rico. High poverty and crime rates, the poor economy, and a long-term politically unstable environment not only added to the high incidence and prevalence rates of diabetes, depression, and obesity in Puerto Rico, but interacted with the diseases in question to create a synergistically auto-perpetuating cycle in which the diseases and structural factors will continue propagating the OVIDD Syndemic unless action is taken. This action must come from both Puerto Rico and the United States in order to be successful. The United States government must provide Puerto Rico with

more economic and structural assistance to not only improve the island's economy, but also help the island fix its healthcare system to prevent the medical brain drain that is also contributing to the syndemic. Puerto Rico's political status also needs to change in order for health on the island to improve. While there are no easy solutions to changing the island's status that do not call for large-scale government actions (which are beyond my current abilities), I do acknowledge that many of the problems that Puerto Rico faces are largely governmental in nature and underlie the island's health problems as well. Without changes to the island's current political woes, its health woes are unlikely to cease.

Chapter Twelve: Discussion

The objectives of this study were threefold: to determine whether individuals with both diabetes and obesity have greater prevalence and severity of depression than individuals with only diabetes or obesity; to determine whether Type II diabetes mellitus, obesity, and depression contribute to and reinforce each other's negative lived experiences; and to determine whether the structural features of Puerto Rico's politically liminal status underlie and propagate diabetes, obesity, and depression on the island to create a syndemic among Puerto Ricans. I found that the data I collected supported all three of these hypotheses.

Research Question One: Individuals with both diabetes and obesity have greater prevalence and severity of depression than individuals with only diabetes or obesity.

The data showed that diabetes and obesity were disproportionately more prevalent among participants with depression than among participants without depression. While structural

factors were the same for the entire population regardless of depression status, the stress of the side effects of diabetes, such as reduced eyesight and increased general physical pain as well as maintaining lifestyle changes, such as diet, contributed to depression. Food was seen as a source of comfort and people overate to feel better. The connection between depression and diabetes was further perpetuated by unhealthy lifestyles and economic instability. People became depressed as a result of the high unemployment and as a result ate large quantities of cheap, high-fat food to cope with their economic and emotional problems and developed diabetes as a result.

Depression, an invisible illness, is experienced as a dissonance between the sufferer and his or her surroundings (van Dongen 2004): a disconnection between the sufferer's current reality and the reality that he or she desires. Depression was the result of a loss of control in an uncertain, changing environment, particularly among those who were already trying to deal with diabetes.

Obesity was one of the most pertinent themes that participants mentioned, particularly the overconsumption of food as being, in a vicious debilitating circle, both a product and a cause of depression, obesity, and diabetes. Participants frequently associated food overconsumption with leading to obesity and discussed obesity as being a key health problem in Puerto Rico. While obesity is indeed correlated with both diabetes and depression independently, research has failed to address the presence of obesity in examining the relationship between depression and diabetes. With obesity being a major risk factor for the development of diabetes, and obesity and depression being highly correlated, obesity may be a key factor in understanding how and why depression and diabetes develop and interact.

Obesity and depression are both stigmatized states. The associated stigma mediates the

relationship between the two illnesses, with obesity stigma increasing the risk for depression by creating social isolation and decreasing job and romantic prospects. In turn, depression stigma also creates social isolation and constant stress and triggers the development of obesity through comfort eating and the overproduction of cortisol, which is responsible for increased storage of abdominal body fat. Overproducing cortisol also increases insulin resistance, which is the precursor to type II diabetes. The syndemic relationship between the three diseases is tempered by structural factors such as poverty, racism, and colonization, all of which are inherent to the relationship between the United States and Puerto Rico.

Research Question Two: Type II diabetes mellitus, obesity, and depression contribute to and reinforce the negative lived experiences of the people suffering from these diseases.

The basic premise of syndemics has been valuable in analyzing the negative lived experiences, particularly the structural factors that underlie the relationship between diabetes, depression, and obesity in Puerto Rico. Diabetes, obesity, and depression are noticeable and important illnesses in the patients of a diabetes clinic. In order to fully understand their complex relationship with one another, I used syndemics theory to provide the context for understanding the etiology and synergistic perpetuation of the depression, diabetes, and obesity. In particular, participants saw depression as contributing to and as a result of obesity and diabetes. They viewed depression as contributing to decreased interest in self-care and increased unhealthy food consumption. Participants also attributed depression to the high rates of crime, unemployment, and violence on the island in recent years. The difficulty in maintaining a diabetes-friendly lifestyle, particularly in purchasing healthy food and exercising regularly, was due in large part to the fact that it requires living a lifestyle that was very different from that of

family and friends. Thus both the dissonance in lifestyles between diabetes patient and family and the difficulty or inability to pursue a healthy lifestyle all contributed to depression in those afflicted.

In the interviews, participants suggested that structural changes, such as the high rates of poverty, violence, and unemployment and the associated lifestyle changes have been influential in the prevalence of diabetes and depression, particularly in the younger generations. High rates of poverty and unemployment have ensured that not only are diabetes and depression prevalent in Puerto Rico, but that the illnesses are feeding into one another in a synergistic downward spiral. Due to the high unemployment rate, many cannot afford healthy food leading to an over-consumption of cheap, unhealthy food. This is exacerbated by living in unsafe neighborhoods and the negative impact of this on exercise and play. As a result of these structural and dietary changes, more people became at higher risk of developing diabetes. The economic and occupational instability, the ensuing family friction, and the challenges associated with adapting to a life with diabetes, have also contributed to increased risk for developing depression. Having depression has, in turn, contributed to a worsened diet, a lack of a stable and consistent social support network, and missed medical appointments, all of which worsen the risk and the side effects of diabetes.

Research Question Three: Puerto Rico's liminal political status and pattern of structural violence underlie and propagate diabetes, obesity, and depression on the island and help create the five-pronged OVIDD (Obesity, structural and symbolic Violence, political Instability, Diabetes, and Depression) Syndemic.

Due to decreased funding, schools have cut recess, which has left children without the opportunity for the daily exercise and sports training they need to lead healthy lives (Acosta-Pérez et al. 2012; Duany 2002b). Lack of physical activity combined with a preference for driving over walking, results in the younger generations not getting sufficient physical activity and consuming more energy (in the form of calorie laden fast foods) than they are expending. This is coupled with a high unemployment rate, particularly for the younger generations who have not had the opportunity to work and save money against a potential job loss. It is significant to note that the younger generation is developing diabetes at younger ages than their elders. In the past four decades, diabetes has transitioned from being more prevalent in people 65 and older to becoming more prevalent among younger people, particularly those in their teens, 20s, and 30s (Herrera 2013; Hu 2011; Kaufman 2005). This transition is consistent with diabetes trends in the United States (Dabelea et al. 2014; Fazeli Farsani et al. 2013; Walders-Abramson 2014). In Puerto Rico it is due to a combination of common factors in Puerto Rico that have been discussed repeatedly in this thesis: transitioning to a Western lifestyle of high-fat food consumption and decreased exercise, high unemployment rates that make healthy food unaffordable, high crime rates limiting neighborhood mobility, and chronic levels of high stress. Limited health education and the bad economy have led to unemployment of young people encouraging consumption of food from cheap venues.

The factors in the OVIDD Syndemic interact via cortisol, fear, and nutritional pathways. Prolonged exposure to depression and poverty induce chronic levels of stress in the body, which stimulates the fight-or flight response and the overproduction of the hormone cortisol. Sustained levels of cortisol increase the risk for insulin insensitivity, which in turn increases the risk for developing diabetes. The fear and nutritional pathways interact through the violence,

crime, and political subalternity that plague Puerto Rico. Due to the high and chronic levels of poverty, unemployment, crime, and violence in Puerto Rico, many of my participants were afraid to leave their houses for fear of their safety, and did not have steady employment. As a result, my participants' physical activity levels were low, which combined with the cheap, unhealthy foods that they could afford to eat, contributed to high rates of obesity. Participants also saw food (overconsumption) as the mediating factor between diabetes and depression, and as representative of Puerto Rico's political subalternity. The traditional Puerto Rican diet is high in carbohydrates and fats and relatively low in fresh fruits and vegetables. Participants cooked primarily Puerto Rican foods at home and struggled with maintaining the traditional diet in the face of both decreased levels physical activity and increasing food prices. Due to U.S. cabotage laws and Puerto Rico's geographic distance from the mainland, Puerto Ricans paid more in fees and taxes for food shipped from the U.S. This, too, contributed to the increased obesity rates on the island, as well as to the high rates of depression as Puerto Ricans strove to redefine their relationship with the United States.

Puerto Rico's political status profoundly affects Puerto Rico's economic crisis, highlighting both the island's multilayered dependency on the mainland and the need for immediate action. Puerto Rico's economic crisis has crippled its workforce, has been a major impetus for the migration to the mainland in search of work, and has also prevented people from *returning* to the island (Gillespie 2015; Krogstad 2015). Because of the United States' continued reluctance to make Puerto Rico a full state or grant it independence, the island cannot file for bankruptcy or otherwise change its own laws to improve its economy.

In sum, the OVIDD syndrome is a direct result of changing social and economic conditions in Puerto Rico and the socio-political and economic structural arrangements that

prevail on the island that have led to cultural changes in lifestyle that favor the development of obesity, diabetes, and depression among large numbers of the island's residents.

Implications: This research has several implications, particularly for interventions. On the micro level, healthcare providers should screen early for both diabetes and depression simultaneously so that both illnesses can be detected and patients can receive prevention and treatment before the illnesses advance. Because the effects of selective serotonin reuptake inhibitors (SSRIs; a class of antidepressants) on glycemic control are still being debated, healthcare providers should reconsider prescribing SSRIs to their patients. Healthcare providers should instead ascertain a patient's risk for developing diabetes before prescribing SSRIs so that if a patient is at increased risk for developing diabetes the healthcare provider and the patient can create a lifestyle plan to ensure that the patient does not develop diabetes while he or she is taking antidepressants. Given the variety of antidepressants available, providers can simply prescribe another antidepressant, such as Wellbutrin® (a norepinephrine and dopamine reuptake inhibitor [NDRI]) or Cymbalta® (a serotonin and norepinephrine reuptake inhibitor [SNRI]) (Mayo Clinic 2015).

Additionally, since prolonged stress contributes to consistently high levels of cortisol, healthcare providers should also work with their patients to find activities to reduce stress, such as meditation or participation in a religious activity.

It should be noted that the diabetes clinic does not employ mental health specialists of any kind although the healthcare practitioners do refer their patients to off-site mental health professionals. Given the high depression rate among individuals with diabetes, it would behoove the clinic to bring in mental health professionals (e.g., psychologists) to give presentations to all of the clinic's patients and staff on how to prevent or treat mental illnesses, in order to not single

out any patients with a mental illness. These presentations could either be given separately or as part of the preexisting nutrition courses to ensure attendance, as patients might not attend a session solely on mental health. The mental health professionals running the sessions could provide some guidance and provide names of mental health specialist referrals if needed. In order to maintain their patients' privacy, doctors can tell their patients about the mental health aspect of the classes during checkups.

The clinic offers nutritional classes for patients already diagnosed with diabetes, to provide information on proper portion sizes, checking insulin correctly, and diabetes-friendly foods that can still be used to prepare traditional Puerto Rican meals. However, the nutritional classes are not held for the family members of people with diabetes. Opening the classes to family members would help them to be supportive of their loved ones by explaining the practicalities of what living with diabetes entails, such as checking insulin and changing one's diet.

Patients should be actively involved in the healing process. Creating a patient network will allow patients to befriend others with diabetes and potentially facilitate carpooling to supermarkets and perhaps pooling financial resources to purchase healthier food. Getting to know other individuals with diabetes in the same neighborhood might also offer the opportunity to create opportunities for walks together so that people do not need to walk outside by themselves. This might also offer people the opportunity to share healthy food recipes. Supermarkets could also be offered tax incentives to open branches in neighborhoods with limited access to healthy food so that the neighborhood inhabitants will be able to travel to supermarkets more easily.

The results of my study are in line with prior research on diabetes and food intake, and underscore the necessity of using syndemics as a theoretical framework for this research. Unequal access to healthy food was a common theme, particularly since the bad economy and unemployment left many unable to afford such food on a regular basis³⁵, and such unequal access contributed to the type of *alimentación* that played a part in the development of diabetes.

More broadly, my research not only expands prior research on syndemics, but also identifies a new syndemic (OVIDD: Obesity, structural and symbolic Violence, political Instability, Diabetes, and Depression). Diabetes, depression, and obesity form a syndemic in Puerto Rico, fueled by the political instability and structural and symbolic violence that are inherent to Puerto Rico's current socio-economic-political circumstances. My research is original in emphasizing both food (over) consumption and the preparation and consumption of food as part of a national identity as equally important contributors to obesity and a distinct part of the OVIDD syndemic. Furthermore, by focusing on Puerto Rico and its political status, my research investigates the relationship between health and politics and highlights the urgent need for addressing Puerto Rico's political status to alleviate illness production that I found while researching health on the island. My participants had multilayered, complex relationships with their identities as Puerto Ricans, Hispanics, and Americans, viewed through the colonial lens. In investigating the nexus of Puerto Rican politics and the numerous health problems on the island, I join a small but thriving community of scholars who also research the numerous junctions of health and politics in Puerto Rico (Dietrich 2013; Loue 2011; Mulligan 2010, 2014; Pérez-Perdomo et al. 2003).

For my participants, Puerto Rico is at an untenable crossroads. The island is caught between a negative lifestyle due to structural factors and trying to escape from a black hole in

³⁵ In this context, "regular basis" means weekly grocery store trips.

which the negative lifestyle and its associated health problems form a synergistic syndemic. Puerto Rico's political status makes it difficult for Puerto Rico to receive sufficient resources to address the structural problems that are the foundation of the syndemic that exists on the island. Having diabetes contributes to and worsens the presence of depression and vice versa. Both illnesses are grounded in the consumption of unhealthy food, which, in turn, is based on limited access to healthy food and a reliance on motorized transportation. Obesity increases depression and self blame for diabetes. Abuse and high crime and unemployment also contribute to earlier onset depression, which, in turn, contributes to earlier onset diabetes.

Limitations and Future Research:

This study does have several limitations that may affect the results and the interpretation of the findings. The participants to this study were recruited in a diabetes clinic and were disproportionately persons with the illness or family members or caregivers of the patients. They were already taking the initiative to be tested for illnesses or managing their diabetes and other health problems.

Due to focusing on the multiple complex factors in the OVIDD syndemic, I did not take biological samples from my participants to measure the biological interactions of depression, diabetes, and obesity. However, given that syndemics encompasses both biological and structural pathways between diseases, not having biological samples is a limitation that I can address in future research. Much needed corroboration would come from hair and saliva samples in order to measure cortisol (the stress hormone that connects both diabetes and depression) and results of blood-work to measure leptin (the 'hunger hormone' that regulates obesity). Potential studies to collect these data might be to collect cortisol levels from people

with and without diabetes in stressful and non-stressful situations. For example, Himmelstein and colleagues (2015) conducted research on the effects of weight stigma on cortisol production among university students by exposing study participants to stigmatizing comments during on a theoretical clothes shopping experience and collecting baseline and post-shopping cortisol levels. This study would be a good prototype for collecting cortisol before and after stressful events in participants with and without diabetes, in order to determine whether stress affected cortisol levels differently in the different participant cohorts. Similar studies could be constructed to measure leptin rather than cortisol.

Diabetes and depression are complex illnesses that appear to interact on both the physiological, social, and political-economic levels. The structural factors that contribute to the two illnesses' interactions (e.g. poverty, violence, and lack of education) also lay the foundation for obesity (via eating habits), the third factor in the syndemic. In order to prevent and control these health problems, there is an urgent need to address the structural factors that underlie their etiology and perpetuation and the socio-cultural factors that perpetuate self-blame for one's socio-culturally socio-economically, and socio-politically structurally engineered illness syndemic.

Appendix A**Variables for Analyses**

- Age
- Gender
 - o 1=male
 - o 2=female
 - o No one reported being a gender other than male or female
- Education
 - o 0=none
 - o 1=elementary school (grades K-5)
 - o 2=middle school (grades 6-8)
 - o 3=high school (grades 9-12)
 - o 4=certificate/trade school
 - o 5=university
 - o 6=advanced degree
- Health Status (“How would you describe your health?”)
 - o 1=excellent
 - o 2=very good
 - o 3=good
 - o 4=acceptable
 - o 5=bad
 - o 6=very bad
 - o 7=awful
- Diabetes Status
 - o 0=no
 - o 1=yes
- Obesity
 - o 0=no
 - o 1=yes
- Percent Body Fat
 - o Men
 - 1=2-5%
 - 2=6-13%
 - 3=14-17%
 - 4=18-24%
 - 5=25+%
 - o Women
 - 6=10-13%
 - 7=14-20%

- 8=21-24%
- 9=25-31%
- 10=32+%
- Depression Status
 - BDI:
 - 0=0-12: no depression
 - 1=13-19: mild depression
 - 2=20-28: moderate depression
 - 3=29-63: severe depression
 - Self-reported
 - 0=no
 - 1=yes

Appendix B: Puerto Rican Barbie®



Appendix C: copy of the Liberación ¡Ya! poster found in Julián's apartment



Appendix D: Beck-II Depression Inventory, English version (no names or other personal identifying information recorded on the forms themselves)



Beck Depression Inventory

Baseline

V 0477

CRTN: _____ CRF number: _____

Page 14

patient initials: _____

BDI-II

Date: _____

Name: _____ Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

- 0 I do not feel sad.
- 1 I feel sad much of the time.
- 2 I am sad all the time.
- 3 I am so sad or unhappy that I can't stand it.

2. Pessimism

- 0 I am not discouraged about my future.
- 1 I feel more discouraged about my future than I used to be.
- 2 I do not expect things to work out for me.
- 3 I feel my future is hopeless and will only get worse.

3. Past Failure

- 0 I do not feel like a failure.
- 1 I have failed more than I should have.
- 2 As I look back, I see a lot of failures.
- 3 I feel I am a total failure as a person.

4. Loss of Pleasure

- 0 I get as much pleasure as I ever did from the things I enjoy.
- 1 I don't enjoy things as much as I used to.
- 2 I get very little pleasure from the things I used to enjoy.
- 3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

- 0 I don't feel particularly guilty.
- 1 I feel guilty over many things I have done or should have done.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6. Punishment Feelings

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7. Self-Dislike

- 0 I feel the same about myself as ever.
- 1 I have lost confidence in myself.
- 2 I am disappointed in myself.
- 3 I dislike myself.

8. Self-Criticalness

- 0 I don't criticize or blame myself more than usual.
- 1 I am more critical of myself than I used to be.
- 2 I criticize myself for all of my faults.
- 3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10. Crying

- 0 I don't cry anymore than I used to.
- 1 I cry more than I used to.
- 2 I cry over every little thing.
- 3 I feel like crying, but I can't.

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San Diego • Philadelphia • Austin • Fort Worth • Toronto • London • Sydney

Subtotal Page 1

Continued on Back

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NR15645



Beck Depression Inventory

Baseline

V 0477

CRTN: _____ CRF number: _____

Page 15

patient initials: _____

11. Agitation

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

15. Loss of Energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

- 0 I have not experienced any change in my sleeping pattern.
- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.
- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.
- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

18. Changes in Appetite

- 0 I have not experienced any change in my appetite.
- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.
- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.
- 3a I have no appetite at all.
- 3b I crave food all the time.

19. Concentration Difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

Subtotal Page 2

Subtotal Page 1

Total Score

NR15645

3 4 5 6 7 8 9 10 11 12 A B C D E

STAGE ONE INTERVIEWS

Appendix E: EMIC Questionnaire, Patients

Información General/General Information

Quiero hacerle algunas preguntas sobre su estado de salud en general. También quiero saber si Ud. haya sufrido de algunas de las condiciones mencionadas.

I would like to ask you some questions about your general state of health. I also would like to know if you have suffered from any of the following conditions.

¿Diría Ud. que su salud es excelente, muy buena, buena, regular, mala, o muy mala?

Would you say that your health is excellent, very good, good, regular, bad, or very bad?

Excelente/Excellent 1

Muy Buena/Very Good 2

Buena/Good 3

Regular/Regular 4

Mala/Bad 5

Muy Mala/Very Bad 6

Alguna vez le dijo un médico que Ud. tenía:

At any time has a doctor told you that you had:

No/No = 1; Sí/Yes = 2 ; No sé/I don't know = 9

a. asma o fatiga/**asthma** 1 2 9

b. anemia/**anemia** 1 2 9

c. niveles altas de azúcar en la sangre o diabetes/**high blood sugar or diabetes** 1 2 9

d. alta presión/**high blood pressure** 1 2 9

e. problemas del corazón/**heart problems** 1 2 9

f. derrame cerebral/**stroke** 1 2 9

g. cáncer/**cancer** 1 2 9

h. dificultad con la respiración (bronquitis; otra enfermedad respiratoria)/**breathing problem (bronchitis; other respiratory sickness)** 1 2 9

i. artritis o reumatismo/**arthritis or rheumatism** 1 2 9

j. enfermedad del hígado o de los riñones/**liver or kidney disease** 1 2 9

k. dolores de la cabeza o migrañas crónicas/**chronic headaches or migraines** 1 2 9

l. alguna condición neurológica (epilepsia, convulsiones, o desmayos)/**a neurological condition (epilepsy, convulsions, or fainting spells)** 1 2 9

m. úlceras/**ulcers** 1 2 9

n. otro problema de salud que haya durado más de tres meses/**another health problem that lasted more than three months** 1 2 9

Especifique/Specify: _____

¿Durante los últimos doce meses, ha tenido usted un período de seis meses o más en que se preocupa la mayor parte del tiempo por tener una enfermedad física?

Sí No

During the last two months, have you had a period of six months or more in which you were worried most of the time about having a physical illness?

Yes No

A). ¿Cuál enfermedad le preocupaba tener? _____

A. What illness were you worried about having?

¿Durante los últimos doce meses, ha tenido usted un período de seis meses o más en que se preocupa la mayor parte del tiempo por tener una enfermedad mental?

Sí No

During the last two months, have you had a period of six months or more in which you were worried most of the time about having a mental illness?

Yes No

A). ¿Cuál enfermedad le preocupaba tener? _____

A. What illness were you worried about having?

Depresión, Diabetes, Ataque de Nervios/Depression, Diabetes, Ataque de Nervios

Tengo algunas preguntas para Ud. acerca de las siguientes enfermedades:

- 1). La diabetes
- 2). La depresión
- 3). Un ataque de nervios

Para el/la entrevistador/a: repita la pregunta para cada enfermedad individualmente

I have a few questions for you about the following illnesses:

- 1). Diabetes**
- 2). Depression**
- 3). An *ataque de nervios***

For the interviewer: repeat the question for each of the illnesses separately

Ud. tiene [esta enfermedad]/[Do you have this illness]?

Sí/Yes No/No

¿Qué usted piensa causó (esta enfermedad)?/What do you think caused [this illness]?

¿Alguna persona en su familia tiene (esta enfermedad)?/ Does anyone in your family have [this illness]?

Ud. se preocupa mucho por esta enfermedad?

Do you worry a lot over this illness?

Sí/Yes No/No

Por qué?/Why?

Esa preocupación sobre esta enfermedad interfirió mucho con su vida durante los últimos seis meses?

Did your preoccupation about your illness interfere a lot with your life in the past six months?

Sí/Yes No/No

Por qué?/Why?

Me gustaría saber si Ud. ha tratado obtener tratamiento de algunos de los siguientes recursos para:

- 1). La diabetes
- 2). La depresión
- 3). Un ataque de nervios

Para el/la entrevistador/a: repita la pregunta para cada enfermedad individualmente

We would like to know if you have tried to obtain treatment from some of the following resources for:

- 1). Diabetes**
- 2). Depression**
- 3). An *ataque de nervios***

For the interviewer: repeat the question for each of the illnesses separately

Farmacia Sí, 1 No 2

Pharmacy

Sala de Emergencia Sí, 1 No 2

Emergency Room

Cita programada en Hospital o Centro de Servicios Médicos Sí, 1 No 2

Appointment made in Hospital or Health Center

Cita programada en un Centro de Salud Mental Sí, 1 No 2

Appointment made in Mental Health Center

Doctor privado Sí, 1 No 2

Private Doctor

Psiquiatra o psicólogo privado Sí, 1 No 2

Private psychiatrist or psychologist

Agencia de Servicios Sociales Sí, 1 No 2

Social Services Agency

Botánica 1 5 1 5

"Folk Pharmacy"

Espiritista o Casa/Centro Espiritista Sí, 1 No 2

Spiritist or Spiritist House/Center

Santero(a) Sí, 1 No 2

Saint Worker

Otro curandero/yerbero Sí, 1 No 2

Other curer/herbalist

Iglesia o Centro Religioso Sí, 1 No 2

Church or Religious Center

Sacerdote/Ministro Sí, 1 No 2

Priest/Minister

Parapsicólogo, Astrólogo, Adivinador Sí, 1 No 2

Parapsychologist, Astrologist, Fortuneteller

Otro tipo de ayuda Sí, 1 No 2

Other type of help

Especifique/Specify:

¿Piensa usted a menudo que sus médicos estaban equivocados acerca de la causa o el diagnóstico, o lo que se debería hacer?

Did you often think that your doctors were mistaken about the cause or the diagnoses, or what should be done?

Todo el tiempo/**All the time** 1

La mayor parte del tiempo/**Most of the time** 2

A veces/**Sometimes** 3

Casi nunca/**Almost never** 4

Nunca/**Never** 5

¿Ud. confía en su proveedor de servicios médicos?/**Do you trust your healthcare provider?**

Sí/**Yes** No/**No**

¿Por qué?/**Why?**

¿Vio usted a su médico varias veces (3+) o fue a varios médicos porque le preocupaba el que pudiera tener esta enfermedad?

Did you see your doctor various times (3+) or go to various doctors because you worried that you might have this illness?

¿Le (hizo/hicieron) su(s) médico(s) varias pruebas para diagnosticar si tenía esta enfermedad?

Did your doctor(s) run various tests to diagnose if you had this illness?

Sí/**Yes** No/**No**

¿Por qué?/**Why?**

¿Siente usted que su(s) médico(s) examinó y manejó bien esa BIEN MANEJADA enfermedad, o no está usted satisfecho/a del modo en que la INSATISFECHA manejó o examinó?

Do you feel that your doctor(s) examined and handled this illness well, or were you unsatisfied with the way in which you were handled and examined?

Sí/**Yes** No/**No**

¿Por qué?/**Why?**

¿Qué usted piensa causó su diabetes?

What do you think caused your diabetes?

¿Usted siente la diabetes (por ejemplo, usted tiene síntomas)?
Do you feel diabetes (e.g. do you have symptoms)?

¿Qué usted piensa causó su depresión?
What do you think caused your depression?

¿Qué usted piensa causó la obesidad
What do you think caused obesity?

Qué Ud. considera ser síntomas de:

- 1). Diabetes
- 2). Depresión
- 3). Ataque de Nervios

What do you consider to be symptoms of:

- 1). Diabetes**
- 2). Depression**
- 3). Ataque de Nervios**

¿Cómo ha afectado su enfermedad a su familia?
How has your illness affected your family?

¿Se apoyan financieramente o emocionalmente?
Do they support you, financially or emotionally?

¿Cómo su enfermedad ha afectado a sus amigos?
How has your illness affected your friends?

¿Se apoyan financieramente o emocionalmente?
Do they support you, financially or emotionally?

Appendix F: EMIC Questionnaire, Healthcare Providers

¿Qué usted piensa causa la diabetes?

What do you think causes diabetes?

¿Qué son los síntomas de la diabetes?

What are the symptoms of diabetes?

¿Qué usted piensa causa la depresión?

What do you think causes depression?

¿Qué son los síntomas de la depresión?

What are the symptoms of depression?

¿Qué usted piensa causa la obesidad?

What do you think causes obesity?

¿Qué son los síntomas de la obesidad?

What are the symptoms of obesity?

Qué Ud. considera ser síntomas de:

- 1). Diabetes
- 2). Depresión
- 3). Ataque de Nervios

What do you consider to be symptoms of:

- 1). Diabetes**
- 2). Depression**
- 3). Ataque de Nervios**

¿Cuántos pacientes Ud. suele ver al día?

How many patients do you normally see a day?

¿Cuánto tiempo Ud. pasa con cada paciente?

How much time do you normally spend with each patient?

¿Cómo se trata un paciente con diabetes?

How do you treat your patients with diabetes?

¿Cómo se trata un paciente con depresión?

How do you treat your patients with depression?

¿Cómo se trata un paciente con obesidad?

How do you treat your patients with obesity?

¿Ud. piensa que sus pacientes cumplan con sus programas de tratamiento?

Do you think that your patients to be compliant with their treatment programs?

¿Qué Ud. piensa acerca de otros curanderos (por ejemplo, espiritistas, santeros)? Piensa Ud. que ayuden al paciente?

What do you think about other healers (e.g. spiritists, santero)? Do you think that they're effective?

Appendix G: Stage One General Interviews

DEMOGRAPHICS

1. What is your gender?

Man 0 _____

Woman 1 _____

Other 2 _____ (please describe)

2) How old are you? _____

3) Presently, are you married, widowed, divorced, separated, never have been married, or dating someone?

Married 1

Widow(er) 2

Separated 3

Divorced 4

Never married 5

Dating someone 6

Other 0

4) How many years of schooling have you had?

None 1

Primary School 2

Middle School 3

High School 4

Associate's Degree 5

Bachelor's Degree 6

Professional Degree 7

5) What religion do you belong to? What religion does your father belong to? What religion does your mother belong to?

You Father Mother

None 1 1 1

Traditional Roman Catholic 2 2 2

Charismatic Catholic 3 3 3

Baptist 4 4 4

Episcopalian 5 5 5

Lutheran 6 6 6

Pentecostal 7 7 7

Evangelical 8 8 8

Jehovah's Witness 9 9 9

Mormon 10 10 10

Jewish 11 11 11

Muslim 12 12 12

Other (specify): _____ 0 0 0

6) Where were you born?

Puerto Rico 1

United States 2

Cuba 3

Dominican Republic 4

Haiti 5

Central America 6

South America 7

Spain 8

Other 0 (specify): -----

7) Including the income of all of the members of your household, what was your household income for the past year?

<\$10,000

\$10,001-\$15,000

\$15,001-\$20,000

\$20,001-\$30,000

\$30,001-\$40,000

\$40,001-\$50,000

\$50,001-\$60,000

\$60,001-\$70,000

\$70,001-\$80,000

\$80,001-\$90,000

\$90,001-\$100,000

>\$100,000

8) How much do you weight? What is your height?

Height: _____ Weight: _____

Diabetes

1. How old were you when you learned that you had diabetes?

a. How old are you now?

2. Did you know what diabetes was before you were diagnosed?

3. Do you feel the diabetes (e.g. do you have any symptoms)?

4. What do you think caused your diabetes?

5. Does anyone in your family have diabetes?

a. Do you know what kind of diabetes they have?

6. Do any of your friends have diabetes?

a. Do you know what kind of diabetes they have?

7. Do you go to the doctor on a regular basis?

a. Do you feel that your doctor is helpful in managing your diabetes?

8. Do you take any medications for your diabetes?

a. If so, what kind?

- b. How often do you take your medications?
- c. Do you find your medications to be affordable?
- d. Do you think that your medications are helping the diabetes?
- 9. Are you doing anything else to manage your diabetes (e.g. diet, prayer, etc.)?
- 10. How did it make you feel to learn that you have diabetes?
- 11. Do you get any support from your family in managing your diabetes?
- 12. Do you get any support from your friends in managing your diabetes?
- 13. How do you feel upon waking up in the mornings?
- 14. How do you feel when you go to bed at night?
- 15. Do you feel healthy?
- 16. Do you notice any changes in your body due to the diabetes?
- 17. Do you consider diabetes to be a serious disease?
- 18. What type of diet did you have before learning that you had diabetes?
- 19. Did you change your diet after learning that you had diabetes?

Depression

- 1. Do you think that you have depression?
 - a. Why so?
- 2. What do you think caused your depression?
- 3. When did you first develop depression?
- 4. Do you have any symptoms of depression?
- 5. Does anyone in your family have depression?
- 6. Have there been any major changes in your life?
- 7. Do you think that the members of your family would support you if you told them about your depression?
- 8. Do you think that your friends would support you if you told them about your depression?
- 9. Would you tell your colleagues that you have depression? Would you tell your boss that you have depression?
- 10. Have you talked to a doctor about depression?
- 11. Do you take medications for depression?
 - a. If so, what type?
 - b. How many times per day or per week do you take medications?
 - c. Do you think that your medications are accessible – can you buy them without problems?
 - d. Do you think that your medications help your depression?

Ataque de nervios

- 1. Have you ever had an *ataque de nervios*?
- 2. When did you have your first *ataque de nervios*?
- 3. What do you think caused your *ataque de nervios*?
- 4. How would you describe the experience of having an *ataque de nervios*?
- 5. How is an *ataque de nervios* different from depression?
- 6. Do you believe that your *ataque de nervios* can be inherited or from something that happened before being born?

7. Has anyone in your family had an *ataque de nervios*?
8. Have any of your friends had an *ataque de nervios*?
9. Were there other people with you when you had your attack?
 - a. If so, who?
 - b. Are those people close to you?
10. After your *ataque de nervios*, did you receive any type of help?
 - a. What kind of help did you receive, and from whom?

Multiple Illnesses

1. Do you think that there is a connection between your diabetes and depression?
2. Do you know if diabetes or depression developed first?
3. Has depression affected your diabetes?
 - a. How so?
4. Has diabetes affected your depression?
 - a. How so?
5. Does having both depression and diabetes influence how you see both illnesses?
6. Do you think that having both diabetes and depression make you sicker than you would be if you just had one?
7. Do you think that there is a connection between diabetes and an *ataque de nervios*?
8. Do you know if diabetes or *ataque de nervios* develops first?

Diet

1. What kinds of food do you normally eat?
2. How often do you go eat out at American fast food restaurants, such as McDonald's and Burger King?
3. Do you think that you eat mostly Puerto Rican food or other types of food (e.g. US food, Chinese food)?
 - a. Why so?
 - b. How do you define Puerto Rican food?
4. Do you think that there's a connection between diabetes and obesity?
5. Do you think that there's a connection between depression and obesity?
6. Do you think that obesity is a problem in Puerto Rico?
7. Do you think that obesity is stigmatized in Puerto Rico?
8. What kind of body images do you see in the media?
9. Do you feel pressure to be a certain weight?
10. What do you consider to be healthy food?
11. Do you do any kind of exercise?
12. What do you think

Other Health Conditions

- 1) Do you have any other health conditions?

- 2) Do you think that your other health condition(s) affect your depression or diabetes or vice versa?

STAGE TWO INTERVIEWS

Appendix H: Stage Two Interview Guide, English

- 1) Do you have a job?
 - a. What is your job?
 - b. Do you like your job?
 - c. Does your job cause you stress?
 - d. Do you think that your job made you sick?
 - e. Do you earn money from your job?
 - f. Do you think that there are enough jobs in Puerto Rico?
- 2) Is there a grocery store within walking distance of your house?
- 3) Is there a grocery store within driving distance of your house?
 - a. Do you have family or friends that are willing to drive you to the grocery store or a doctor's appointment?
- 4) Can you take public transportation to a grocery store?
- 5) Can you take public transportation to your doctor's office?
- 6) Can you afford healthy food on a weekly basis?
- 7) Do you consider your neighborhood to be a safe place?
- 8) Do you feel safe walking in your neighborhood?
- 9) What kind of food do you normally eat at home?
 - a. How do you prepare the food?
- 10) What do you consider to be Puerto Rican food?
- 11) What do you consider to be Hispanic food?
- 12) What do you consider to be American food?
- 13) Do you eat other kinds of food (e.g. Chinese food)?
- 14) Did you grow up eating Puerto Rican food?
- 15) How does Puerto Rican food influence your Puerto Rican identity?
- 16) Do you consider yourself to be American as well as Puerto Rican?
- 17) Do you consider yourself to be Hispanic as well as Puerto Rican?
- 18) What do you think is the normal body size in Puerto Rico?
- 19) Do you think that the media influences body size?
- 20) Did anyone in your family criticize your body size when you were a child?
- 21) Did any of your friends or anyone in your school criticize your body size when you were a child?
- 22) Does anyone in your family currently criticize your body size?
- 23) Has anyone else criticized your body size?
- 24) Do you think that healthcare is expensive?
- 25) Is there a doctor's office within walking distance of your house?
- 26) Can you take public transportation to the doctor's office?
- 27) Do you go anywhere else for health treatment?
- 28) Have you experienced discrimination at home, at work, in school, or a community center (e.g. a church) because you have diabetes, depression, or obesity?
- 29) Have you ever not been able to go to work or school because you have diabetes, depression, or obesity?

- a. If so, how much time have you missed?
 - 30) What do you consider to be traditional Puerto Rican culture?
 - 31) Have you ever been to the United States?
 - a. If so, were there any things in the United States that you liked and disliked?
 - 32) Do you think that people's health in Puerto Rico has changed?
 - a. How so?
 - 33) Do you think that there are any problems in Puerto Rico (e.g. unemployment, crime, unhealthy food, etc.) that affect the illness?
 - 34) Do you think that Puerto Rico should be a state, an independent country, or should remain as a Commonwealth?
 - 35) How do you think that Puerto Rican attaining statehood or full independence would influence health in Puerto Rico?
 - 36) Do you think that the United States has influenced health in Puerto Rico?
 - 37) Do you think that this illness has become a normal part of life in Puerto Rico?
 - 38) Do you think that this illness used to be a normal part of life in Puerto Rico?
 - 39) Do you think that the Puerto Rican government has done a good job in helping Puerto Rico economically and socially (e.g. with federal aid, with help fighting crime)?
 - 40) Do you think that the US government has done a good job in helping Puerto Rico economically and socially (e.g. with federal aid, with help fighting crime)?
 - 41) What do you consider to be a traditional Puerto Rican diet?
 - 42) Are there any Puerto Rican foods that protect against diabetes?
 - 43) Are there any Puerto Rican foods that protect against depression?
 - 44) Are there any Puerto Rican foods that protect against obesity?
 - 45) Do you think that classism, sexism, or racism are problems in Puerto Rico?
 - a. Why so?
 - 46) Do you think that classism, sexism, or racism affect health?
 - a. Why so?
 - 47) Do you think that there is a lot of violence in Puerto Rico?
 - a. Why so?
 - 48) Do you think that violence affects health?
 - a. Why so?
 - 49) What do you think about the economy in Puerto Rico?
 - 50) Do you think that the economy affects health?
 - a. Why so?
 - 51) Are you worried about affording treatment?
 - 52) Do you think that there is a difference between Puerto Rican treatment and US treatment?
 - 53) Do you consider Puerto Rico to be more Hispanic or more American?
-
- 9. Do you think that there is a connection between diabetes and depression?
 - 10. Do you know if diabetes or depression developed first?
 - 11. Has depression affected your diabetes?
 - a. How so?
 - 12. Has diabetes affected your depression?
 - a. How so?
 - 13. Does having both depression and diabetes influence how you see both illnesses?

14. Do you think that having both diabetes and depression make you sicker than you would be if you just had one?
15. Do you think that there is a connection between diabetes and an *ataque de nervios*?
16. Do you know if diabetes or *ataque de nervios* develops first?
17. Has an *ataque de nervios* affected your diabetes?
 - a. How so?
18. Has an *ataque de nervios* affected your depression?
 - a. How so?
19. Has obesity affected your diabetes or vice versa?
 - a. How so?
20. Has obesity affected your depression or vice versa?
 - a. How so?
21. Has an *ataque de nervios* affected your weight or vice versa?
 - a. How so?

Politics

1. Would you say that the Puerto Rican economy is
 - a. Excellent / Excellent 1
 - b. Very Good / Very Good 2
 - c. Good / Good 3
 - d. Regular / Fair 4
 - e. Mala / Bad 5
 - f. Very Bad / Very Bad 6
2. Do you believe that there is a connection between diabetes and the Puerto Rican economy?
3. Do you believe there is a connection between depression and the Puerto Rican economy?
4. Do you believe there is a connection between depression and the Puerto Rican economy?
5. Do you believe there is a connection between obesity and the Puerto Rican economy?
6. Do you believe there is a connection between hysterics and the Puerto Rican economy?
7. Do you believe that poverty affects health here in Puerto Rico?
8. Would you say that the Puerto Rican government is
 - a. Excellent / Excellent 1
 - b. Very Good / Very Good 2
 - c. Good / Good 3
 - d. Regular / Fair 4
 - e. Mala / Bad 5
 - f. Very Bad / Very Bad 6
9. Do you believe the Puerto Rican population has confidence in the government of Puerto Rico?
10. Do you think that the status of Puerto Rico as a Free State health influences PR?
11. Do you think that classism, sexism, or racism are problems in Puerto Rico?
 - a. Why?
12. Do you think that classism, sexism, or racism affect health?
 - a. Why?
13. Do you think that there is a lot of violence in Puerto Rico?
 - a. Why?

14. Do you think that violence affects health?
 - a. Why?
15. Do you think that being Puerto Rican is stigmatized? That is, do you think that Hispanics in Puerto Rican judge other countries, particularly is part of the US?
16. What do you consider to be Creole food?
17. Do you eat more local food or American food?
18. Do you think that it is easy to get treatment for mental illness?
19. Does your doctor speak with you about mental illness?
20. Do you consider Puerto Rico to be a state, an independent country, or a free State?
21. What do you think is the normal body size in Puerto Rico?
22. Do you believe that the media (e.g., TV or the Internet) influence the size of the body?
23. What you consider to be the traditional *Borriqueña* culture?

Appendix I: Illness Narratives

- 1) Please describe the experience of living with this illness.
- 2) When did you first develop symptoms?
- 3) What prompted you to see a doctor?
- 4) How long did you wait to see a doctor after you first noticed the symptoms?
- 5) Did you have any health problems before this illness developed?
 - a. Do you think that your previous health problems influenced this illness?
 - b. Do you still have other health problems that are not diabetes, depression, *ataque de nervios*, or weight problems?
- 6) Do you think that this illness is severe?
- 7) Were there any events in your life that may have caused this illness?
 - a. Would you describe those events?
- 8) Do you have a family?
 - a. If so, please tell me which of your family members are still alive.
 - b. Do you talk with any of your family members at least once a week?
 - c. Do you live with any of your family members?
 - d. Does/did any of your family members have any of these illnesses this illness?
 - e. Do you think that any of your family members made you sick?
- 9) Does/did any of your friends have any of these illnesses this illness?
- 10) Do you think that any of your friends made you sick?
- 11) Did your illness affect your life goals? (For example, did you go or not go to school due to the illness, receive or not receive a job, or start or not start a family?)
- 12) Were/are there any obstacles to your receiving the treatment you want?
- 13) How did you react to your diagnosis?
- 14) How did your friends and family react to your diagnosis?
- 15) Do you feel that your illness prevents you from socializing (with friends, family, at church, etc.)?
- 16) Do you think that the illness has become a normal part of life in Puerto Rico?
- 17) Do you think that diabetes is a stigmatized condition in Puerto Rico?
 - a. Why do you think that is?
- 18) Do you think that depression is a stigmatized condition in Puerto Rico?
 - a. Why do you think that is?
- 19) Do you think that obesity is a stigmatized condition in Puerto Rico?
 - a. Why do you think that is?
- 20) Do you think that an *ataque de nervios* is a stigmatized condition in Puerto Rico?
 - a. Why do you think that is?
- 21) Are you afraid of obtaining treatment for an illness because you are worried that someone will find out?
- 22) Do you take medications for this illness?
 - a. Does anyone know that you take medications?
 - b. How do you feel about taking medications?
 - c. Is taking medications stigmatized?
 - d. Do you take any other kind of treatment?
 - e. Which type of treatment do you prefer to use?
 - f. Do you think that there is a traditional Puerto Rican treatment?

- i. If so, which kind, and why so?
- g. Can you afford treatment?

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