MEDICAL PLURALISM AND THE CONTEMPORARY USE OF ALTERNATIVE MEDICINE IN PUERTO RICO

by

Sarah N. Haimann, B.A.

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Committee Members:

Reece Jon McGee, Chair

Emily Brunson

Ana Juarez

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1. INTRODUCTION

Medical pluralism refers to the co-existence of multiple healing options, methods or systems in a society (Ross, 2012, p. 29). In modernized communities, medical pluralism occurs where the dominant system of medicine legitimizes one form of medical practice but penalizes or limits others (Baer, 2008, p. 352). Although some medically pluralistic communities lack an established hierarchy between medical systems, most modern capitalistic societies enforce these inequalities in medicine (Baer, 2008, p. 352). To become a dominant medical system, one system must exert power over other medical systems by limiting but not eliminating them (Baer, 2011, p.413). Alternative medicine consists of healing methods and practitioners existing outside of the dominant medical system, specifically biomedicine. In this case, alternative medicine commonly represents the challenging *other*, the non-dominant, within a particular society at a particular point in time (Ross, 2012 p. 1).

Usually, alternative medical practices are viewed as "traditional" or unscientific forms of treatment. However, in some modern countries like China, biomedicine was the non-dominant because the Chinese viewed it as “quackery” and traditional medicine as legitimate (Leslie, 1980, p. 192-193). In this case, alternative medicine is “alternative” because it lacks legitimization within the dominant medical system and traditional medicine is a type of medical system that holds the ability to obtain legitimacy. Despite limitations for some medical systems, medical pluralism permits multiple systems to coexist.

Complementary and Alternative Medicine (CAM) refers to the conjunction of alternative remedies and biomedicine (Baer, 2002, p. 404). Unlike alternative medicine alone that substitutes for biomedical treatments, CAM combines them together. CAM thrives today because of biomedicine's increased of cost and the inability of doctors to address certain ailments (Baer, 2002, p. 404). As its popularity sores, institutes like the National Center of Complementary and Alternative Medicine (NCCAM) funded university-based centers to research complementary and alternative medicine (Coulter and Willis, 2004, p. 588). Many CAM groups use evidence-based medicine with more emphasis on the effectiveness of the treatment and less focus on the explanation or the causation (Coulter and Willis, 2004, p. 588). As a result, CAM becomes amore legitimized form of alternative medicine.

My thesis focuses on why Puerto Ricans use alternative medicine and how medical pluralism continues to exist in Puerto Rico today. Also, it focuses on how Puerto Ricans choose their medical treatments and what influences their choices in what type of medicine to use. In Puerto Rico, the concept of medical pluralism provides a context within which to study alternative medical practices. Puerto Ricans have a rich history of using alternative medicine despite the dominant Western biomedical system.

Alternative medical systems have prevailed throughout Puerto Rico's history from the mixing of indigenous Taino concepts with Spanish views of medicine in the sixteenth century, incorporating African concepts of disease and treatment with the importation of slaves in the seventeenth century, to the implementation of Western-style medicine in Puerto Rico during its colonization by the United States in the nineteenth

century. As such, I believe that the divisions in wealth, class, and spiritual beliefs found in Puerto Rico today are the basis for current alternative medical systems, just as wealth, class, and religion were influential in the sixteenth century.

I use the term biomedicine to refer to western-style allopathic medicine based in biological science (Ross, 2012, p. 1). Biomedicine is a type of ethnomedicine and its materialistic; it assumes that nature is physical and can be observed objectively though methods and instruments (Pool, 2005, p. 77). Like Western science, biomedicine has a reductionist viewpoint which separates the body and mind (Pool, 2005, p. 77) This form of medicine believes the body should be knowable and treatable in isolation (Pool, 2005, p. 78) Biomedicine is the dominant medical system in Puerto Rico, but accessible primarily to those with the sociopolitical and economic capital to afford it. In biomedicine, medical treatments such as drugs and vaccines are developed through controlled medical trials using thousands of test subjects. In contrast, alternative medical treatments such as those described in this thesis are not developed through rigorous scientific testing that focuses on the causation. Despite biomedicine receiving prestige and government control, alternative treatments continue to coexist with it in Puerto Rico today.

This study examines how economic, social and cultural factors restrict access to biomedicine and push individuals to practice alternative medicine. Practice Theory provides a mechanism through which to examine the economic, social, and cultural factors, that contribute to the use of alternative medicine and, in Bourdieu's terms, the "fields" that limit peoples' access to medical treatments in Puerto Rico today. In the next

paragraph, I present case studies to illustrate how Practice Theory reveals the way certain forces contribute to the practice of alternative medicine.

In the United States, biomedicine is highly accessible and encouraged, but biomedicine also faces scrutiny from marginalized groups. For example, George et al. (2006) claim that low-income African-Americans are more prone to use complementary and alternative medicine (CAM) for their asthma than Caucasians (p. 1317). According to George et al., one reason African-Americans use non-biomedical remedies is because they do not trust their doctors. The African-Americans interviewed in this study explained that doctors or the government were trying to use them for experiments (p. 1321). This is possibly because of historical factors such as the Tuskegee Syphilis Study but the article does not elaborate on this topic.

Secondly, familial and peer pressures encourage a more "natural" (not man made, or lab based) solution to health issues. For instance, in George et al.'s (2006) study, some were told by their families and peers to use the book Back to Eden (which focuses on herbal remedies and holistic health) and that herbal remedies were superior to biomedicine (p. 1321). They strive a more "natural" approach because it is socially encouraged. Lastly, George et al. claim that African-Americans accept a spiritual component to their medical treatment. In George et al.'s study, social and cultural forces affect African-Americans' choices in medical treatment. The low-income African-Americans in George et al.'s study lacked the economic, cultural and social capital to gain access to biomedicine. Consequently, they incorporate elements they can control such as spirituality in their selection of alternative medical treatment.

In his (2007) study of Traditional Chinese Medicine (TCM) and Viagra use in China, Zhang found that both health systems promoted the use of Viagra. However, Chinese men in this study tended to buy a few pills of Viagra instead of a full prescription and switched or combined them with TCM remedies (Zhang, 2007, p. 56-57). The Chinese men's economic and cultural factors and their historical circumstances made it possible/likely for them switch between medical practices. Zhang reported that Chinese men complained that Viagra was not affordable enough for the working class or the "laid off," and they said the pill represented a class hierarchy ensuring unequal access to sexual pleasure (Zhang, 2007, p.58).

Additionally, Chinese medicine, Daoism, and folk histories are cultural and historical factors that endorse using TCM for sexual impotence. For instance, Chinese men and women do not believe in quick fixes for sexual impotency. Instead, they believe that the recovery of their vitality and sexual desire promotes overall sexual potency (Zhang, 2007, p. 60-61). Also, folk histories impede the use of Viagra because many Chinese men believe the myth that aphrodisiacs force some emperors to die from ongoing sex stimulation (Zhang, 2007, p. 60-61). Chinese men believe that Viagra only provides penile erection and can ultimately "castrate" or deprive them of sexual potency by fixing their symptoms but not the causes of their impotence (Zhang, 2007, p. 62). To these men sexual potency symbolizes their vitality, and therefore, effects their overall health. In comparison, Americans view erections as a sign of sexual desire and Viagra as a solution for sexual impotency. Therefore, in Zhang's case study, these historical, economic and cultural forces limit Chinese men's medical decision to use Viagra as a solution to their sexual impotency, instead a way to fix a temporary problem.

Broom, Doron, and Tovey's (2009) case study focuses on the competitive forces between the practice of traditional, complementary, and alternative medicine (TCAM) and biomedicine in the Indian medical system. This study centers on the factors that determine patients' use of the two medical systems in their cancer treatment. Broom, Doron, and Tovey argue that historical circumstances as well as their lack of social and economic capital push Indians to use TCAM rather than biomedicine for cancer. One of the main factors for using TCAM for cancer is the notion that it is "Indian," and socially, Indians are more comfortable with TCAM because their families and peers consistently share TCAM knowledge (Broom, Doron, and Tovey, 2009, p. 701). Consequently, there is social pressure from family and peers that encourage Indians to rely on traditional medicine.

Additionally, India's economic disparities and the cost of cancer treatments limit Indians' access to biomedicine. Cancer treatments in India are incredibly expensive, and only wealthy people are financially well-off enough to pay for it. Most Indians are not wealthy; therefore, they prefer to pay less for alternative remedies (Broom, Doron, and Tovey, 2009, p. 702). In Bourdieu's terms, it is ethnicity and a lack of economic capital that restricts the field in which Indians make choices about their medical care. As a result, the embodiment of "being Indian," social pressure, and economic inequality drive the use of TCAM while restricting access to biomedicine for cancer treatment in India.

To appreciate the situation in Puerto Rico, it is crucial to understand the biomedical infrastructure at the macro level. The Puerto Rican biomedical healthcare system today faces structural challenges from factors such as privatization, economic

instability and low healthcare expenditures. In the 1990s, Puerto Rico shifted from an accessible public health care system to a health system that depends solely on contracts with private insurers (Perreira, Peters, Lallemand, and Zuckerman, 2017, p. 4). In 1993, *La Reforma* changed the government's role of providing healthcare to serve primarily as a health insurance. This system allows private sectors to take control of public health care, provide lower-income beneficiaries and increase consumer choice (Portela and Sommers, 2015, p. 587). Consequently, over the last three decades the public health system has become decentralized, with the administration of medical care and medical funding streams sent to discrete populations (Perreira, Peters, Lallemand, and Zuckerman, 2017, p. 4). Privatization has caused economic instability in the Puerto Rican public health care system with the government continuously needing to sell municipal bonds to pay for the cost of public services (Perreira, Peters, Lallemand, and Zuckerman, 2017, p. 5). Privatization increased in the public health care system; thus, caused the government to lose their control in the dominant medical system.

Economic instability in Puerto Rico is a result of its political status and debt crisis. Since 2005, Puerto Rico's economy faced an annual reduction of l% with no increase of their gross domestic product (GDP), which is the economic activity based on the income earned from producing goods and services (Merling & Johnston, 2017, p. 6). Because Puerto Rico is a colony of the United States, its economy is at the mercy of the United States' policy changes in the global market. For instance, negotiations made in the North American Free Trade Agreement (NAFTA) and the World Trade Organization (WTO) increased pharmaceutical drug imports from China and decreased its imports from Puerto Rico.

Currently, this situation has left Puerto Rico facing a debt of more than $70 billion which halted any future borrowings. The territory cannot declare bankruptcy like other U.S. states; therefore, the U.S. Supreme Court created the Puerto Rico Oversight Management and Stability Act (PROMESA) to implement a Fiscal Plan (Merling & Johnston, 2017, p. 10-11). However, the plan reduces funding for public institutions, such as Medicare and Medicaid, and federal minimum wage which leads to an increase in poverty and migration.

In 2018, Puerto Rico suffered through two Hurricanes, Irma and Maria. Hurricane Maria caused immense damage on the island with loss of electrical power and water sources and disabled telephone towers and radars. In the healthcare system, hospitals were running on generators, water supplies were stored in tanks and hospitals could not communicate with their staffs (Rodriguez de Arzola, 2018, p. 477). After hurricane Maria, the population, mostly unemployed and economically poor, decreased around 123,000 in one year (Schachter and Bruce, 2020) through migration and an estimated 114,000 to 213,000 of these same types of people continue to leave Puerto Rico per year (Meléndez and Hinojosa, 2017, p. 1). The main reason for emigration during the aftermath of Hurricane Maria is the increase of unemployment and poverty, therefore, Puerto Ricans migrate out of Puerto Rico to search for job opportunities and employment (Meléndez and Hinojosa, 2017, p. 1-2).

In 2015, Puerto Rico's median household income was $19,350. The poverty rate on the island was 41%, and per capita health expenditures for the commonwealth's population was $3,065 (ASPE, 2017, p. 1). In comparison, the United States' median

income average was $53,889, the poverty rate was 12%, and the total health expenditures per capita were $9,403 (ASPE, 2017, p. 1). Puerto Rico's health expenditures make up 10.5% of GDP (Departamento de Salud de Puerto Rico, 2015, p. 14) and the United States configures 16.8% of GDP (World Bank Group, 2020). Increased poverty levels, low-incomes and emigration rates contribute to low health expenditures, thus, lowering GDP in Puerto Rico. Consequently, this results in decreased economic productivity and medical funding.

In Puerto Rico, the public health insurances supply assistance options such as Medicaid and CHIP, and Medicare Part A, Part B, Part C (Medicare Advantage or MA) and Part D, Medicare Original and Medigap. Medicaid and CHIP (Children's Health Insurance Program) are medical plans that cover low-income individuals and children. Coverage ranges from prenatal care and pediatrics to long term services (Centers for Medicare and Medicaid Services, 2017, p. 4). Medicare Part A covers hospital care such as inpatient care, nursing home care and home health care (Centros de Servicios de Medicare and Medicaid, 2019, p. 2-3). Medicare Part B covers supplies and services needed to diagnose and treat medical conditions, and provide vaccines (Centro de Servicios de Medicare and Medicaid, 2019, 3-5).

Medicare Original is the combination of Part A and B, except a referral is not necessary for this plan and the individual must pay a premium for Part B (Centros de Servicios de Medicare and Medicaid, 2019, p. 7). Medigap helps cover the leftover co-pay cost in the Medicare Original plan. However, it does not cover dental, vision or long-term care and some areas might not have this policy (Centros de Servicios de Medicare

and Medicaid, 2019, p. 7). Medicare Part D provides coverage for medications and comes with a monthly premium but the individual needs to have either Medicare Original or Medicare Advantage (Centros de Servicios de Medicare and Medicaid, 2019, p. 6). Medicare Advantage is an "all-in-one" medical plan that combines Medicare Part A, B and D offered by private companies (Centros de Servicios de Medicare and Medicaid, 2019, p. 5). As a result, there are many plan options in the public healthcare system, but some have disadvantages.

In Puerto Rico's biomedical health care system, healthcare payments for Medicaid and Medicare Part B are restricted. Like all Americans, Puerto Ricans aged 65 and older or who have a disability are eligible for Medicare Part A and could pay up to $458 per month for premiums. Those who receive social security payments for 24 months are automatically enrolled in Medicare Part B, but United States residents are immediately enrolled without a wait time (Congressional Task Force on Economic Growth in Puerto Rico, 2016 p. 22-23). Additionally, low-income Americans, including Puerto Ricans, are eligible for Medicaid.

People who use Medicaid are supposed to have a monthly income of $550 or less for one household member. If there is more than one household member, the maximum monthly income must be $550 plus $100 extra per additional household member (Centers for Medicaid and Medicare Services, 2020). For example, for two household members, their monthly income must be $650 or less. To qualify for CHIP household members must have an income of no more than $1100 a month and children must be under 19 years of age (Centers for Medicaid and Medicare Services, 2020). As of August 2020, the

number of individuals in Puerto Rico who are eligible for Medicaid is 1.2 million out of 3.4 million of the population and 85 thousand are eligible for CHIP (Departamento de Salud de Puerto Rico, 2020). Despite the number of people eligible for public insurance, many Puerto Ricans are still without insurance because of funding and low reimbursement rates.

Medicaid and Medicare Part C funding and reimbursement rates add to the ongoing healthcare crisis in Puerto Rico. Medicaid does not receive federal reimbursements as a paid percentage; instead, it distributes a hard cap of $300 million per year. However, in 2016, Puerto Rico spends $2.46 billion in Medicaid. The United States use a Federal Medical Assistance Percentage (FMAP) to calculate funding based on per capita income and the federal government usually covers around 50% to 83% for the costs of Medicaid (Congressional Task Force on Economic Growth in Puerto Rico, 2016, p. 18). However, the formula does not apply to territories like Puerto Rico, keeping a hard cap of 55% when the territory needs a range of 70% to 80% (Congressional Task Force on Economic Growth in Puerto Rico, 2016, p. 18). As a result, the state government covers the rest of the 45% cost in Medicaid (Merling and Jonston, 2017, p. 1).

For Medicare Part C, the fee-for-service formula does not represent the actual cost of program in Puerto Rico. This medical plan uses a benchmark that represents the highest amount the Medicare Program will pay to cover the plan (Holahan, Skopec, Wengle, Blumberg, 2018, p. 4). In other words, the benchmark is the insurers monthly medical budget. The program places bids from the insurer's administrative costs and

profits (Holahan, Skopec, Wengle, Blumberg, 2018, p. 4). If the bid is lower than the benchmark, the enrollee receives the leftover money, but if the bid goes over the benchmark, they must pay a premium (Holahan, Skopec, Wengle, Blumberg, 2018, p. 4-5). In Puerto Rico, the benchmark average of $473 is 43% lower than the U.S. national average of $826 (Healthcare Community Leaders, 2016, p. 3). Participation level for Medicare Advantage in the United States is 30% and Puerto Rico is 75% which entails that United States is receiving more coverage in MA plans (Health Care Community Leaders, 2016, p. 3). Consequently, Puerto Ricans struggle to cover medical costs that go over the average benchmark. In short, funding and reimbursement rates for public healthcare are inadequate.

Because of the reduction of healthcare payments, the Puerto Rican public healthcare infrastructure provides low quality of care. The shortage of health care workers contributes to the reduced quality of healthcare. The average income for physicians and surgeons in United States is $208,000 per year (Bureau of Labor-b, 2020) and Puerto Rico is around $97,000 per year (Bureau of Labor-a, 2020), more than 2 times less than in the U.S. The economic differences explain the shortages of health care workers, if less money contributes to the public healthcare system, less money goes to the health care workers who then often opt to move to areas, like the continental U.S. where they can make more money.

Additionally, the lack of training opportunities and low salaries for medical residents, together with difficulties receiving contracts with health insurance plans have caused many physicians to emigrate to the United States (Perreira, Peters, Lallemand, and

Zuckerman, 2017, p. 14). There is also an uneven distribution of remaining medical specialists. Perreira et al. (2017) demonstrate that residents in municipalities outside of the San Juan metro area, lack access to health care providers. As a result, the biomedical healthcare system continues to encounter structural challenges, potentially leading to low quality of care and shortages of health care workers.

Under la Reforma, the health care system fragmented, limiting referrals, with poor coordination between specialists, and long wait times. In their 2017 study, Perreira et al. report respondents mentioning their minimal communication with health care workers, lack of preventative services, and poor care coordination. Additionally, the focus group described challenges in obtaining referrals for certain types of services or specialists. They claimed that wait times for doctor visits could last for many hours in a day, with physicians seeing up to 90 patients a day in some cases (Perreira, Peters, Lallemand and Zuckerman, 2017, p. 15). The median wait time for doctor visits and emergency services in Puerto Rico is nearly 13 hours between arrival and admission, and nine months for an appointment with a specialist (ASPE, 2017, p. 2). Improving wait times and care coordination is necessary, but there are currently few resources to improve the health care infrastructure. This is the health care situation in Puerto Rico today. Faced with these challenges, many Puerto Ricans turn to alternative medical therapies without much individual choice.

Alternative Medicine has a long history in Puerto Rico that I will elaborate in Chapter 3. In Puerto Rico today, most alternative treatments are botanical/plant-based, spiritual (i.e., spiritism, witchcraft, and Santeria), and nutritional supplements

(multivitamins and calcium). Puerto Ricans living in any location, either urban or rural, practice a variety of these medicines. In a pilot study of CAM use in Bayamon, Puerto Rico, Torres-Zeno et al. (2016) illustrated that of 203 Puerto Rican CAM (complementary and alternative medicine) users, 92% used both botanical and spiritual medicine over the course of 12 months. In the next couple of chapters, my thesis will observe how historical, economic, cultural, and social forces influence yet restrict Puerto Rican's individual choice of medical care.

2. METHODS

This thesis is a study of people who use alternative medicine in Puerto Rico. I selected my participants from the town of Guayama, Puerto Rico because it is called *ciudad bruja* (witch town). Historically, Guayama was a place where many Africans and black Puerto Ricans practiced spiritual and herbal medicine. The current population of Guayama is 39,465 persons (U.S. Census Bureau, 2020). Additional cities included in the results were Arroyo, Maunabo, Mayaguez, Cabo Rojo, San Juan, Carolina, and Rio Grande. Figure 1 illustrates the locations of the towns and populations estimates in Puerto Rico.

The participants were almost evenly divided between male and female, with 47.6% males and 52.4% females. The age is dispersed disproportionately with 13 individuals below the age of 30, 6 of them between the age of 40 to 64 years, and 2 who are 65 years and older. All participants were over the age of 21 because it is the age of majority, the threshold of adulthood recognized under the law in Puerto Rico. Table 1 provides some demographic information on the subjects in this study.

For recruitment, I tried snowball sampling because it proved most effective in the study. Snowball sampling allows existing participants to recruit their acquaintances as future subjects (Naderifar, Goli, & Ghaljaie, 2017, p. 2). However, not everyone had an equal chance of selection, and the final sample was non-specific. Additionally, the snowball sampling in Guayama led to participants from Arroyo, Maunabo, Mayagüez, Cabo Rojo, San Juan, Carolina and Rio Grande.

As a result, the sample size consisted of 21 individuals who practiced alternative medicine living in Puerto Rico. In Figure 1, of the 21 participants, 8 participants resided in Guayama, 4 lived in Arroyo, 3 were currently in Carolina, 2 occupied Cabo Rojo, and Maunabo, Rio Grande, San Juan and Mayagüez each had one inhabitant. The towns I mentioned resided in either the Southeast, West or North region in Puerto Rico. Cabo Rojo and Mayagüez were in the West; Guayama, Arroyo and Maunabo were in Southeast; and San Juan, Rio Grande and Carolina resided in the North. Mayagüez (West), San Juan (North) and Guayama (Southeast) were the only towns that had major hospitals—infrastructures that contained most medical resources combined (i.e. specialists, technologies and emergency care). Although initially I chose Guayama as my sampling base, data collected from participants who resided in towns without major hospitals can help ascertain underlying issues in the healthcare infrastructure such as shortages of healthcare workers and distance.

Virtually everyone in the study had health insurance, but the type of health insurance is determined by an individual's financial situation. 20 of the 21 participants in this study had medical insurance. As shown in Table 1, 8 of the informants have public insurance and 12 of them have private insurance leaving only one person uninsured. Given that 95% of my sample had health insurance, I was curious as to why they all still practiced alternative medicine rather than go to local doctors or hospitals. Also, I wondered if their insurance choice limits their ability to receive high-grade biomedical care, therefore, influencing their treatment selection.

Table 1. Demographics of Alternative Medicine Users. Includes participant's pseudonyms, city they resided, gender, age, and type of health insurance plan.

Psuedonym	City	Gender	Age	Type of Health Insurance Plan
Bella	Guayama	female	23	Private
Catilia	Guayama	female	46	Public
Cherry	Cabo Rojo	female	24	Private
Christopher	Guayama	male	26	Uninsured
Daniel	Rio Piedra	male	24	Private
Diana	Arroyo	female	51	Private
Elijah	Mayagüez	male	24	Private
Elizabeth	Cabo Rojo	female	68	Public
Elliot	Guayama	male	25	Public
Greta	Maunabo	female	66	Public
Iris	Mayagüez	female	24	Public
Israel	San Juan	male	24	Private
Jacob	Carolina	male	23	Private
James	Guayama	male	60	Private
Jessica	Guayama	female	53	Private
Lucia	Arroyo	female	50	Public
Maria	Arroyo	female	44	Private
Michael	San Juan	male	25	Public
Ria	Guayama	female	21	Private
Ricky	Guayama	male	21	Private
Wilson	Cabo Rojo	male	27	Public

All participants in the study used a primary alternative treatment and some of them use secondary alternative treatment that compliments the former. Table 2 illustrates how 9 of the 21 participants used botanical medicine as their primary alternative treatment with either supplements, cannabis or "none" as their secondary alternative treatment. 4 individuals used supplements as their primary choice with botanical medicine or "none" as their secondary choice. Exactly 3 informants practiced medical cannabis as their first alternative option with botanical medicine as their second. Two of the 21 participants practiced Ayurveda, with botanical medicine as their secondary alternative treatment. For Asian-inspired healing (not-classified) and *Santerismo*, only one practitioner in each alternative medical practice used them with botanical medicine as

the secondary option. It was clear that most participants who practiced alternative medicine integrated or combined other forms of alternative therapeutics.

More than half of the participants, 11 out of 21, experience health issues, specifically mental disorders and physical chronic disorders. Around 4 informants mentioned being professionally diagnosed with depression, anxiety or a combination of both. Up to 4 participants suffered from pain-related chronic disorders such as fibromyalgia, migraines, chronic back pain and arthritis. For possibly fatal chronic disorders such as diabetes, hypertension, hyperthyroidism and allergy-induced asthma, 5 out of 21 have one of these conditions. Knowing the health issues of some participants showcase whether their disorders contribute to their treatment selection. Table 2 illustrates these health issues.

Table 2. Types of Primary and Secondary Alternative Treatments and Health Issues

Psuedonym	Primary Alternative Treatment	Secondary Alternative Treatment	Health Issues
Bella	Supplements	N/A	N/A
Catilia	Botnaical Medicine	Supplements	Diabetes
Cherry	Ayurveda	Botanical Medicine	N/A
Christopher	Asian-inspired healings (non-classified)	Botanical Medicine	N/A
Daniel	Cannabis (unlisenced)	Botanical Medicine	Anxiety
Diana	Medical Cannabis	Botanical Medicine	Fybromyalgia and Hyperthyroidism
Elijah	Ayurveda	Botanical Medicine	N/A
Elizabeth	Supplements	Botanical Medicine	N/A
Elliot	Santerismo	Botanical Medicine	N/A
Greta	Botanical Medicine	Supplements	Arthritis
Iris	Botanical Medicine	Cannabis (unlisenced)	Anxiety and Depression
Israel	Botanical Medicine	Cannabis (unlisenced)	Anxiety and Depression
Jacob	Medical Cannabis	Botancial Medicine	Depression and Chronic Back Pain
James	Botanical Medicine	N/A	Hypertension
Jessica	Botanical Medicine	N/A	N/A
Lucia	Botanical Medicine	N/A	Diabetes
Maria	Supplements	Botanical Medicine	N/A
Michael	Medical Cannabis	Botanical Medicine	Depression
Ria	Botanical Medicine	Supplements	N/A
Ricky	Botanical Medicine	N/A	Allergy-induced Asthma and Migraines
Wilson	Supplements	N/A	N/A

For this thesis, I surveyed participants to investigate the personal reasons behind their use of alternative medicine. Everyone signed a confidentiality agreement, and I replaced their names with pseudonyms to protect their identities. Before starting the

surveys, I described the confidentiality agreement and the informants' right to op-out at any time. I explained that they were free to not answer any questions that made them uncomfortable, and I provided contact information for a free counselor if they felt any emotional distress. Participants could also refuse permission to be recorded. After I explained everything and they signed the permission form, I gave them a survey.

The surveys were to collect demographic data. Questions were semi-structured and open-ended so the participants could respond without restrictions. All surveys contained questions relating to participants' age, gender, nationality, type of insurance, types of medications they used, the average cost of their medicines and the frequency with which they visited medical professionals or alternative medicine healers. All participants answered the surveys. Data collected in the surveys were also compared with interview results.

Since the thesis is about the use and views of alternative medicine and biomedicine, I also used personal interviews to provide a deeper examination of survey responses. The interviews were semi-structured and comprised of questions related to the individual's experience with alternative medicine and biomedicine. Some of the questions focused on the type of medicines a participant used, how they used the medicine or therapy, the illnesses they were treating, and how they felt about the treatments. Additionally, I asked the participants about their access to biomedicine and alternative medicine, if they feel a historical and/or cultural significance for using either treatments, if they accept alternative medicine, and how and where they learned to use those alternative remedies. The majority answered these questions without issues.

After the interview concluded, informants decided whether I could follow up with participant observation. Participant observation allows the interviewer to observe certain practices in an intense involvement in the interviewee's natural environment over a period time. I engaged in participant observation with two people, an elderly female named Greta and a young female named Cherry. Both use alternative medicine, and they showed me their treatment processes and the plants they used for their treatments. The limitation of this method is the small data sample. They were the only participants who agreed for me to use participation observation. However, these observations provided me with a better look at how certain individuals use alternative medicine.

After recording interviews, I used content analysis to identify significant patterns in these conversations, and to evaluate the hidden meanings behind them. I used the recordings and coded the topics and phrases most used by participants in the interviews to understand the underlying reasons why participants used alternative medicine and how the alternatives coexist with biomedicine. This enabled me to establish a relationship with the informants' experience and the factors that influenced their treatment choices.

My research aims to discover the factors that limit peoples' choice of medical treatments in a medically pluralistic society. Surveys, interviews and participation observation provide extensive details of participants' medical choices and the barriers that limit their individual choices of medical care. Also, these methods help illustrate how the informants perceived the legitimacy of biomedicine and alternative medicine. As a result, this research outlines some of the patterns governing how medical treatment is chosen in Puerto Rico.

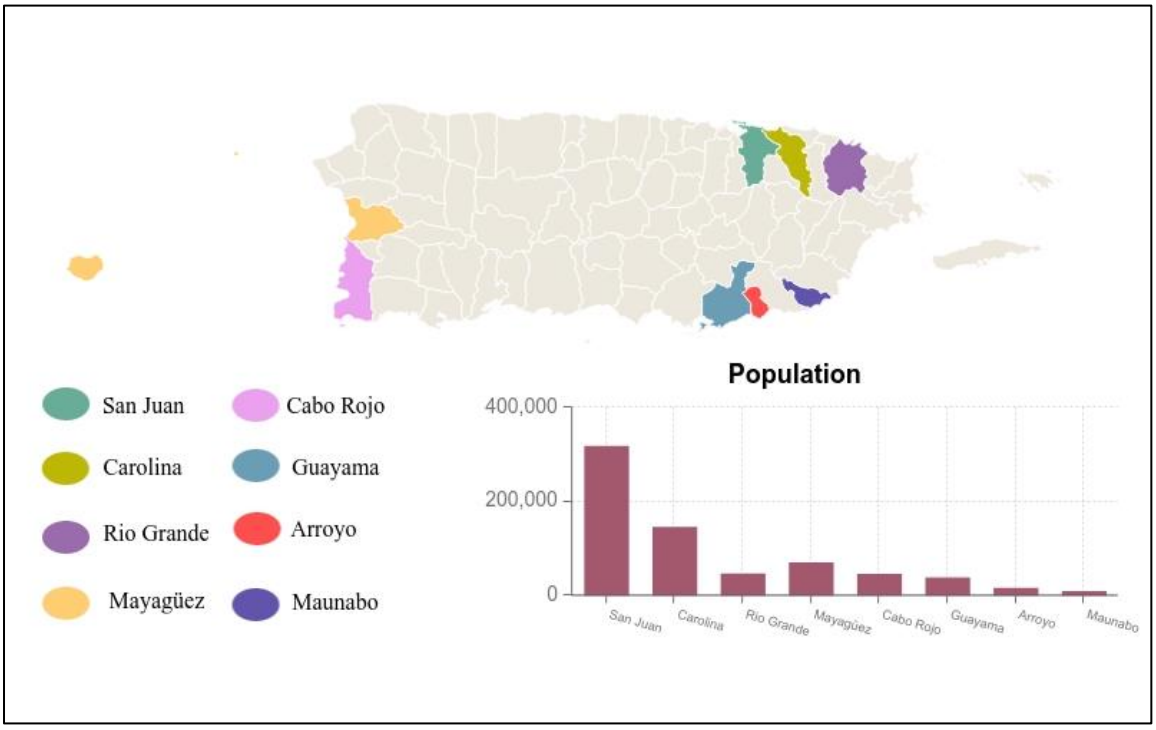

Figure 1. This is a map of Puerto Rico. The map is color coded with towns where all participants resided. Also, it contains a graph of the estimated populations in each town.

3. HISTORICAL BACKGROUND OF MEDICAL PLURALISM AND ALTERNATIVE MEDICINE IN PUERTO RICO

Botanical medicine and *espiritismo* are not recent alternative remedies in Puerto Rico nor is medical pluralism. In fact, both medical systems originated and coexisted during the settlement of Puerto Rico by Spaniards in the sixteenth century. Modern botanical medicine derives from the Spanish humoral theory of medicine integrating plants used by the Taino who were the indigenous inhabitants when the Spaniards arrived. Santeria has African roots and was developed out of the spiritual beliefs of African slaves. Since Puerto Rico was ruled by the Spaniards, humoral medicine at the time was the dominant medical system and African and Taino medicine were the alternatives. Understanding the historical circumstances behind Puerto Rico's medical systems can show how they influence today's medical practices.

Spanish colonial concepts of illness and treatment derive from the humoral theory of medicine (Newson, 2006, p. 377-378). According to this theory, the human body contains four substances that move freely through the tissues of the body (Foster, 1987, p. 359). These four elements are black bile (cold and dry), yellow bile (hot and dry), blood (hot and wet), and phlegm (cold and wet). A person was healthy if the four elements were in balance, but sickness occurred when they were out of balance (Benedetti, 1998, p. XV; Galli, 1975, p. 12-13). To treat those illnesses, an individual used different kinds of foods and plants to balance their body's humors. For example, if the body overheated as indicated by rashes (hot and dry) then a humoral medical practitioner would apply

healing remedies with a “cold and wet essence” such as *sábila* (aloe vera) to cool down their body.

In Spain at this time, the Catholic Church had power over medical practices. Priests viewed illness as a punishment from God or the work of the Devil, and they viewed healing remedies outside of the humoral system, such as witchcraft, as a pact with the Devil (Newson, 2006, p. 372). As the Catholic Church focused on policing medical practices and spirituality, the Church also created colonial hierarchies in Puerto Rico during the Spanish Conquest. When Spaniards took over the island *Boriken* (Puerto Rico) from the indigenous Taino, they observed Taino medical practices and beliefs about illness and treatment. In the eyes of the Spaniards, Taino medicine was like witchcraft (Pané, 2004 [1498], p. 35). In his *Relación*, Father Ramón Pané described the Taino’s form of healing (2004).

According to Pané, the *bohíques* (Taino shamans) diagnosed their patients after snorting *cohoba* (a narcotic snuff made from the seeds of a tree (Piptadenia perregrina). After consulting with their *cemíes* (stone or wood figures containing human bones that represented their gods), the *bohíques* purged themselves through the consumption of *güeyo* (unidentified), a type of plant wrapped in onion leaves used for purification. After vomiting, the *bohíques* then conducted a healing session with their patient in which they located and removed the illness (or disease-causing spirit) through intimate gestures (i.e. touching and massaging their patients). As they worked, the *bohíque* explained to their patient the reasons they were sick and described the treatment that might cure their ailment (Pané, 2004 [1498], p. 35-37).

The Spaniards disregarded Taino medical practices because they contradicted Spanish religious and medicinal beliefs (Pané, 2004 [1498], p. 35-37). They tried to convert the indigenous Taino to Catholicism but failed because of their cultural differences, and although the Taino population was soon extinguished, the Spanish colonists retained the Taino knowledge of medicinal plants and integrated that information into their existing notions of medical treatment. For example, Spaniards adopted tobacco to treat headaches and wounds and sent the plant back to Spain to cultivate (Caballos, 1997, p. 193).

Additionally, Spaniards learned about *Guayacán* and *bálsamo. Guayacán* (*Guaiacum officinale or Lignum vitae*) is a tree whose bark and sap are used to treat a variety of ailments including asthma, coughs and cold-like symptoms (Caballos, 1997, p. 193). By 1530, the Bubas de Sevilla hospital in Spain was importing large quantities of the *Guayacán* bark (Caballos, 1997, p. 193). *Bálsamo* (*Myroxylon balsamum*) is a tree whose bark contains an oily sap that was used to treat cuts and minor wounds (Caballos, 1997, p. 193-194). To administer this healing remedy, they rubbed the sap from the *bálsamo* on their wound (Fernández de Oviedo y Valdés, 1818-1878 [1851-1855], p. 366). Additionally, the Spaniards integrated their use of plants brought from Spain including oranges, lemons, limes, and aloe that were originally transported from Asia and the Middle East (Fernández de Oviedo y Valdés, 1818-1878 [1851-1855], p. 56 and 86). This integration of Spanish and Taino healing plants resulted in a system still used in today's botanical remedies.

During the conquest of Puerto Rico, Spaniards also brought African slaves to the island. These slaves practiced Yoruba-based spiritual and herbal medicine that is the basis for today's *espiritismo*. *Espiritismo* is a modified version of African Yoruba healings practices. Perez y Mena (1991) describe *espiritismo* or Spiritism in the following manner:

> ...an actual movement, where a group of people get together in a temple-like setting for the purpose of communal healing, counseling and communication with higher spirits to obtain guidance and illumination as well as enlightenment of intranquil [sic] or dark spirits (p. xiv).

In Puerto Rico today, *espiritismo* contains Yoruba beliefs, elements of Puerto Rican Catholicism, and French Spiritism (Perez and Mena, 1991, p. 1). *Espiritismo* is based in the worship of ancestors, and practitioners seek balance between the secular and spiritual world. The purpose of spiritism is to "cool" down the environment and eliminate negative energy (Vega, 1999, p. 351).

Despite the coexistence of Spanish and African medicine, African slaves in Puerto Rico faced oppression and persecution for practicing their religious beliefs (Badillo and Cantos, 1986, p. 151-152). Spaniards persecuted those who worshipped the African gods, forcing slaves to conceal their rituals (Badillo and Cantos, 1986, p. 152). To disguise their religious practices, Africans used Catholic ceremonies and relics to mask their traditions. For instance, Kongo's "sign of the cross", also known as the Kongo cosmogram, resembled the crucifixion (Thompson, 1984, p. 108). In this manner, Africans integrated their indigenous practices with Spanish Catholicism to counter

religious persecution without changing their concept of health and illness. In turn, this preserved a system of ritual healing based on Yoruba spiritism giving space to future spiritual-based practices.

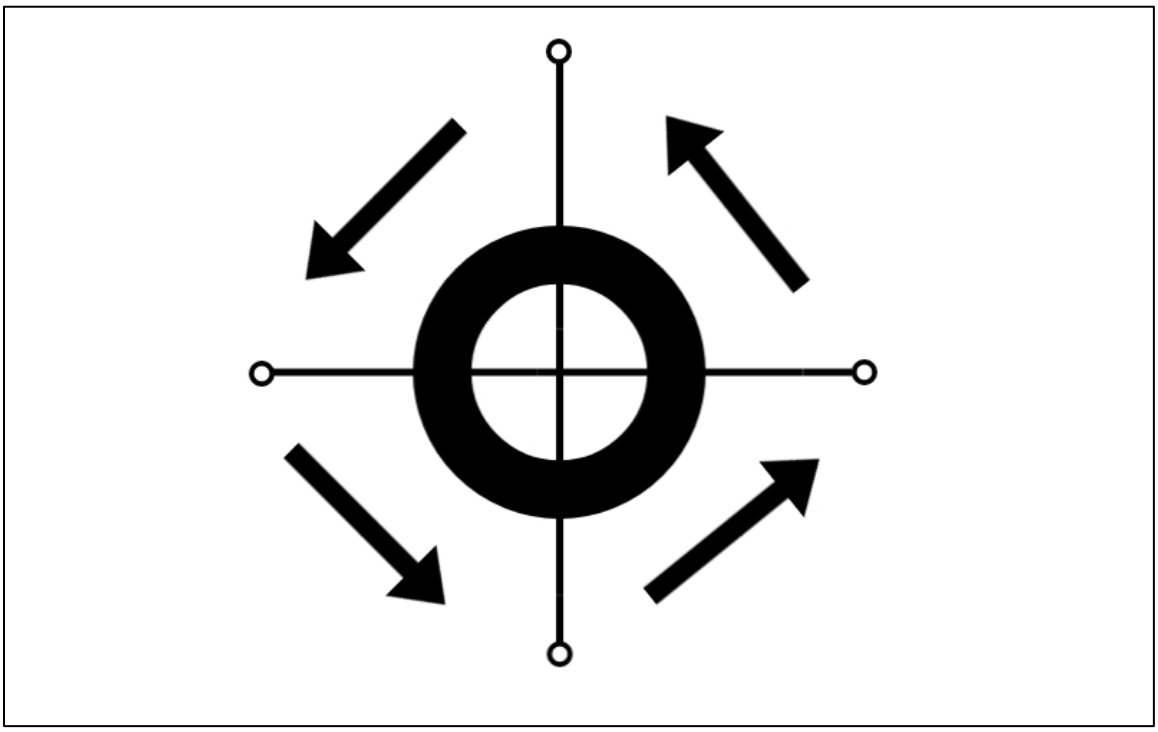

Figure 2. Kongo Cosmogram.

In the 19th century, the Spanish government implemented a European-based system of biomedicine, in Puerto Rico. The Royal Delegation of Medicine and Surgery (RDMS) was a powerful organization that legitimized and professionalized medical practices in Spain and its colonies, including Puerto Rico (Rodriguez San Pedro, 1865, 324). An individual had to register through the RDMS to become a medical professional and would only be able to receive a license after passing examinations and receiving a government license (Rodriguez San Pedro, 1865, p. 325). The RDMS penalized any form of treatment without the proper license and registration (Rodriguez San Pedro, 1865, p.

325). Consequently, those who practiced African medical rituals faced persecution because the Spaniards disapproved any treatment that was not their own (López Terrada, 2005, p. 10). As a result, alternative medicines based on Taino botanical knowledge and African spirituality were delegitimized.

During the colonial Period there existed three conflicting medical systems in Puerto Rico, Spanish humoral medicine being the dominant, and Taino and African medicine representing the repressed alternatives. However, the processes of integration and syncretism assisted in the coexistence between the dominant and alternative practices. Spanish humoral medicine and its integration of Taino plants influenced the conceptual framework of botanical medicine. Spanish Catholicism and African spiritism adopted Catholic elements to create the religious and philosophical roots of Santeria and other spiritual-related practices. Biomedicine and the professionalization of medical practitioners evolved from the Spaniards' policies of licensing and regulation. Although each medical practice borrowed elements from the others, their underlying concepts of health and illness maintained the distinctions between them. Additionally, each ethnic group had reason to incorporate elements of the different medical practices while preserving their cultural beliefs. The Spaniards learned how to use Taino plant remedies to heal specific conditions they encountered in the Caribbean and Africans used Spanish Catholicism to escape religious persecution.

Unlike the Spanish humoral system, spiritualism was the basis of Taino and African medicinal practices. Both ethnic groups were penalized for their medical and religious customs, but they lacked the wealth and class necessary to gain full access to the

dominant medical system. They had to choose between Catholicism and humoral medicine or their original religious and medical practices. These significant barriers affected non-Spanish individuals' choice in medical treatments. Although their reasons for choosing are slightly different than today's medical pluralism, these circumstances are embedded in Puerto Rico's history, therefore, it is not a newfound occurrence.

Medical Pluralism Today

Today, medical pluralism exists in Puerto Rico where many individuals tend to use more than one type of medicine. Most participants use alternative medicine as their primary care although a few use biomedicine or complementary medicine—a combination of alternative medicine and biomedicine—as their first choice. However, Puerto Ricans constantly switch between biomedicine and alternative medicine when it is necessary and expressed a consistent set of reasons for using biomedicine. All participants reported switching to biomedicine as a last resort for extreme cases (i.e. injuries that might require surgery), for chronic diseases (i.e. diabetes, hyper or hypothyroidism, asthma and hypertension), and for dental work. Those participants whose first choice was an alternative treatment and only used biomedicine as a last resort insisted that they use it when alternative medicine showed little to no effect. If treatment with alternative medicine was prolonged, or the illness progressively worsened, the person immediately sought access to biomedicine.

A participant's first choice of treatment was usually biomedicine only for extreme cases. Participants believed that biomedicine was the only medical practice that could manage serious injuries such as open wounds or bodily disfiguration. They believed that

specialists in biomedicine had the expertise for surgical treatment of extreme injuries or pathologies that alternative medicine failed to heal. Because biomedicine is the only medical system practicing surgical treatments, a person with life-threatening injuries will search for biomedical care.

Treatment of chronic diseases are another reason that participants would switch from alternative medicine to biomedical care. Informants mention using biomedicine for chronic diseases such as diabetes, hyper or hypothyroidism, asthma, and hypertension. For instance, Lucia, a 51-year-old resided in Arroyo, has Type-2 diabetes and Ricky, a 21-year-old living in Guayama, has allergy-induced asthma and migraines; they both use biomedical treatments to stabilize their chronic diseases. Lucia uses pills to reduce blood sugar spikes. For Ricky, he said, "umm asthma medication, medication for my migraines is like the main thing... I just get allergies basically daily and migraines weekly... yeah I have asthma, I use like the pumps or this machine therapy thing basically a mask that shoots mist into the face to breathe in."

One participant who uses alternative medicine as her primary form of care admits to using biomedicine for dental work. Cherry, a 24-year-old living in Cabo Rojo, barely uses biomedicine. In fact, she insisted that she rarely visits a medical practitioner even for emergencies. In regards to biomedicine, Cherry said "western medicine for me is that they try [to heal] symptoms but not the problem and also the very fact that like it just any minimal thing will cost you an eye like it's very expensive when you know having a plant in a small pot can do wonders..." However, even though she believes alternative medicines protect her from most illnesses, she depends on biomedicine for her dental

health. Cherry's account illustrates another reason why participants switch to biomedical treatment, that is when biomedicine is the only available treatment.

On the other hand, participants used alternative medicine for a variety of non-life-threatening illness. Many of the participants explained that their *feelings* of the illness help them diagnose and treat their conditions. Participants mention when they feel a familiar disharmony (or symptoms) in their body and/or mind they tend to use certain plants or spiritual practices to treat the ailment. For example, if an individual has a sore throat and fatigue, they assume they have a throat infection and they treat it with ginger, lemon water and/or spiritual healings to ease the symptoms.

Cherry mentioned a time when she started experiencing symptoms that she believed to be the flu: fever, body aches, sore throat, runny nose, and a cough. To reduce her symptoms, Cherry used garlic for inflammation, rosemary for muscle pain, and ginger for inflammation and joint pain. Sometimes she eats these plants raw or boils the whole plant to make teas. Cherry claimed that her symptoms faded in two days; a shorter recovery compared to her friend's almost one-week biomedical treatment for influenza. She said,

> As I explained about the influenza, este I passed it to my housemate, and it was so awesome to see the contrast actually. Cause she was like umm she was like 'yo you gotta go to the hospital... this ain't cool... you're gonna be sick for days!' And she was like totally like umm como que very skeptical and also umm yeah not buying it like what I was doing, and she went to the hospital, le pusieron suero, she was in the hospital for hours actually and they were telling her a bunch of

> junk. And umm they prescribed some pills I don't know what they have. And meanwhile all I did was just like... stay in bed have tea, lots of tea of anís, adding garlic and eating the garlic clove too... Yeah within two days I was fine, and she was sick for like 5... [As I explained about the influenza, well I passed it to my housemate, and it was so awesome to see the contrast actually. Cause she was like umm she was like 'yo you gotta go to the hospital... this ain't cool... you're gonna be sick for days!' And she was like totally like umm well very skeptical and also umm yeah not buying it like what I was doing, and she went to the hospital, they put an IV on her, she was in the hospital for hours actually and they were telling her a bunch of junk. And umm they prescribed some pills I don't know what they have. And meanwhile all I did was just like stay in bed have tea, lots of tea of garlic, adding garlic and eating the garlic clove too... Yeah within two days I was fine, and she was sick for like 5...].

In this manner, Cherry reinforced her belief in alternative medicine. As a result, individuals liker her use alternative medicine to treat common illnesses.

One thing that is clear from my study is that the participants used biomedicine and alternative medicine in different contexts. While they reported using biomedical treatments for afflictions requiring surgery and for chronic diseases, participants used alternative therapies for preventative care and pain-related disorders such as chronic back pain and fibromyalgia. While some participants reported using alternative treatments to prevent the worsening of their symptoms, most of the time they view alternative medicine as preventive care.

For instance, Rick's allergy-induced asthma is controllable, and he treats it with an inhaler and medication (pills), but for allergic symptoms and migraines, he switches between biomedicine and alternative medicine. Ricky uses the tea to lessen his dependency on biomedical treatments to prevent a high intake of "unknown chemicals." He uses *guanabana* (soursop) tree leaves tea weekly to reduce allergy symptoms and prevent his asthma from worsening. Ricky said, "so I used tea, like guanabana leaves tea for allergies like for asthma so it doesn't... get worse." However, he uses an inhaler and/or medication to stabilize his condition. Ricky boils the entire guanabana in water and then drinks the tea. For migraines, he digests poached eggs with sugar weekly. He receives these plants from his grandmother, who usually has them in her yard. Ricky believes alternative treatments lessens his condition by reducing the symptoms contributing to his disease. Also, switching between biomedicine and alternative remedies helps establish a balance and reduce co-dependency biomedicine.

In Lucia's case, she uses medication for her Type-2 Diabetes but sometimes uses teas as her preventive and secondary care. She uses anti-diabetic pills to keep her blood sugar at a reasonable level but admits not using the medication prescribed by her physician on a daily basis. Lucia said, "usar bastante la canela ayuda. Usar bastante la canela te ayuda como mantener esa azúcar como controlada, pero la canela de polvo para echarse en la batida, como en la limonada, con azúcar en te..." ["using a lot of cinnamon helps. Using a lot of cinnamon helps you, like maintain that blood sugar like controlled, but powdered cinnamon can be placed in milkshakes, same with lemonade, with sugar in tea..."]. She uses powdered cinnamon whenever she feels she need a "natural" remedy, to keep her body from constantly digesting "unknown chemicals" in pills. Lucia buys

cinnamon from local grocery stores. She depends on biomedical treatment more than alternative medicine because, for her, type-two diabetes is a serious condition, and she believes biomedicine provides effective treatment. Ricky and Lucia's accounts demonstrate that they consistently switch between biomedicine and alternative medicine.

Individuals who use alternative medicine to treat their chronic pain suggest that biomedical treatment fails to treat them because of the harsh side-effects. These side effects include feeling lethargic, permanent liver damage, and depression. Participants with chronic pain also reported that they felt their mental health, especially depression, was ignored by their physicians. For them, alternative medicine was preferable because they felt the depression caused by their pain was also treated in their alternative therapy. Interestingly, most of this study's informants treated their chronic pain and depression with medical cannabis—a regulated form of alternative medicine. Although medical cannabis is controlled through biomedicine, it is an alternative remedy because it is unscientific (like botanical medicine), lacks health insurance coverage, doctor's lack of control for its usage, and it is still federally illegal.

Jacob, a 23-year-old residing in Carolina, uses medical cannabis to treat his chronic back pain and inflammation. His doctor diagnosed him with chronic back pain with unknown causation and recommended painkillers or a license for medical cannabis. He rejects biomedical treatments, such as painkillers, to ease his back pain because of the harmful side effects. Jacob said, "I felt like some of the pills they don't really work, or they weren't really strong enough so yeah I just wouldn't... It's just also feeling like just taking them I don't know... I don't feel like it. Yeah, I just don't feel like it worked, you

know, it made me feel very not me I guess... Just groggy like not my one-hundred percent." In contrast, medical cannabis significantly relieves his chronic back pain and without causing those harsh side-effects. To administer medical cannabis, he either smokes the plant through smoking pieces (i.e. bongs and pipes), vapes it or eats edibles such as cannabis infused brownies or gummy bears. Because of medical cannabis, Jacob can live a happy and comfortable life without the constant pain in his back.

Diana, a 51-year-old female living in Arroyo, is another medical cannabis advocate and practitioner. Diana has fibromyalgia and hyperthyroidism. She uses biomedicine for hyperthyroidism and medical cannabis for fibromyalgia. She stated that hyperthyroidism needs biomedical treatment because of its life-threatening symptoms. However, fibromyalgia is non-fatal. Since painkillers limit her productivity, she uses medical cannabis to treat the pain from fibromyalgia. Diana only smokes cannabis because it relieves her symptoms faster than any other form of administering. Diana specifically reported that, "trabajé relaxed sin nada de dolor. La clienta [dijo], 'Oye, ¡Diana! ¿A ti la en vegeto se te acabo verdad? ¡Y tú no está como la vieja! En este Navidad tú no te quejaba... de tu dolores! ¡Diana, yo no te escuchado quejándote! ¿Que tú estás haciendo?' Y pues me ayuda sentir mejor que antes y puedo trabajar sin nada" ["I worked relaxed without any pain. My client [said], 'Hey, Diana! Your old age finished up right? And you are not like the elderly! This Christmas you are not complaining... of your pain! Diana, I don't hear you complaining! What are you doing?' And well it helps me feel better than before and I can work without any problem"].

Today, medical pluralism thrives in Puerto Rico's culture. The reasons Puerto Ricans switch between biomedicine and alternative medicine correlates to the severity of their disease or illness, if the individual needs preventive or immediate care (i.e. emergencies), or they need dental work. Most participants use alternative medicine as their first choice if their condition is non-fatal; however, they search for biomedicine if their lives are in danger or if alternative treatments fail them. In this sense, individuals switching between biomedicine and alternative medicine is a common practice, compared to its history during the sixteenth century.

During the sixteenth century, the Spaniards, Taino and Africans faced class, wealth and ethnic barriers in their choice of medicinal practices. Also, they lacked the option to switch between medical systems. Today, Puerto Ricans have more agency for switching either biomedicine or alternative medicine despite their class or ethnicity.

4. ECONOMIC, SOCIAL AND CULTURAL FACTORS CONTRIBUTING TO THE STRUCTURAL CHALLENGES IN PUERTO RICO'S PLURALISTIC MEDICAL SYSTEMS

Economic, social and cultural "fields" limit access to biomedical treatment in Puerto Rico. Although Puerto Ricans have a choice to use either biomedicine or alternative medicine, certain social forces constrain these choices. To understand how medical pluralism operates in Puerto Rico today, it is important to observe unequal access to economic, social and cultural opportunities, what Bourdieu called a person's "capital" (Bourdieu, 1986, p. 243), that encourage Puerto Ricans to stray from mainstream biomedicine.

One of the main forces pushing Puerto Ricans to use alternative medicine is their lack of economic capital. One consistent problem that arises is the cost of biomedicine. Some of the individuals in the study use private insurance to pay for their medical treatments. While private insurance reduces the overall cost of treatments and doctor visits, private insurance requires a monthly payment and the paying of deductibles and copays. Further, a patient must choose doctors and services from within the insurance company's network of providers, which can make access to a doctor difficult. Some Puerto Ricans using private insurance can access this system because they have the economic capital to pay for biomedical treatments while those who use public insurance or do not have insurance cannot afford the same level of care. However, the cost to receive private insurance is higher than public insurance. A popular private insurance like *Plan de Salud Menonita* the premium for one individual is around $120 with high-grade

quality and Medicaid's premium is free of charge but with poor quality. Therefore, the cost of private insurance limits Puerto Ricans' access to biomedicine and encourages them to use alternative medicine.

Most of the young adults in this study (whose ages ranged from 21 to 25), using private insurance complained about the cost of the co-pay, but older adults in the sample did not. Even though they are under their families' insurance, young adults preferred to avoid biomedical treatment because it costs ten to fifteen dollars, sometimes more. Most Puerto Rican young adults were unemployed or students; therefore, copays for doctor visits, medical tests, and medications quickly add up. Consequently, as payments increase, young adults can no longer afford biomedicine. As a result, the high cost of co-pays from private insurance is another reason to search for alternative medicine.

Bella, a 23-year-old who lived in Guayama, has private insurance and explained her problems going through the proper biomedical procedures. She, as many others, preferred to skip the procedure and go straight to treatment. She did not have a general doctor, if she needs to, she will go to a clinic for diagnostics and treatment. Bella had a problem paying more than her usual co-pays for a gynecologist, enforcing her to search for cheaper resolutions. She resolved it by using her university's clinic, called Clínica Préven, a clinic like Planned Parenthood where they provide women's care such as sexual education and contraceptives. However, she dislikes the low-quality of care and prefers to avoid it. Eventually, she started experimenting with alternative remedies like multivitamins, probiotics and immune boosting supplements. Bella said,

> Puej este I don't have a specific doctor; este I just go to a clinic que yo sepan como que I don't go to a specific doctor. Pero like [for] gynecologist, I always choose, obviously como que that is [it] yeah. Like I only have two gynecologist y una era de Ponce. Obviamente I don't go to her anymore y tambien es cara… Este ella como era 30 bucks y like una vez yo tuve que pagar 15 [dollars] solamente porque ella me llevan los resultados. I was like 'I don't wanna come here anymore.' [Well I don't have a specific doctor; I just go to a clinic that I know of like I don't go to specific doctor. But like [for] gynecologist, I always choose, obviously like that is [it] yeah. Like I only have two gynecologists and one of them was from Ponce. Obviously, I don't go to her anymore and she was expensive… She was like 30 bucks and one time I had to pay 15 [dollars] only because of the results. I was like 'I don't wanna come here anymore'].

If the individual is not fortunate enough to afford private insurance, they have the option to acquire public insurance. The types of public insurance in Puerto Rico are Medicaid and Medicare. There were two individuals in my study who are over 65 years of age and use Medicare. They expressed less concern about the cost of their insurance than my younger participants. They pay a monthly fee of around $100. The participants who use Medicare reported that their biomedical treatment and diagnostics were free of charge and showed no concern for the cost. However, they mentioned that the quality of care was poor. They complained of long waiting times, the distance to the doctors' offices, and shortage of medical staff that contributed to the low-grade quality of their healthcare. These issues also pushed Medicare users to search for alternate treatments, such as botanical medicine and supplements.

Low-income individuals who are younger than 65 are eligible for Medicaid. All participants in the study who used Medicaid show no concern with treatment costs because they are free most of the time. However, they also had trouble with long wait times for appointments, and referrals. Many informants explained that they must wait long hours for the doctor to see them: an average of one hour or more. If they need a referral, it may take from a few days to a week to receive it. Afterwards, they must wait from a few weeks to a year for an appointment with a specialist. The low federal and state funds for healthcare and migration of healthcare workers cause long wait times for appointments and referrals. Many medical staffs and potential physicians emigrate from Puerto Rico because other countries like the United States provide higher incomes, resulting in a shortage of doctors thus prolonging wait time in the healthcare system. These structural challenges in the public health care system make patients lose interest in biomedicine. Therefore, these barriers drive people to find a quick way to treat their ailments by using alternative remedies.

If the individual is not eligible for Medicaid or Medicare, then they must choose either to purchase private insurance or to have no medical insurance at all. One interviewee, whose pseudonym is Christopher, explained that when he turned 26, the insurance company removed him from his family's plan. While he was eligible for public insurance, he lost faith in the system overall. It was difficult to receive public insurance and the healthcare system's poor-quality care made him lose interest. As a result, Cristopher prefers to use Asian-inspired spiritual healing and botanical treatment instead of biomedicine. His experience shows how being uninsured limits his access to biomedicine and that he copes with that limitation by practicing alternative therapies.

The cost of alternative therapies varies. The types of alternative medicine practiced by participants in this study include botanicals including medical cannabis, Santeria, Ayurveda, and supplements. The least expensive alternative treatments are botanicals and Ayurveda ranging from zero to fifteen dollars. The most expensive are Santeria and medical cannabis ranging from fifteen to almost a hundred dollars. Supplements are in the middle costing around ten to no more than twenty dollars. However, how individuals use these alternative treatments can change the cost drastically.

In botanical medicine, practitioners diagnose their ailments using humoral theory of medicine and treat it with plants and foods or an extraction of both. These treatments are in the form of tinctures, teas, topicals, and/or direct consumption from the plant (Benedetti, 1998). Many participants use botanical medicine and believe in its concept of disease and illness. The procedure varies person to person because it is mostly self-administered. For example, some individuals believe *guanabana* (soursop) helps allergies while others believe the treatment is with mint or eucalyptus. If the individual's body shows any signs of abnormality, the patient assesses the problem and uses a plant to remove the symptom. If the patient has a sore throat, they drink water with the entire lemongrass plant. For several days they drink the liquid to relieve the pain. Therefore, botanical medicine is a plant-based medicine.

Participants say that the price for botanical medicine is relatively cheap or free. The cost is low because many individuals either have the necessary plants, they know people who have the plants, or the cost of the plant bought from a local grocery store or

farmer's market is generally low. Participants felt that botanical medicine was easily accessible. If they were unsure of a treatment, they asked a friend or family member for their input, free of charge. Consequently, participants found the informality and accessibility of botanical remedies attractive, especially when they faced financial challenges.

Like Cuban Santeria, Puerto Rican Santeria derives from folk Catholicism and African *espiritismo*. During the Cuban Revolution in the 1950s, Cuban immigrants brought the practice of Santeria to Puerto Rico (Romberg, 2003, p. 152). However, Santeria in Puerto Rico is different than the original Cuban practice because they incorporate *espiritismo*. In fact, it can be argued that Puerto Rican Santeria should be called *Santerismo—espiritismo* and Santeria. For instance, those who practice Cuban Santeria follows the seven *orishas*—the divine powers or gods—but *Santerismo* integrates *orishas,* Amerindian spiritual entities and Catholic saints.

The main rituals in *Santerismo* are *santiguos* (healing blessings), *despojos* (spiritual blessings) and *veladas de la mesa blanca* (nighttime spiritual gatherings of the white table) (Romberg, 2003, p. 152). In Puerto Rico, *santiguos* is a curing ritual where the *Santerx* rubs olive oil on the client's belly, forming it into a cross and pray (Romberg, 2003, p. 165). Elliot explains that *despojos* provide a spiritual cleanse to ward off the evil spirits and negative energies in their clients. This practice depends on *Santerxs* inspiration or guidance from the spirits, sometimes it is a bath or a massage. *Veladas de la mesa blanca,* or *veladas* for short, is a nighttime seance to contact spirits of the past and provide guidance and protection. This practice never changes and many *Santerxs* use

it. The constant changes of medical and spiritual practices in *Santerismo* comes from a lack of "Africanness" and authenticity of Cuban Santeria, in Romberg's (2003) term, therefore, its remedies are never stagnant.

Relatively speaking, *Santerismo*, treatments are expensive. Only one informant in the study uses *Santerismo*. Elliot has a *Santera*—a "priestess" or healer—in his family. He described how receiving a ritual treatment in *Santerismo* is expensive, ranging from thirty dollars to around a hundred. This is because *Santerismo* can face risks depending on the rituals, such as spiritual possession, and dark spells and potions that could bring *malicia* (curses) to the clients. He mentioned that ingredients can be expensive because the herbs used are usually organic or "natural." Elliot mentioned the scarcity of Santerxs, especially the "real" ones, not the scammers. Also, he warned how Santerx scam people they are unfamiliar with for monetary gain. Elliot said,

> Well that's, you know, that specific people [Santerx], you know, that fakes their way to sell, you know, some things that can not [work]… anybody knows that kind of things [would know], you know… so it's more scarce, you know, it's more… yeah. Sometimes yeah, the ingredients can be like 30 or almost [one] hundred, you know. It's like salads, you know, like you can find junk food anywhere, but you can't find a good salad anywhere, you know, only in specific places.

Treatment includes spiritual diagnostics, spell castings and healing remedies but Elliot did not care to discuss these in much detail. In my research I found that the rituals vary depending on the *Santerx,* some using more Yoruba, Catholicism or *espiritismo*. The

high cost and scams in *Santerismo* treatment explains its unpopularity and the reason why many of the participants in the study do not engage in *Santerismo* for healing. Although the participants in my study were aware of *Santerismo*, the high cost of treatment and possibility of getting scammed discouraged them from using these rituals for healing.

One of the new forms of popular medical treatment in Puerto Rico is medical cannabis. The plant, Cannabis, contains chemicals such as THC and CBD that provides quality medicinal properties (Iversen, 2003). Many of the informants view cannabis as a sub-type of botanical medicine, but due to its legalization, the biomedical system controls it. Before, cannabis faced scrutiny because of the War on Drugs propaganda. However, since its legalization, many Puerto Ricans accept it and view it as a "miracle plant."

Medical Cannabis recently became popular in Puerto Rico once it was legalized in the state. Many of the informants view cannabis as a sub-type of botanical medicine but due its state legalization, it is regulated through biomedicine. The participants using medical cannabis believes it to be more natural and harmless to the body than biomedical treatment. *The Departamento de Salud de Puerto Rico* (2020) has a website that explains the procedure to obtain a medical cannabis license.

First, the individual needs to pay a fee for the application to the *Secretaria de Hacienda* (Secretary of Housing) in Puerto Rico. Second, the individual must visit a general doctor or psychiatrist. The professional asses the patient's health and concerns and decide whether their illness fits the criteria for receiving a medical cannabis license. The types of diseases that qualifies for cannabinoid treatment are HIV/AIDS, anorexia, arthritis, cancer, fibromyalgia, Crohn's disease, Parkinson's disease, hepatitis C, ALS,

epilepsy/seizures, multiple sclerosis, Alzheimer's disease, migraine, and spinal cord injury (Departamento de Salud de Puerto Rico, 2020). Third, if patient fits the qualifications and receive a medical recommendation, they need to visit a lawyer or notary and pay another fee for the license. Finally, the patient can legally buy medical cannabis at a nearby dispensary, however, it's not covered by health insurance. Also, individuals control their dosages, not the physicians, and they are free to buy as much as six grams per visit from the dispensary.

Medical cannabis varies in cost. Most of the participants using medical cannabis mention paying from fifteen to seventy dollars depending on the type and quantity of cannabis they purchase. They claim the cost is high, but the treatment is worth the expense. For example, if an individual buys one gram of cannabis it might cost fifteen to twenty dollars, depending on the variety. Also, medical cannabis users take advantage of the deals offered by cannabis dispensaries. Dispensaries will discount prices if customers buy varieties in quantity. However, for those on limited incomes the lack of health insurance coverage for medical cannabis is a barrier to using this alternative treatment.

Some individuals who cannot afford medical cannabis find ways to receive cheaper marijuana, in this case, from drug dealers or peers who have access to this treatment. Marijuana is cheaper in the black market depending on its quality and the user's connections. If they know someone with a medical cannabis license, then they can skip the fees to attain it and either do a *cebolla* or *caballo* (the act of inputting a portion of money for the total cost) with that person and receive their share or receive it for free

as charity. Either way, Puerto Ricans will find a way to gain access to medical cannabis or marijuana.

Unlike *Santerismo* and medical cannabis, the cost of Ayurvedic treatment is minor. Ayurveda is an ancient Indian medical system that focuses on a holistic and "natural" approach to physical and mental health. The bases of the Ayurvedic system combines products (mainly plant-based), diet, lifestyle, and exercise as a form of prevention and treatment. The system focuses on balancing the three principle energies of the human body. The three principles are written in the original Sanskrit words *vata* (responsible for body movement), *pitta* (responsible for body temperature), and *kapha* (responsible for lubrication and sustenance) (Parasuraman, Thing, and Dhanaraj, 2014).

Cherry and Elijah, a 24-year-old living in Mayagüez, practice Ayurveda. Both participants state that every person contains all three principles, but one of them is primary, the other is secondary, and the third is less prominent. They state that the purpose of Ayurveda is to balance out the deficiencies or excessiveness of their *vata*, *pitta*, and *kapha*. If imbalances occur, the body shows symptoms. The informants practice the system mostly on their own, but they receive guidance from an expert to properly assess and understand the methods. Elijah and Cherry mention Ayurveda is growing slowly in popularity in the younger generation in the Southwest region of Puerto Rico. Ayurveda shows similar beliefs in botanical medicine and humoral medicine, where keeping a balance in the body is the main purpose of treatment.

People who use Ayurveda do not directly pay for a specialist's treatment. Instead, they pay for foods that establish a balance with their body, mind, and soul. For instance,

Ayurvedic practitioners buy organic foods to harmonize (heal) their principle energies. The cost to stabilize Ayurvedic energies depends on the individual's lifestyle. For instance, if the person's *vata* is low and they feel anxious or too energetic, then they need to consume pungent and bitter tasting foods or use a fan to cool their environment. Additionally, an individual can pay for a yoga instructor or meditate to calm their emotions, thus increasing their *vata.* As the cost is typically less than most alternative remedies, individuals can practice Ayurvedic healing without worrying about the cost.

Some informants also mentioned using commercial "natural" remedies they buy from stores like the General Nutrition Centers (GNC) and local pharmacies. Most of these products are in the form of tinctures, teas, shakes, powders, topicals, and plant-derived capsules. Supplemental medicine's components are usually seen as organic or natural because of the lack of harsh chemicals infused with the products. Receiving diagnostics vary, but patients can control and administer supplemental treatment. Almost all participants mention that supplements are the most accessible form of "natural" medicine. The informants establish that most of the products they buy are mainly for preventive care and to improve overall health.

The cost for supplements depends on the person's health concerns, but it is usually inexpensive. Many participants who use supplements describe paying around ten dollars or more for each bottle. However, a bottle can last a few months. For instance, calcium and multivitamins, cost around nine to ten dollars and lasts for three to four months. As a result, people are willing to pay the cost of supplements.

Cost is only one factor that encourages the use of alternate therapies. A second determining factor is access to medical professionals. All participants expressed concern about the shortage of medical practitioners in Puerto Rico. While all interviewees had access to general practitioners, there is a lack of specialists on the island. The waiting time to see a G.P. is usually short, perhaps an hour or two. All the informants with insurance have a general doctor. However, seeing a specialist is much more difficult.

People in the interviews described the difficulty of finding a specialist. Because of an absence of certain specialists, like cardiologists, a person might have to either drive to another city or waiting a long period of time. Participants reported waiting to see a specialist for times ranging between a few weeks to months. For instance, one elderly participant named Greta lives in Maunabo, a rural area in the southeast side of the island. She explained that she has a general practitioner in her town, but some of her specialists are two or more cities away. Even when she has an appointment to see her specialist, she needs to wait hours between the time of her arrival and seeing the doctor. The shortages in health care professionals and the time it takes to see them makes it difficult for people like Greta to depend on biomedical treatment.

As stated before, Greta mentions the problem with distance and the scarcity of hospitals in her region. Many participants living in rural towns say distance and shortages of hospitals limit their access to biomedicine. Just like Greta, the other interviewees need to drive to major cities because of the lack of specialists. Additionally, the best hospitals are in major cities like Guayama or San Juan. If the person needs surgery or their condition needs emergency assistance, they must drive to a major hospital for proper

treatment. Thus, distance and limited access to major hospitals make it difficult for Puerto Ricans to obtain specialized biomedical treatment.

Social capital is also a factor in access to a medical facility. Almost all participants mentioned their lack of social affiliations in Puerto Rico's biomedical health system. In this highly social society, individuals face disadvantages if they do not have social connections with their doctors and medical staffs. Participants feared that healthcare workers would disregard their medical problems and brush off their concerns. A lot of the interviewees stated that they rarely disclosed their alternative treatment to their doctors because they feared being judged for using illegitimate alternatives to biomedicine. Consequently, informants prefer to hide their views from biomedical practitioners.

On the other hand, many informants have social connections with alternative medicine, either from their parents, grandparents, close acquaintances and friends. Participants lacking knowledge of alternative medicine are more likely to ask their family members first, then their neighbors or friends. Contrary to biomedical practitioners, these social affiliations will not condemn a person for using alternative medicine and are likely to accept holistic views of healing. Compared to how doctors treat their patients, alternative medical specialists and practitioners are sympathetic, and they encourage holistic practices. Therefore, people are comfortable using alternative medicine because it is acceptable in their social circles.

The theme of avoiding putting "unknown chemicals" in their bodies was also common among many participants in this study. The idea of ingesting "unknown

chemicals" derives from peoples' doubts using biomedical medication. Pills contain hard-to-read chemicals and any person without a background in chemistry can struggle to understand the ingredients. Participants using biomedicine, alternative medicine or both admit to discomfort with the unnatural chemical properties in their medications. For example, Percocet, an opioid containing oxycodone and acetaminophen, is made in the lab and causes side-effects like addiction and liver failure. However, alternative treatments like botanical medicine is harvested from a garden without the artificial chemicals added and barely contain aftereffects.

James and Jessica, two individuals in their 50s living in Guayama, use biomedicine as their primary choice of medical therapy but express doubts about the medication's chemical structures. They believe in the medical benefits, of their medications, but they are unsure of what they are putting into their bodies. Similarly, Cherry barely uses biomedicine because she despises the idea of digesting "unknown chemicals" in her body. She prefers to know the contents of the chemicals and their origin. All participants in this study made similar statements.

In Diana's case, she uses cannabis despite her horrible experience in drug dealing. She was a marijuana dealer in the United States. Because it was unregulated, she faced a traumatizing life for selling marijuana and other drugs. She thought she would never get involved with cannabis and stayed away from illegal drugs for more than ten years. When Diana heard medical cannabis was legal in Puerto Rico, she was skeptical. However, she eventually changed her mentality on cannabis because a doctor recommended it.

During the interview, Diana mentioned the difficulties she faced with her condition. When she received diagnoses for her fibromyalgia from a biomedical physician, they recommended she used painkillers. She was afraid to use painkillers because of the harmful side effects. Diana told me that her friend used similar medications who consequently received permanent liver damage. As she tried to use the medications to treat the pain from her disease, she mentioned how it affected her productivity. When she took painkillers, she lost the ability to properly function at her job, a reason for her to stop taking them.

Because of the side-effects, Diana reached out to her physician and asked for alternative treatments. Her biomedical doctor recommended using medical cannabis to treat her fibromyalgia. Again, she was skeptical, but she felt that there was no other choice. After she received her medical cannabis license, Diana went to a dispensary in Guayama. Once she entered the first entrance, she encountered a security system built with security sensors and a police officer. Before she could pass through, she had to dispose of her items (except her license and wallet), show her medical cannabis license to the officer and go through the security sensors. She felt at ease because of the heavy security, a different feeling compared to her drug dealing days.

The workers acted as pharmacists, providing Diana the proper strain that fits her medical demands. They explained to her the benefits and side-effects of each strain and gave her a couple of samples for her to try. When Diana started consuming medical cannabis, she said her life was better than ever. Instead of feeling unproductive or in pain, she felt joyous, relieved and capable of doing her job. Biomedicine restricted her from

receiving adequate treatment for her pain, but it helped her receive access to alternative remedies like medical cannabis.

It is unclear why Puerto Ricans fear the "unknown chemicals" in medications. Most participants fail to address the underlying cause of this idea. Interestingly, Greta mentioned how drug advertisements are contradicting. She emphasizes that the ads promote this "marvelous drug" that can heal or "cure" a condition but then it list all the possible and serious side effects that can occur while taking it. For Greta, this strengthens the idea that medication contains "unknown chemicals" that can do more harm than good. For most informants, it is probable that the scandals they hear about biomedical treatments are the perpetrators. Between the 1930s and 1960s, around one-third of female Puerto Ricans in the island experienced forced sterilization, which many people know it as "la operación" (the operation) (Andrews, 2017). The government promoted sterilization in Puerto Rico and coerced women to receive a hysterectomy, but many of them regretted it. All informants know about this historical event, leaving them skeptical of biomedicine and its political agenda.

The ongoing opioid crisis is another reason for the idea of "unknown chemicals", where a growing number of Puerto Ricans and Americans fall victim to opioid addictions. My informants mention the problem with painkillers, and how it destroys people's lives in addition to the destruction of their physical and mental health. They see homeless opioid addicts every day, left alone searching for monetary income and lying down on streets high on opioids. Participants view Oxycodone as a gateway drug to heroin. As an effect, they believe taking over-the-counter pain medications, like Advil

and Panadol, can reduce their life expectancy in the long run. The participants are not sure where they heard about this information, but they tend to believe it. Also, drug resistance caused by the overuse of certain medications, anti-biotics and painkillers, strengthens their fears toward “unknown chemicals” in medicine. Therefore, the common fears of using biomedicine is the lack of transparency about the chemicals from which they are made and its long-term effects.

In addition to clear understanding of the chemicals and effects in medical treatments, almost all participants mentioned the importance of physical, mental and spiritual health. Participants noted that when they received biomedical attention, that it only covered their physical ailments and did not address their mental or spiritual health. Iris and Israel, 24-year-olds living in Carolina, use biomedicine and alternative medicine. Both participants emphasized this issue. They believe in holistic healing and they feel that biomedicine does not address that idea. Iris and Israel can treat their physical ailments with biomedicine, but they do not trust that biomedicine cures them unless it treats their mind and spirit. For instance, both individuals are professionally diagnosed and suffer from mental disorders such as anxiety and depression, but if they are physically sick, they feel their biomedical system fails to holistically evaluate and treat them. Therefore, they depend on spiritual and botanical medicine to meet all their needs, especially when psychological therapies are expensive. To many, what they perceive as the biomedical separation of the body and mind diminishes the overall relief they receive from biomedical treatment.

Another significant issue in the dominant biomedical system is the patient's control over their diagnosis and treatment. Some participants prefer to self-diagnose and self-treat because they feel that biomedical healthcare professionals limit their ability to address their own medical concerns. When receiving biomedical treatment, patients receive a diagnosis from their doctor. The doctor labels the patient's disease, and this label determines the medication and defines the patient's experience. However, the patient's experience may differ from the diagnosis and a treatment's side effects may influence whether the patient follows the doctor's orders or not. Some informants mentioned taking full control of their biomedical medication, meaning they do not follow the doctor's protocols.

In this case, the factors that influences their reason to whether follow the doctor's orders are their experiences and beliefs in medical treatments. Participants embody the idea that doctors or specialists should control their diagnosis and treatment. This embodiment derives from their inherited attributes, that individuals need to follow doctor's orders to avoid medical problems. However, lack of trust in doctor's and failure to address the patient's medical concerns pushes them to gain control of their medical demands. Despite cultural efforts to control medical care, participants continue to claim their agency by choosing how they diagnose and administer their treatments.

A good example of a patient claiming agency over her medical care is that of participant Lucia. Lucia uses medication for her Type 2 Diabetes. She explained that her doctor told her to take her medicine every day. However, Lucia only administers the medication whenever she *feels* her blood sugar is high at the end of the day. If her blood

sugar is normal or low, she skips her medication that day because she fears having extreme low blood sugar. Lucia described a time when she took her medication when her blood sugar was low and lost consciousness. She states she was lucky to not have died. Ever since then, Lucia listens to her body and carefully monitors her daily diet before administering her medication. If she feels her blood sugar is rising, then she takes her medication. However, if she feels her blood sugar is stable or low, she does not. Her actions demonstrate how a patient may reclaim a sense of self-control when a biomedical professional has left a patient feeling that her condition is out of their control.

Alternative medical therapies are popular in Puerto Rico because it is familiar, "natural", holistic, and it promotes agency in the form of self-diagnoses and self-treatment. Biomedicine fails to provide these qualities. Alternative medicine has a long history in Puerto Rico, and it is shared through generations of family and friends. Also, Puerto Ricans feel at ease with these alternative treatments because they control them without worrying about medical complications.

Botanical medicine is popular with the participants in this study because of its familiarity. As one participant stated, "*todo el mundo lo sabej*" (everybody knows it). The notion of balance from Spanish humoral medicine and the knowledge of plants some of which can be traced back to the Taino have created the foundation for current botanical medical practice. Some participants who frequently practice botanical medicine always refer to its history, tracing their knowledge of botanical remedies to their parents or grandparents. They said botanical medicine comes from a combination of Spanish humoral medicine and its integration of indigenous Taino plants, and it is not a recent

trend. Whether it was the integration of Taino, Spanish and African medicine or family knowledge, informants form a connection of botanical medicine to their history and ancestry. Therefore, some informants state that botanical treatments are part of their "*patria Puertorriqueña*" (Puerto Rican pride or inheritance) or it is "*parte de nuestra cultura*" (part of our culture).

Santerismo is very well-known on the island but has lost popularity in the last few decades. While every person in the study was aware of its religious and therapeutic rituals, Elliot was the only informant who practices *Santerismo*. *Santerismo* reached its peak popularity during Great Cuban migration in the 1950s but political campaigns try to dismantle *Santerismo* through anti-*brujería* propagandas between 1940s and 1970s (Romberg, 2003, p. 153). As a result, people have lost interest in Santeria practices, viewing it as a "primitive" form of *espiritismo*. Elliot stated that people still use *Santerismo* from time to time when they are desperate for treatment, but the cost of ritual treatment is prohibitive.

Compared to biomedicine's "unknown chemicals," people use alternative medicine because it is "natural". They feel at ease knowing there are few chemicals in the plants and supplements they use. For instance, Cherry uses essential oil tinctures of lavender to treat insomnia. She feels secure that her lavender tinctures are "natural" in contrast to sleeping pills like Ambien. Greta prefers using *sábila* (aloe vera) for her sunburns and rashes to over-the-counter aloe vera products. She grows *sábila* in her garden, so she knows how the plants were cultivated. Individuals using medical cannabis make similar statements because it is a plant. Many participants agreed that medical

cannabis is a part of botanical medicine, and their belief that a type of medicine is "natural" strengthens their reason for using them.

Supplements are popular with older adults and the elderly, over 65 years of age. Elizabeth is a 68-year-old living in Arroyo, and Maria is 44 years old and reside in San Juan. They both emphasize their use of supplements. Elizabeth consumes calcium, omega-3, and multivitamins, and Maria administers herbal-based capsules. Maria prefers using herbal-based supplements to treat minimal ailments such as insomnia and headaches. Elizabeth uses calcium to keep her bones strong and multivitamins to stabilize her vitamin and mineral intake. Both informants use supplements as treatment because it is more "natural," a common phrase used in alternative medicine.

Additionally, both participants use supplements as preventive care. Since Elizabeth is an elderly and Maria is an older adult, they use supplements to minimize the risks of age-related health complications. They are afraid from obtaining chronic diseases that needs consistent biomedical care. As a result, many Puerto Ricans, especially older adults, continue to use supplements as a new form of alternative medicine.

Compared to Western biomedicine, alternative medicines in Puerto Rico are holistic, promoting a belief in the connection between body, mind and spirit. Many participants believe that if the body is sick then the mind and soul are potentially out of balance. For instance, Jacob uses medical cannabis and believes in the importance of healing the mind and spirit. Although he uses medical cannabis for chronic back pain, he also mentioned the euphoric feeling he experiences and how the plant helps his

depression. He feels he has a spiritual connection with the universe when he uses cannabis, and similar stories were told by other cannabis users in the study.

Participants who practice Ayurveda, botanicals, *Santerismo* and treat themselves with nutritional supplements use them in part because of their holistic approaches. Elijah and Cherry practice Ayurveda to satisfy their body, mind and spirit. They eat Ayurvedic foods, change their environments and manage their emotions and socialization to achieve balance in their three principle energies. Botanical medicine is based on the humoral theory in its goal of balancing the elements of the body. Individuals can incorporate plants for spiritual and mental treatments. *Santerismo* focuses on the healing of the spirit to treat physical and mental ailments provided by rituals such as *santiguos*. Sometimes *Santerxs* use herbs and baths for spiritual cleansing. Vitamin and mineral supplements are believed to treat the body and mind. Because alternative medical treatments in Puerto Rico claim to treat illnesses by connecting the body, mind and spirit, people are attracted to those treatments that are inexpensive allow them to treat themselves holistically.

Economic, social and cultural forces restrict ability of Puerto Ricans to freely choose their medical treatment. Because they live in a medically pluralistic society, their economic and cultural capital form barriers to their use of biomedicine, especially medical specialists. For instance, the lack of high-grade care, the cost of insurance and medical treatment, and shortages of doctors in the Puerto Rican healthcare infrastructure all limit peoples' access to biomedicine. The costs of the dominant biomedical system compared to alternative medical treatment shows how disparities in wealth contribute to the inequality in access to medical care. The high cost for Santeria-based treatment and

medical cannabis discourages Puerto Ricans from using those treatments as well, further restricting an individual's choices and making them search for cheaper alternative remedies such as botanical medicine, supplements or Ayurveda.

My participants' social affiliations and cultural views of medicine affect how they search for and receive treatments. Lack of social affiliations between doctors and patients, and discrimination in biomedicine is a barrier to my participants' use of biomedicine. Because they prefer to use a type of medicine that promotes acceptance and understanding, participants in this study choose alternative medical practitioners who were sympathetic and to whom they could relate. Consequently, informants' lack trust in biomedical doctors forces them to seek alternative remedies that more closely fit their economic and cultural needs.

For these participants, the conflict between "natural" and "unknown chemicals" and the expectation of holistic treatment are cultural reasons for using alternative medicine. In their view, biomedical treatments contain "unknown chemicals" and do not treat one's mind and spirit, but alternative medicine is "natural" and holistic. Also, most alternative treatments are based on the recommendations of family and friends and allow patients to self-diagnose and self-treat. While alternative treatments are familiar, biomedicine and biomedical facilities are foreign and do not make people feel at ease. Many participants agree that these are the major reasons they lack trust in biomedicine. As a result, these cultural barriers prohibit them from freely choosing among available treatments.

In Puerto Rico, medical pluralism is expressed in a hierarchy of medicinal practices. Biomedicine is the dominant medical system, but most individuals accept alternative medicine, even though these are rejected by the biomedical community. Biomedicine in Puerto Rico is associated with wealth and social class. It is for those who can afford it and are comfortable navigating in the world of medical specialists, hospitals, and insurance. Alternative medicine is for the poor, lower classes, who have a more holistic view of medicine. Although people tend to switch between both medical systems, their wealth and class still restrict their choices.

5. CONCLUSION

Puerto Ricans use alternative medicine because of their historical circumstances and lack of social, economic and cultural capital in the dominant medical system. To effectively access biomedical staff and facilities, Puerto Ricans need higher incomes, close social affiliations with doctors and medical staff, trust in the chemical properties of medications and less need for holistic treatment. When these requirements are not met, then low-income people have no other choice but to search for alternative treatments. While some in this study might be financially capable of receiving biomedical treatment, they tend to switch to alternative treatments if they do not have social affiliations with the medical staff, trust the medications, or if the treatment does not fit their mental or spiritual needs.

The historical roots of today's alternative practices lie in the Spanish practice of humoral medicine and the use of herbal and spiritual healing by the indigenous Taino and African slaves. Humoral medicine forms the foundation of botanical medicine with diagnosis and treatment consisting of correcting an imbalance of elements in a patient's body with plants or food. For example, if imbalance causes a "hot and dry" response, such as a rash, then the medication is a "cold and wet" plant, such as *sábila*. Humoral medicine is today's botanical medicine but with more emphasis on "natural" treatments.

Santerismo, another type of treatment with historical significance, derives from West African-based spirituality and herbal remedies. Puerto Rican slaves mixed some of the religious aspects of Catholic saints with their own African spiritism to develop *espiritismo*. Both *espiritismo* and Santeria originate from African beliefs and diagnosis

and treatment focus on spirit possession. Santeria grew in popularity because of the Great Cuban migration and its similarities with *espiritismo.* However, Puerto Rican Santeria strayed away from authentic Cuban Santeria and integrated aspects of *espiritsmo* such as Catholicism and French Spiritism, therefore, forming into *Santerismo*. As a result, *Santerismo* became another type of Puerto Rican alternative medicine because of its historical circumstance.

In Puerto Rico, medical pluralism existed before the implementation of modern biomedical medicine. During the Colonial Period, the dominant Spanish humoral medicine and subjugated African and Taino systems of healing coexisted with each other. Despite the efforts of the Catholic Church to persecute Yoruba and Taino beliefs and rituals, both groups continued to engage in their religious and medical practices. Spaniards ultimately integrated the indigenous Taino knowledge of plants and slaves camouflaged their rituals with Catholic elements, such as masking their "cross of life", also known as the Kongo cosmogram, with the cross of crucifixion. Medical pluralism in Puerto Rico is not a recent phenomenon but is instead rooted in the historical circumstances of the island's conquest and slavery.

Although African and Taino medicinal practices persisted during the Colonial Period, they were dominated by Spanish beliefs concerning illness and treatment. Differences in class, wealth and ethnicity formed barriers between the types of therapeutic treatment that people could access. Today, contemporary Puerto Ricans face similar constraints when choosing between biomedicine or alternative treatments.

A crumbling healthcare infrastructure and lack of income push Puerto Ricans to use alternative medicine. Low funding and reimbursement rates in public insurance, high cost of treatments and low income, poor quality of care, and shortages of healthcare workers are the main reasons why Puerto Ricans search for alternative medical treatment. Private insurance is costly and public insurance provides lower quality (e.g. long wait times and healthcare worker shortages). The funding caps in public insurance, privatization and high cost of treatments restrict access and the quality of care in the biomedical system. Further, inadequate funding lowers the standard of care and contributes to a shortage of medical specialists who emigrate to the United States for better opportunities. Therefore, when faced with the deficiencies in the dominant healthcare system, Puerto Ricans try to find alternative treatments that are less expensive and easy to access.

Socially, biomedical doctors often fail to create close relationships with their patients compared to alternative medical healers. Many participants do not have the same amount of trust in their doctors as they do with alternative medicine practitioners. Patients feel that biomedical health care professionals judge the patient's use of alternative medicine because of its lack of legitimacy in the dominant medical system. This lack of trust in their doctors means that patients feel uneasy and refuse to disclose their alternative treatments. However, when using alternative medical treatment, people feel a connection with each other. The participants do not feel discriminated against, nor do they fear exchanging their ideas on alternative treatments. The differences in social affiliations between the two medical systems show clear reasons for the existence of alternative medical practices.

Culturally speaking, Puerto Ricans choose alternative medicine because it is familiar, "natural" and holistic, and patients can self-diagnose and self-treat their illnesses in contrast to biomedicine. In interviews, participants spoke of alternative medicine as something familiar to them while biomedicine felt more foreign. The desire for medicine to be "natural" is also a common theme among respondents that further separates Western-style medicine and alternative medicine. Puerto Ricans view alternative practices as natural and biomedical medications as pills filled with "unknown chemicals." The lack of trust in doctors and treatments in the biomedical system contribute to the view that alternative medicine is familiar and "natural."

Holistic healing, self-diagnoses and self-treatment are other reasons that participants tried to avoid biomedicine in Puerto Rico. Alternative medicine promotes holistic healing and provides greater flexibility and control in diagnostics and treatment. Participants believed that biomedicine dealt only with their bodies and not their mind and spirit. Further, a medical professional controlled diagnoses and treatment leaving their patients as passive partners in the process. The lack of connection between these three aspects of health lead my participants to search for a treatment that focuses on those aspects. Additionally, a lack of trust in the doctor's understanding of their medical needs forced my participants to find therapeutics that they can manage themselves. For instance, if the person experiences a fever and a cough which makes them feel depressed and anxious, they can use botanical and spiritual remedies to heal their physical ailments as well as their spiritual and mental symptoms. With alternative medicine, individuals can use holistic treatments and control their own health decisions.

Despite the conflicts outlined by my informants, biomedicine and alternative medicine coexist in Puerto Rico. Many people have reasons to use alternative medicine instead of biomedicine, but it does not mean that all completely discarded biomedical treatment. In this study I discovered that participants switched between alternative therapies and biomedicine as money and circumstances allowed, with the type of illness or extremity of the injury deciding which strategy they pursued. Chronic diseases required biomedical care, such as prescription medications and reoccurring doctor visits, to keep them under control. When a patient suspected they suffered from an infectious disease, they might visit the doctor to receive a diagnosis and then use alternative treatments to heal their ailments. Most participants self-diagnosed and treated their ailments with alternative medicines while in obvious emergencies, such as a serious injury or accident, individuals still depended on biomedicine for treatment.

I also discovered that new alternative medical practices have emerged, such as Ayurveda, medical cannabis and nutritional supplements. Ayurveda shares similar characteristics with botanical and humoral medicine. The three principles in Ayurveda are like the humors, and both systems teach that a balanced life is healthy, and an imbalance causes sickness. Medical cannabis and supplements follow the notion in botanical medicine that plant-based remedies are more "natural" than pharmaceuticals. Because cannabis is a plant and some supplements contain herbs without the "unknown chemicals", Puerto Ricans equate them with the "naturalness" of botanical-based medicines.

The Future of Medicine in Puerto Rico

To be effective, biomedicine must be culturally appropriate. In Puerto Rico this means that the dominant medical system must accept new complementary and alternative medicines (CAM) used by their patients. Many individuals on the island are aware of alternative medical therapies and they fully accept these practices as part of their culture. Understanding alternative medical practices could enhance the doctor-to-patient relationship. If medical professionals do not improve their doctor-to-patient relationships, more persons will lose trust in the health care system. Understanding alternative remedies could decrease the negative judgement of alternative therapies and increase trust between doctors and patients.

Additionally, physicians should attempt to dismantle the body and mind dualism in the Western view of healthcare and practice holistic medicine. Treating the person only in one aspect of their health ignores the importance of managing their overall health. If a person feels mentally off balanced from the flu, biomedicine fails to treat the mind because it focuses on the physical details of the flu, such as fever, cough and body aches. Teaching physicians to practice holistic biomedicine—combining the body, mind and spirit—would persuade Puerto Ricans to more frequently use biomedicine.

As for biomedicine, there needs to be policies that improve access to biomedical treatment. Puerto Rican politicians need to negotiate with the federal government to release the cap on the island's medical funding. If the cap is removed, public health insurance can increase its reimbursement rates and the state government would not need to cover leftover payments in the healthcare system. Additionally, the Puerto Rican

government should reform *la Reforma* to decrease the public health system's reliance on privatization. Once the cap from federal funding in Medicaid and Medicare is released, changing *la Reforma* could help physicians switch to public health practices so they can earn higher income and have opportunities for advancement that are met now by moving to the United States.

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