

**“Here in Paraguay we have to sacrifice so much to get anything”:  
Perceptions of Health and Healthcare Services among Subsistence  
Farmers in Paraguay**

**By**

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## **ABSTRACT**

### **“HERE IN PARAGUAY WE HAVE TO SACRIFICE SO MUCH TO GET ANYTHING”: PERCEPTIONS OF HEALTH AND HEALTHCARE SERVICES AMONG SUBSISTENCE FARMERS IN PARAGUAY**

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In this Master's of Public Issues Anthropology thesis I examine the perceptions of health and healthcare services within a small rural subsistence farming community in South-Western Paraguay from a political ecology of health perspective. Qualitative research data was collected from May to September of 2010 in Lindo Manantial, a subsistence farming village, and Piribebuy, the closest town to Lindo Manantial and the location of the nearest health centre, the Piribebuy Centro de Salud. The primary goals of this research project were to gain an ethnographic understanding of current local health perspectives and concerns, as well as the local frameworks for health provision in Piribebuy. I argue that the introduction of culturally competent healthcare services could greatly improve individual and community health statuses and outcomes in Lindo Manantial and other similar rural subsistence farming communities in Paraguay.

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# **CHAPTER 1**

## **INTRODUCTION**

The following Master's of Public Issues Anthropology thesis will examine the perceptions of health and healthcare services within a small rural subsistence farming community in South-Western Paraguay from a political ecology of health perspective. Qualitative research data was collected from May to September of 2010 in Lindo Manantial<sup>1</sup>, a subsistence farming village, and Piribebuy, the closest town to Lindo Manantial and the location of the nearest health centre, the Piribebuy Centro de Salud. I argue that the introduction of culturally competent healthcare services could greatly improve individual and community health statuses and outcomes in Lindo Manantial and other similar rural subsistence farming communities in Paraguay.

This investigation was designed to address two main research questions. Firstly, what are the contemporary local perceptions of health and health risks in this subsistence farming village in Piribebuy, particularly within the elder population? This question will focus on perceptions of changes in community health, specifically emerging or re-emerging diseases, and also examine how shifts in local environment, demography, and social structure intersect with these changes in local health concerns. Secondly, given the local perceptions of community health and personal health concerns, how effectively are healthcare services of all types – formal and informal – addressing their health concerns, and what would be done to optimize these healthcare services?

The primary goals of this research project were to gain an ethnographic understanding of current local health perspectives and concerns, as well as the local frameworks for health provision in Piribebuy. Ultimately, this investigation was designed to form a qualitative data collection that could advise local healthcare professionals and policy makers in the development

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<sup>1</sup> In the interest of protecting the identity of the research community and its inhabitants, this is a pseudonym.

of culturally-appropriate healthcare services in Piribebuy, which could be implemented as Paraguay continues to decentralize and reform national healthcare services.

Subsistence farming communities in the Piribebuy district of Paraguay are currently experiencing marked social and environmental changes, which have implications for livelihoods and health. Moreover, in response to these shifts in agrarian subsistence patterns, and to increased contact with urban centres and communication technologies, this region is experiencing a notable rural-to-urban migration of youth. Many youths have relocated to urban centres in order to pursue non-subsistence-based lifestyles, and this has altered the socio-demographic of the Piribebuy district. The aim of this research is to examine shifts in health concerns related to the changing nature of small-scale subsistence farmer livelihoods and social demographics in Piribebuy.

### ***Definition of Key Terms:***

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Throughout this thesis, I repeatedly use several key terms relating to medical anthropology and anthropological theory. I have chosen the terms used with specific intent, and wish to clarify their definitions at the outset of this thesis to avoid misinterpretation and contextualize their meaning throughout this manuscript.

One of the key goals of my research investigation was to gain insight through semi-structured interviews into the personal health and perceptions of community health of the Lindo Manantial participants. **Community health**, in the context of this thesis research, refers to the health status of the Lindo Manantial village residents as a group, including the diagnosed health concerns and perceived health problems of the villagers, and their perceptions of the overall health status of their community, both currently and in relation to other times in their collective

community history. I chose to use the term ‘**community health**’ in the place of public health, as I wanted to recognize in using this term the profound role of the Lindo Manantial village community in the provision of primary healthcare services for their families and neighbours, given the often inaccessible nature of the formal government and privately managed healthcare service sectors. Additionally, I chose the term ‘community’ over ‘public’ due to the historical isolation of this rural subsistence farming village; the experience of illness and ability to access formal healthcare services is very different for this particular community than for much of the urban and less isolated rural public of Paraguay, and I wanted the term to reflect their distinct perspective of health within their own village. Finally, I was interested in understanding the local experiences of health and healthcare access as they have changed along with shifts in local environment, politics, and socio-demographics over the course of the past several decades. The perceptions of current and past community health issues, the ways in which their community has changed, and how these changes have come about are specific to the members of the Lindo Manantial village; I chose the term ‘community health’ to reinforce this perspective throughout the research process.

In order to gain a more thorough understanding of the ways in which community health has changed in the Lindo Manantial village over time, I chose to approach more senior members of the community to be research participants. I chose to primarily interview community members that could offer a perspective on changes in their community as a whole, as well as community health. In Lindo Manantial, it is not uncommon for adults to have several grandchildren by the time they reach their fifties, and these participants were able to offer the inter-generational perspective on socio-political, economic, ecological, and demographic changes in their community. When I refer to these participants as the senior members of their community,

therefore, I am not referring to the official World Health Organization definition of ‘senior’ or ‘elder’ as an individual over the age of 65, but rather their knowledge and embodiment of their community history, and the often respected position they hold within the community as heads of households and the bearers of this community wisdom.

Traditional medicine, or **ethnomedicine**, is described by Anyinam as being, “the totality of health, knowledge, values, beliefs, skills, and practices of members of a society including all clinical and nonclinical activities that relate to their health needs” (1995:321). Ethnomedicine provides patients with a holistic and highly individualized care plan, which incorporates local health and healing epistemologies and often local natural resources into the treatment process. Paraguayan ethnomedical practices differ in many ways from the standard Western concept of medicine and the services provided by the formal public healthcare sector in Paraguay; treatment plans are holistic, treatment is administered at home or by natural doctors, and traditional Guaraní herbal remedies and concepts of health and healing permeate Paraguayan ethnomedicine. As natural herbal remedies feature so predominantly in Paraguayan ethnomedical practice, they became one of my own key research focuses.

Ethnomedicine features in societies the world over; recent estimates indicate that up to three quarters of healthcare services are provided by the informal, non-regulated, and often traditional medical sectors, particularly in low- and middle-income nations like Paraguay (Cross & MacGregor 2010:1593). Ethnomedical practitioners are often referred to as ‘traditional healers’, however this term can be associated with perceptions of antiquated, pre-colonial medicine men and women, whose practices have remained almost frozen in time in remote and indigenous communities. In the Paraguayan context, however, this image could not be further from the truth as ethnomedical practitioners have been forced to change and adapt to their

current environments in order to remain relevant and effective treatment options for patients. For the purposes of this thesis, therefore, I will use the terms '**ethnomedicine**', which recognizes the unique features of the care provided by healers in specific ethnographic contexts, and '**natural medicine**', which references the significant role herbal treatments play in the Paraguayan ethnomedical sector specifically.

A **culture bound syndrome** can be defined as a set of symptoms and way of describing and classifying said symptomology that is specific to a localized cultural group, and not widely experienced outside of that cultural group (Rebhun 2004:319). This is the basic definition of culture bound syndromes I use throughout this thesis. There are, however, several debates within medical anthropology regarding the use of this specific term in the classification of illness; this issue of nomenclature is discussed in further detail in Chapter Six of this thesis.

**Cultural competency** in the context of the healthcare system can be defined as the understanding and adaptation of care to meet the patient's socially and culturally informed health beliefs and behaviours at all levels of the healthcare system (Kumanan 2004; Betancourt *et al.* 2005:500). I use the term '**culturally competent healthcare services**' to describe healthcare service policies and infrastructure that integrate biomedical care with local healing traditions and natural medicine, in order to improve patient access to and compliance with healthcare services. At some points throughout the thesis, I also use the term culturally appropriate healthcare services interchangeably with culturally competent healthcare services. This definition is discussed in further detail in Chapter Five. Similarly, I use the term **culturally-accessible healthcare services** to refer to facilities that are designed in a culturally competent manner in order to allow patients to feel comfortable and confident in fully utilizing the healthcare services available to them.

### ***Chapter Summaries:***

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The following chapter, Chapter Two, presents a literature review, which will ground further discussions from a theoretical perspective, and serve to contextualize the health and healthcare access issues examined in this thesis. Firstly, I define the theoretical framework, the political ecology of health, and continue with a discussion of the pertinent literature on political ecology and the political ecology of health with regards to this research project. I then draw upon relevant scholarly sources to present the socio-political and historical context of the Paraguayan subsistence farming community, and its current tenuous position in the midst of national politics, international agribusiness, and a rapidly changing socio-demographic as youth leave their rural homes to pursue employment in urban centres. I then review current research on the Paraguayan healthcare infrastructure and decentralization initiatives aimed at reorganizing and streamlining national healthcare services. This leads into a discussion, through the political ecology of health framework, of current literature on natural medicine, natural healers, and their role in the provision of culturally competent healthcare services. Finally, I use the political ecology of health lens to examine academic sources discussing the health implications of environmental change, and establish the environmental context of my own research community, Lindo Manantial.

Chapter Three presents a discussion of the qualitative research methods used in this investigation, and will also introduce further background information about the Lindo Manantial and Piribebuy Centro de Salud communities as the primary and secondary fieldsites for my thesis research. I then present the details of the qualitative research methods used in the data collection process, namely an introductory focus group, individual semi-structured interviews, and

participant observation. I also include a detailed discussion of the identification of additional stakeholders in community health and the provision of healthcare services in the Lindo Manantial village once I entered the field, and my efforts to interview and include the perspectives of these stakeholders in the interest of presenting a well-rounded and multi-dimensional data set for discussion. I also identify areas of limitations within my own qualitative research experience, and discuss how these circumstances may have influenced my data and subsequent analysis and discussion. Finally, I review the ethical considerations and procedures I undertook throughout the process of researching and writing this thesis in order to protect and best serve the Lindo Manantial community and all other participants in this research process.

Chapter Four will present the results of the qualitative research in terms of community health and perceptions of health and healthcare access issues. In this chapter, the data is presented according to thematic categories based upon interview responses, open-ended discussions with participants, and my own participant observation. First, I present the general perceptions of community health at both the primary and secondary fieldwork sites, Lindo Manantial and the Centro de Salud in Piribebuy, and offer a discussion of the similarities and differences in perceptions of community health and healthcare services between the two participant groups. I then discuss emerging and changing community health concerns, which featured in all of the interviews in both Lindo Manantial and Piribebuy, and I used a specific case study, the discussion of high blood pressure within the Lindo Manantial community, to highlight the current shift in perceived community health risks. The subsequent section deals with nutrition, food, and food preparation, and also includes a case study of type II diabetes within the Lindo Manantial village. I also present data that came from discussions with participants about accidents and injuries, disease vectors and venoms, seasonal health concerns, and how local

climate and ecology are perceived to impact various health issues. Finally, I discuss community perceptions of the health risks associated with ageing, and present a summary highlighting the key themes that emerged from the collected qualitative data, and establish the foundation for the following analysis.

Chapter Five, the subsequent data analysis and discussion section, will further contextualize the health and healthcare access issues in Lindo Manantial, and includes a discussion of local health and healing epistemologies, ethnomedicine, and culture-bound syndromes. I will then use the two culture-bound syndromes I encountered during the course of this research to frame the discussion of culturally competent and culturally accessible healthcare services. Finally, I will discuss how specific culturally competent changes to the healthcare infrastructure and services provided to Lindo Manantial residents at the Piribebuy Centro de Salud could significantly improve local health conditions.

Chapter Six reiterates the main argument of my thesis and summarizes the supporting evidence presented by the qualitative data obtained throughout the research process. I conclude the thesis with a reflection on the limitations and successes of this research undertaking, and provide further discussion of recommended future research endeavours regarding culturally competent and accessible healthcare services in rural Paraguay.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### ***Theoretical Framework: Political Ecology of Health:***

The theoretical framework within which I conducted this research is the political ecology of health. Baer writes that political ecology of health as a theoretical framework has become increasingly significant in the field of medical anthropology because it recognizes the considerable role of political economy and local ecology in determining community health (1996:451). The political ecology of health is a relatively new sub-framework of political ecology theory, which focuses on factors relating to political economy and ecological context in examining the reciprocal relationship between nature and society. Mung'ong'o suggests the main tenet of political ecology of health theory lies in its focus on examining the complex socio-political sources of ecosystem change promotes an analysis of the "multi-layered" causes of health concerns within a particular society, as opposed to an examination of the symptoms of said concerns (2009:192). Similarly, Brown proposes that political ecology theory is best used to identify and differentiate between the proximate and fundamental, or immediate and systematic, causes of a local health concern (1998:85). The political ecology of health has emerged within medical anthropology as a significant theoretical perspective because it effectively serves precisely this purpose; it allows for a detailed examination of the multifaceted causes of health concerns within a specific population instead of focusing on the identification of simplistic one-to-one causal relationships, as has previously been the case in environmental health studies (Singer 2009:802).

Richmond, Elliott, Matthews and Elliott note that political ecology of health as a theoretical framework can be described as a cross-section of both population health studies and

political ecology (2005:351); it utilizes a broad definition of the determinants of health while focusing on power relations and exploring the impact of a politicized environment on the health of a community. Some of the earlier and transformative work in the political ecology of health came from Turshen (1984), who demonstrated how colonialism and labour migration patterns negatively influenced the health of communities in two different regions of Tanzania. Paraguay's distinct colonial history and rural-to-urban migration of the youth labour force away from subsistence farming communities are factors that feature prominently in my own research.

The political ecology of health framework has also been identified as particularly useful in addressing health concerns in relation to global warming. As climate change is a product of complex local and international policies and practices and impacts local and global health in a multitude of intricately interconnected ways, and so necessitates a "multi-layered" analysis of the interplay between health, political ecology, environment and culture (Singer 2009:803). Given the multifaceted and constantly changing relationship between community health and the environmental, political, and social demographic of subsistence farmers in Piribebuy, using the political ecology of health as a theoretical framework was most conducive to my proposed research goals at the outset of this investigation. In the field, using the political ecology of health as a theoretical framework allowed me to examine how current perceptions of health issues, risks, and the use of healthcare services have been influenced by underlying changes in local ecology and the socio-political climate.

***Socio-Political Context:***

***Subsistence Farming Politics & Changing Demographics***

Paraguay is a country in the midst of national transition, both politically and economically (Rosenbaum, Rodriguez-Acosta & Rojas 1998:657). The nation is currently

experiencing political and socioeconomic upheaval following a period of prolonged and highly centralized authoritarian rule under the Stroessner dictatorship (1954 to 1989) and the Colorado Party. Following a lengthy period of unstable governance, with twenty-two governments in thirty-one years, General Alfredo Stroessner and his Colorado Party seized power in a coup in 1954. Stroessner maintained power through dictatorship methodologies, specifically violence and repression, for almost thirty-five years, the longest dictatorship in South American history (Hetherington 2009:225). Though Stroessner's government was both feared and revered by locals, he and his party became hugely popular with the marginalized farming communities in rural and remote areas by reforming land ownership regulations for farmers. In doing so, however, the Colorado Party simultaneously opened the doors for the influx of international agribusiness to flourish and, eventually, displace the rural farmers in property ownership and land claim battles (Hetherington 2009:225; Carter, Barham & Mesbah 1996:55).

For much of Paraguay's national history, colonization programs encouraged families to occupy and cultivate state-owned land for subsistence farming as a means of encouraging immigration to the country (Carter, Barham & Mesbah 1996:55). Until the mid-twentieth century, around the time of General Alfredo Stroessner's coup, the majority of Paraguay's *mestizo campesino*<sup>2</sup> population lived on and farmed small plots of land within approximately 100 kilometres of the capital city of Asunción (Hetherington 2009:225). The majority of these communities were subsistence farming based, using communal pastures or a rotating produce garden system on the outskirts of small towns (Hetherington 2009:225). My primary fieldsite in

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<sup>2</sup>*Mestizo*, in this context, refers to individuals of mixed European and indigenous (primarily Guaraní) descent. *Campesino* in the Paraguayan context is widely recognized as the most appropriate term for rural-dwelling individuals who consider themselves to be non-indigenous (e.g. *mestizo*), even though their first language is typically Guaraní, and who largely earn a living through small-scale agricultural production or traditional subsistence farming.

this investigation could continue to be classified as such. Subsistence farming communities and small-scale agricultural livelihoods such as this have become more scarce and less sustainable, however, since the introduction of the agrarian colonization programs throughout the Stroessner administration.

Stroessner's Colorado Party-led government began to construct roads into the more fertile areas of the country and encourage foreigners, particularly from Brazil, to purchase agricultural land from the state at extremely low prices. The subsistence farming families that had previously been encouraged to cultivate family plots were unable to compete with the financial offers of international agricultural development corporations and many have since been displaced from their homes and communities (Carter, Barham & Mesbah 1996:55). Hetherington notes that currently, Paraguay has one of the most uneven land distributions in the world, as the vast majority of the country's arable farmland is owned by large-scale international agribusinesses and the elite wealthy minority (2009:225). Currently, 21 percent of the population owns 87 percent of the land, which gives Paraguay the most unequal land ownership in Latin America (Nickson 2012). In her discussion of *campesino* land claim politics, Nagel quotes the common axiom describing Paraguay as a nation of "land without men and men without land", which highlights both the disproportionate land and gender distributions of rural *campesino* communities, both integral aspects of this investigation (Nagel 1999:151).

The inequality in Paraguayan *campesino* versus international farmers and large-scale agribusiness originated in the land distribution policies of the nineteenth century, which were developed to encourage land settlement in the sparsely populated frontier lands which bordered Brazil, in an attempt to better define Paraguayan-Brazilian borders (Nagel 1999:152). Stroessner's land use policies further emphasized the need to populate the frontier borderlands,

and also placed a new focus on the growth of export-farming (Nagel 1999:152). In the 1960s, Stroessner further reinforced these policies by relocating landless *campesino* farmers from central Paraguay to the previously unused land of the Brazilian borderlands and Eastern frontier. Though well-intentioned, Stroessner's policies positioned the relocated *campesinos* in direct competition with the large-scale Brazilian farming and agribusiness communities that were concurrently encouraged to establish export agribusinesses in the Paraguayan frontier (Nagel 1999:152). The Brazilian settlers were experienced soybean farmers, had access to agricultural machinery, and were supported by Brazilian and Paraguayan-Brazilian joint colonization investment companies in their bids to purchase larger plots of arable land (Nagel 1999:155). As a result, subsistence farming Paraguayan *campesinos* were unable to compete with the Brazilian soybean farming settlers, and had to either voluntarily abandon their small farming plots, or be forcibly removed in favour of more economically-successful Brazilian agribusiness (Nagel 1991:104-105). Carter, Barham and Mesbah describe how, by the late 1980s, the extremely low property costs combined with the renowned fertility of the Paraguayan countryside created the perfect opportunity for large-scale export agriculture corporations to quickly take over the Paraguayan economy (1996:55).

Paraguay is currently the fastest-growing producer and exporter of soybeans in the world; soy crops pose a particular threat to the livelihoods of farmers in Paraguay as they require comparatively low levels of manual labour input relative to crop output (Abramson 2009:34). The Paraguayan soybean industry was introduced to eastern Paraguay by Brazilian grain marketing firms, or *silos*, that continue to dominate the export of the cash crop. Brazilian immigrants and imported labourers feature prominently in the Paraguayan soybean agribusiness (Nagel 1991:113). Extensive studies on soybean export-farming in Paraguay by Abramson

suggest that since the first soybean boom in 1990, over 100 000 subsistence farming families have been forced to relocate to urban slums after their land was sold out from under them (2009:34). Hetherington notes, “With soybeans come deforestation, clouds of pesticides, and police and private vigilante groups ready to force nearby smallholders to sell their plots,” (2009:224).

Paraguay is fairly unique within the present-day South American context because, unlike much of Latin America, the majority of Paraguayans continue to be employed in agricultural production, accounting for approximately 45 percent of Paraguay’s working population, in addition to the thousands of Paraguayan families that engage in subsistence farming livelihoods (Library of Congress 2005:11). Surprisingly, however, the majority of land in Paraguay remains undeveloped; only 7.6 percent of the nation's land, which equates to approximately nine million hectares, is considered arable and only 30 percent of this land is currently cultivated (Library of Congress 2005:7). Approximately 200 000 Paraguayans continue to support themselves through subsistence farming and have limited participation in the nation's economy (Library of Congress 2005:9). Such a living has become more precarious and difficult to sustain in recent decades, however, as rural communities are increasingly exposed to forces of globalization and the commercialization of products and services, including healthcare.

Healthcare services in Paraguay are structured in a three-tier system: public, semi-private, and private. Public healthcare services remain the responsibility of the Ministry of Health, semi-private health services are typically provided through insurance plans, and private healthcare services are offered on a fee-for-service basis. Due to the highly centralized nature of the public healthcare service sector implemented during the Stroessner era, wherein the majority of healthcare service posts, personnel, and comprehensive healthcare facilities are concentrated in

the nation's capital and other urban centres, many of the healthcare services most readily available to Paraguayans in rural subsistence farming communities fall into the private and semi-private sectors, and therefore require financial payment for services. The need for financial income has forced many youths to seek formal employment in urban centres and abroad to support the cost of basic services faced by their families at home. A 2001 survey estimated that twenty percent of Paraguay's population survived on less than \$1USD per day (Library of Congress 2005:9). In Paraguay, the issue is not one of unemployment, but rather a lack of employment opportunities that pay a living wage (Pan American Health Organization 1998:402). It is estimated that farming operations are responsible for three quarters of all rural employment in Paraguay (Pan American Health Organization 1998:402). The vast majority of these farmers, however, do not own the land they work and therefore have reduced socio-political agency, specialize in harvesting mono-cultures, or cash crops, that cannot nutritionally sustain the local population, and are consistently subjected to harsh working environments and chemical pesticides (Abramson 2009:37). Land reform in Paraguay is considered a failure within the international community, as the top one percent of landowners controls approximately 77 percent of the nation's land (Abramson 2009:34).

In spite of the widely recognized issues with Colorado policies on *campesino* versus international agribusiness land ownership, the Colorado Party remained (and, by many accounts, remains) a dominant political force within the rural communities that were first contacted and championed by the Stroessner-Colorado administration in the mid-twentieth century. While the dictatorship, under Stroessner's individual authoritarian rule, fell in 1989, the Colorado Party remained in power until 2008, and during this period the government remained fairly authoritarian in its national and international policies (Hetherington 2009:231).

In the 2008 national elections, leftist ex-Catholic bishop Fernando Lugo decisively defeated the Colorado Party for the presidential vote with the backing of an opposition party coalition. The national Congress and Senate remain, however, by a large majority, in the control of the Colorado Party (Hetherington 2009:231). Following the removal of Stroessner from power, the Colorado Party specifically targeted the rural *campesino* population by means of intimidation and bribery to bring their communities back into the political forum and reinvigorate the Colorado Party's political standing with the sub-proletariat (Nagel 1999:169). The practice of attempting to influence voting outcomes, through the unregulated distribution of medicine, basic supplies, cash subsidies, and grand promises persists today, and was strongly evident in my own research experience.

If his political standing had not precarious enough, President Lugo was found to have fathered at least one, if not several, children out of wedlock while still a Catholic bishop and prior to being exempted from his permanent vows of chastity through the Catholic church (Escudero 2010). In Paraguay, where approximately ninety percent of the population identifies as Roman Catholic, this came as a huge blow to national trust for the recently elected President (Library of Congress 2005:8). In addition, during my own research process, it was announced that Lugo had, as of August 2010, terminal, though potentially manageable, lymphatic system cancer. This diagnosis, at the time of the local and national party leadership elections, stimulated widespread debate on whether this contentious leader – both in his newly-recognized leftist leanings and his controversial personal life – would even survive to the next national elections in 2013. Recent reports indicate that, after seeking medical treatment (ironically in a state-of-the-art hospital in Brazil), Lugo's cancer was in complete remission (BBC 2012a).

It is important to note that at the initial point of submission of this thesis, Fernando Lugo

was the elected President of Paraguay, and therefore the thesis is written referring to Lugo as president in the present tense. Prior to the defense of this thesis, however, he was removed from political office. On June 15<sup>th</sup>, 2012, police raided a private property in Eastern Paraguay, where approximately one hundred landless farmers had set up camp in protest of their own removal from their farming lands during the Stroessner dictatorship (British Broadcasting Company 2012b). Violence erupted between the *mestizo campesinos* and the police forces attempting to evict them, and seventeen people, including nine police officers, were killed in the clashes. While disputes over land ownership continue to occur regularly in Paraguayan society, as discussed in Chapter Two of this thesis, this clash was the most violent in many years (British Broadcasting Company 2012b). On June 21<sup>st</sup>, 2012, the Paraguayan parliament voted to submit President Lugo to an impeachment trial over his handling of the situation. Lugo presented his defense to the Paraguayan Senate, still largely composed of dictatorship-installed Colorado Party members, on June 22<sup>nd</sup>, 2012, and they voted in an overwhelming majority to impeach Lugo. Vice-president Federico Franco was immediately sworn in as Paraguay's President (British Broadcasting Company 2012c). Many Latin American governments have responded forcefully to the swift removal of Fernando Lugo as president, comparing his impeachment to a political trial and a *coup d'état* (British Broadcasting Company 2012d). Several South American nations, including Paraguay's two main trading partners Argentina and Brazil, have refused to recognize the new president, Franco, and have withdrawn their ambassadors for consultations about possible sanctions against Paraguay (British Broadcasting Company 2012d). Paraguay's bordering countries, Argentina, Brazil, and Uruguay, have discussed implementing Mercosur regulations following anti-democratic activities to seal their borders with Paraguay. The political situation remains tenuous and largely unresolved at the time of the final submission of this thesis.

These socio-political shifts in agriculture in Paraguay, along with environmental changes discussed in the next section of the literature review, have contributed to the rural-to-urban migration of youth from Piribebuy as they see fewer options for obtaining land or maintaining family subsistence farming plots into adulthood (Carter, Barham & Mesbah 1996:55). As this literature review demonstrates, past academic research examining trends in agriculture, farming regions, and worker health in Paraguay has been focused on large-scale agribusiness and monoculture cropping practices (Abramson 2009:39). As subsistence farming communities become increasingly rare in Paraguay, research that encourages the survival of small-scale farmer livelihoods, including maintaining community health in response to destabilizing environmental and socio-political changes, is of increasing significance and was, therefore, a central focus of my ethnographic research.

***Paraguay's Healthcare Infrastructure  
& the Decentralization Process:***

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Given the nation's history, particularly the still recent upheaval of a decades-long highly centralized authoritarian rule, Paraguay's society and politics remain in a transitional state. Rosenbaum, Rodriguez-Acosta and Rojas discuss how Paraguay's extremely centralized authoritarian political history makes it a unique case within the Latin American context as Paraguayan policy reform attempts to dismantle and restructure deeply entrenched policies of centralized control over all governmental departments, including healthcare (1998:657). The Ministry of Health, responsible for the delivery of all healthcare services, became one of the first and foremost areas of government to respond to societal and international pressure to decentralize, restructure, and improve. In 1994, the Ministry of Health launched a campaign to decentralize health delivery services and also, for the first time, to involve local government and

individual citizens in the development of new health policies (Rosenbaum, Rodriguez-Acosta & Rojas 1998:656-657). The Ministry was supported in this immense undertaking by the National Congress, and the United States Agency for International Development (USAID) donor-sponsored assistance program for the promotion of local government and decentralization processes, managed by Florida International University (FIU). As the first department-and nation-wide decentralization project, this process involved complex restructuring of existing policies and infrastructure, and the establishment of new national, departmental, and community health councils and healthcare service providers, a process which is still ongoing (Rosenbaum, Rodriguez-Acosta & Rojas 1998:656-657).

The new National Constitution created in 1992 recognizes health as a basic human right for all Paraguayan citizens and established the National Health Council, led by the Ministry of Public Health and Social Welfare, to formulate, implement and coordinate national health services at the public, semi-public and private sectors (Pan American Health Organization 1998:408). The national health policy seeks to prioritize child health and nutrition and maternal health; control of communicable diseases, zoonoses, and vaccine-preventable diseases; environmental determinants of health; improving current healthcare services and facilitating inter-institutional cooperation; encouraging community input in healthcare reform; and improving delivery of health services to indigenous and marginalized communities (Pan American Health Organization 1998:408). Despite constitutional recognition of health as a basic human right and health sector legislation that guarantees health promotion and protection for all citizens, the Pan American Health Organization found that, in 2005, 35.1 percent of the national population was excluded from these rights and healthcare services due to a series of deficiencies in the current legal and institutional infrastructure (Pan American Health Organization 2009:1).

Healthcare in Paraguay is currently the responsibility of three aforementioned sub-sectors: public, semi-public, and private. The public sector includes the Ministry of Public Health and Social Welfare, the Sanitation Works Corporation, municipal health services, military and police health services, and the Universidad Nacional de Asunción teaching hospital. The primary responsibility of the Ministry of Public Health is to provide care for the Paraguayan population without other health coverage; this target population includes the lowest income and highest risk groups and many of these individuals with no coverage whatsoever reside in rural and isolated regions, presenting a serious logistical issue for the Ministry (Pan American Health Organization 1998:408). The semi-public sector is comprised of the Paraguayan Red Cross, the Our Lady of Asunción Catholic University Hospital, and the Social Security Institute (IPS). IPS insurance is the primary provider of medical insurance offered through the formal employment sector; approximately seventeen percent of the population has some form of insurance through IPS (World Bank 2006:8). IPS insurance is funded through a payroll tax of fourteen percent on employers, nine percent on employees, and a 1.5 percent government subsidy (World Bank 2006:7). Employee coverage is extended to dependent children and parents; the members of the Lindo Manantial research community who had coverage through IPS all qualified based upon the employment of their children in urban centres. The private sub-sector is governed by the Association of Private Hospitals, Sanatoriums, and Private Clinics and is comprised of a collection of private medical centres, pharmacies and biomedical laboratories (Pan American Health Organization 1998:408). The private health sector has expanded exponentially since the fall of the Stroessner administration and the subsequent introduction of neoliberal-minded policies under the encouragement of the World Bank (Homedes & Ugalde 2005:83-84). The Pan American Health Organization survey in 2007 found that 18.4 percent of the total national

population had some form of medical insurance, while the remaining 81.6 percent of the population had no medical coverage (1998:567). Much of the insurance was provided through IPS, and the remainder through individual or familial employment, military or police insurance, and some through small local or larger international insurance companies. The urban versus rural ratio, however, was dramatically different; 27 percent of the urban population had insurance, as compared to only seven percent of the rural population (Pan American Health Organization 2007:567). The same Pan American Health Organization study found that, in 2007, 55.1 percent of individuals seeking medical care did so at a public institution (a notable increase from previous studies, perhaps due to increased access to transportation and awareness of healthcare service availability, as is the case for the Lindo Manantial residents), while 27 percent had consultations through private care facilities (Pan American Health Organization 2007:567). The remaining 17.9 percent of patients, a considerable proportion, sought medical care through pharmacies or traditional healers and non-regulated healthcare services. Per capita public health expenditures averaged \$25USD, while private expenditures averaged \$88USD (Pan American Health Organization 2007:572). A 2001 survey indicated that 27 percent of Paraguay's total population felt they had no viable access to regulated healthcare services, public or private (Library of Congress 2005:9). Recent estimates indicate that Paraguay currently has approximately 117 physicians and twenty nurses per 100 000 people, most of which are concentrated in Asunción and other primary cities or working in the private sector (Library of Congress 2005:9).

Paraguay's healthcare system is further divided into four different levels of services. The primary care services provide very basic care for the most remote rural communities, with populations of fewer than 1000. Classified as health posts, they are typically staffed by

volunteers, a rotational nursing staff, and birthing attendants. They are equipped to provide basic first aid and sometimes serve as a small pharmaceutical dispensary, but cannot provide long-term care, diagnostics, or medical treatment for acute illnesses or injuries and therefore often refer patients on to a higher service level institution or the nearest private care facilities (Pan American Health Organization 1998:410). The secondary, or basic, level of services provides care for rural and periurban communities with populations between 2000 and 20 000. These basic healthcare service centres consist of a few beds (typically between six and nineteen) and are designed to accommodate a team of doctors, nurses, dentists, pharmacists, biochemists, and administrative and support personnel (Pan American Health Organization 1998:410). In reality, many of these roles continue to be filled by volunteers or are staffed on a rotational and part-time basis. The Centro de Salud in Piribebuy, my secondary field site, was classified as a basic health care centre, on the secondary health service level. The third service level, known as the basic complementary level, consists of hospitals and regional health care centres which are able to provide general medical services, including diagnostics, treatment of chronic health issues, and some specialized services. The fourth service level, known as the specialized division, provides both comprehensive healthcare services and is equipped to treat specialized conditions. The majority of the specialized level of healthcare service institutions are located in Asunción and include the National Hospital, the Institute of Tropical Medicine, the Central Laboratory, the Urgent Care Hospital, and the Cancer and Burn Hospital (Pan American Health Organization 1998:410).

External evaluations by the World Health Organization-sponsored Pan American Health Organization criticize the lack of coordination and communication between the various service levels and institutions, which results in delays in upgrading the services available in rural areas

and duplication of services in the nation's largest cities (Pan American Health Organization 1998:410). There is currently no effective system for recording up-to-date information about the number of and level of service provided by individual health establishments, nor the medical equipment and personnel that they currently have versus what they may require. The division of healthcare services into four different levels further complicates the coordination of healthcare delivery services between the public, semi-public, and private sectors. The Pan American Health Organization's 2007 report on Paraguay criticized the lack of communication and coordination between service centres and levels, caused by the convoluted nature of the divided and further sub-divided healthcare system, stating,

“There is much segmentation of providers and a lack of coordination among the various subsectors, without clear separation of functions. The Ministry of Public Health and Social Welfare performs governance, delivery, and financing functions. The IPS and the private sector perform insurance, delivery, and financing functions, but the three are autonomous and there is no coordination among them.” (Pan American Health Organization 2007:568).

Contributing further to the lack of coordination and communication between different levels and sectors of healthcare services is the increasing involvement of international aid and development organizations and donor groups in Paraguay's healthcare system. Paraguay's historically tightly sealed borders have slowly opened to the international community as the authoritarian governmental policies are dismantled, and private aid organizations like the Lion's Club are quickly establishing a strong foothold within Paraguay's healthcare sector. While international medical missions by private donor groups certainly can aid in the short-term provision of critical healthcare services currently lacking in remote areas, they also tend to undertake highly specific projects and, as Pfeiffer and Nichter phrase it, “narrow interventions”, as opposed to supporting basic healthcare system strengthening (2008:411-412). Short-term

medical missions also typically do not allow for necessary follow-up care procedures, endangering long-term patient recovery. Medical missions can also detract from the urgency of restructuring basic healthcare systems, as certain services have already been provided, albeit by an unsustainable outside source. This issue will be discussed at greater length in the Chapter Five of this thesis.

The current healthcare system is also lacking in the areas of health education and preventative medicine, as noted by the Pan American Health Organization and many healthcare service providers. “Knowledge about how to maintain good health and how to prevent illness and accidents is limited because of lack of information and education,” states the Pan American Health Organization in their 1998 country health profile (409). Deficiencies in financial and human resources restrict education and preventative health programs from reaching the most vulnerable populations that would benefit the most from such interventions, those in remote communities without access to consistent biomedical care. As is the case with the rest of the current healthcare system, the departments and organizations responsible for health education suffer from chronic lack of inter-departmental and inter-sector communication, and research on health education initiatives is extremely limited (Pan American Health Organization 1998:409). Again, the need for better structured and more effectively implemented health education initiatives became a central theme in my own research experience, and is discussed in detail in the Chapters Five and Six of this thesis.

Some twenty years on from the creation of the National Health Council under the new National Constitution in 1992, and the start of the decentralization of healthcare services thereafter, citizens, healthcare professionals, and independent health research organizations alike generally agree that current methods for the implementation of decentralization processes are

ineffective and require considerable overhaul, as they continue to fail to improve the accessibility and quality of healthcare services in rural areas (Pan American Health Organization 2007:555; Rosenbaum, Rodriguez-Acosta & Rojas 1998:656). The Pan American Health Organization cites a general lack of clarity in the political forum regarding the definition and significance of decentralization as the critical issue hindering the decentralization process (Pan American Health Organization 2007:555). This political discord has led to a lack of consensus about the government's authority across geographical districts and territories, and over the different levels and subsectors of healthcare services, and has thereby limited the autonomy of municipalities, often far removed from the political headquarters in Asunción, in local decision making and management of healthcare services. As a result of the lack of progress in the decentralization of healthcare services, and the resultant inefficiencies in the current system, there is a growing recognition nationally and, as Paraguay's borders become more open, internationally, of the urgent need to restructure and rebuild the nation's current healthcare system (Pfeiffer & Nichter 2008:412).

A different approach to the decentralization and restructuring process is evidently required, and Pfeiffer and Nichter propose that medical anthropologists are uniquely positioned to participate in developing new best practice suggestions as to how to optimize the reinvention of healthcare services and delivery systems (2008:412). They argue that, given the multitude of factors that affect human health and healthcare access - including socio-cultural context, current political climates and socio-political histories, socio-economic divisions, local traditions, and the local environment - ethnographic research undertaken by medical anthropologists is the only way to avoid over-simplifying current healthcare access and delivery issues and developing another ineffective and inefficient healthcare system (Pfeiffer & Nichter 2008:412). They state, "In the

anthropologists' traditional role as culture brokers, we are often better positioned, as both health workers and observers, than other public health professionals to document and contextualize the effectiveness of health services as they impact people's lives," (Pfeiffer & Nichter 2008:412). Miles points out that, increasingly, medical decisions are strongly influenced by global commercialism, even in the most remote of locales (Miles 1998:206). Pfeiffer and Nichter state, "We can help ensure that the evidence base that frames global health debates is inclusive and represents multiple dimensions of the human experience, including the voices of those whose lives are affected by global processes," (2008:413). This anthropological research project aims to present an evidence base, regarding the health and healthcare concerns in Lindo Manantial, a single remote community in Paraguay.

### **Ethnomedicine & Natural Healing in the Paraguayan Context:**

As discussed in the defining of the terms **ethnomedicine** and **natural medicine** in Chapter One of this thesis, the concepts of natural healers and traditional healthcare exist on a global spectrum. In many nations, approximately three fourths of healthcare services are provided by the informal, or traditional, medical sector (Cross & MacGregor 2010:1593). Ethnomedicine and natural healing feature prominently in Paraguayan society (Schmeda-Hirschmann & Bordas 1990; Folch 2010; Reed 1996). Herbal medicine occupies an integral role in Paraguayan daily life. *Yerba*, a potent caffeinated tea plant native to Paraguay, is brewed as a hot tea, *maté*, or as a cold refreshment, *tereré*, and mixed with individualized infusions of plants and natural extracts designed to maintain and promote health (Folch 2010). These concoctions can also be tailored to treat specific ailments and illnesses. In rural areas, including Lindo

Manantial, many households maintain their own medicinal herb gardens, while in urban centers, herbal medicines are readily available in markets and grocery stores (Folch 2010).

Reflecting upon his extended stay within an indigenous Guaraní community in eastern Paraguay, Reed (1996) discussed the role of the traditional healer in Guaraní culture. The healer is often a religious leader, he noted, who invokes supernatural powers to change a person's attributes and heal spiritual ailments. These same healers also dispense herbal remedies to treat physiological complaints, but in a very different manner from the spiritual healing. Reed states, "Guaraní herbal medicine knowledge is entirely secular; it is practiced without direct reference to Guaraní concepts of supernatural forces or ideology," (Reed 1996). Though the two processes may seem dichotomous, the supernatural and the secular, both services are offered by the same individual healer, and are often used in combination to treat the physical and psychosocial aspects of a person's ill health. The ability of natural medicine in this context to transcend the supernatural and the secular is a common theme in ethnomedical practices the world over, and denotes a holistic and sophisticated perspective of health and well-being in indigenous cultures (Reyes-García 2010:4). Many indigenous populations view health as not only the absence of disease, but the pursuit of balance and well-being within one's physical and spiritual selves, as well as within their families and communities as a whole (Reyes-García 2010:4). Reyes-García argues that the choice of medical treatment by members of indigenous communities can be explained through their "complex understanding of health and the perceived causes of illness," (Reyes-García 2010:4).

Within anthropological theory, much of the study of ethnomedicine and traditional healing has centered around the semantics of this particular field of study, perhaps most notably in the epistemological distinction between the concepts of *curing* and *healing* (Waldram

2000:604). Waldram discusses how *curing* is most often used to describe the biomedical approach to treating a physiological ailment, *disease*, by repairing a fault or eliminating a specific pathology, while *healing* “refers to a broader psychosocial process of repairing the affective, social, and spiritual dimensions of ill health or *illness*,” (Waldram 2000:604). Waldram contends that the nomenclature issue is complicated by the fact that these terms are inadequate descriptors of their ascribed concepts, and that they are often used interchangeably. Waldram cautions, however, that the widespread division of these terms as the physiological (*curing*) and the psychosocial (*healing*) takes away from the true nature of traditional medical practice, which allows the patient to utilize both lines of treatment, often simultaneously. He states, “While the distinction between disease/illness and curing/healing remains useful, it is erroneous to assume that biomedicine only “cures diseases” or that traditional medicine only “heals illness” or that they are completely distinct phenomena,” (Waldram 2000:605). He also notes how significant the context of illness is in a patient’s experience of ill health, and therefore the form of treatment they require and seek out. This plays a distinct role in the dichotomous representation of biomedicine and ethnomedicine, and the disease/illness and curing/healing classificatory systems. Waldram discusses how ethnomedicine remains relevant in many societies internationally in large part due to the ability of healing practices to understand the social, economic, historical, and cultural context of an individual’s experience of ill health (Waldram 2000:605). He states, “Healing can occur while the disease remains; healing can also help the patient deal with the medical problem, even prepare for death. In this sense, healing becomes a means of coping with disease, distress, disability, and recovery,” (Waldram 2000:606).

Waldram goes on to discuss, however, the importance to consider also the cultural context of *curing*, and not perceive natural healing to be the only culturally constructed concept of ill health and treatment. He states,

“It is also erroneous to assume that only illness and not disease is culturally constructed. Every medical system is a cultural system, and is engaged in both healing and curing. While biomedicine appears to be more focused on curing and traditional medicine on healing, this may either be the result of differing epistemological approaches to the universality of human sickness and suffering or the result of a priori assumptions guiding research into the two different medical systems.” (Waldram 2000:605).

The ability to simultaneously contextualize both the concepts of biomedicine and ethnomedicine is further compromised by the increasing use of scientific, medicalized, and Eurocentric language to describe all manner of health, illness, and treatment (Waldram 2000:606-609). As ethnomedical practitioners find themselves increasingly compared to their biomedical counterparts as a result of first colonization and now rapid globalization, many contemporary traditional healers have absorbed Western conceptualizations of and terminology for ill health and healing, and incorporated this language into their own treatment systems. Waldram cautions against this trend, stating, “The use of biomedical concepts and the English language in examining traditional medicine tends to obscure the form and function of the latter. Even the basic concepts of *traditional* and *medicine* are fraught with Eurocentrism and English-language biases, and they may be little more than very crude approximations, at best, of complex indigenous thought,” (Waldram 2000:607). Cross and MacGregor state, “Ideas about what constitutes appropriate knowledge proceed from a biomedical frame which calls into question ways of knowing or practicing medicine that fall outside it,” (2010:1594). Waldram (2000) and Cross and MacGregor (2010) both discuss how the appropriation of non-indigenous language

and concepts into ethnomedical practice can serve to weaken the integral role of healing in contemporary indigenous societies, as their use of a common language to describe often dramatically different concepts and contexts of health opens the realm of ethnomedicine to cross-cultural professional scrutiny. My own experience with the competitive analysis of natural medicine in the field is described in detail in Chapter Five, in the conflicting perspectives of *pasmadura* and *frialdad* between Lindo Manantial residents and the Piribebuy Centro de Salud nursing staff.

In the modern Paraguayan context, the use of herbal remedies remains an integral part of *mestizo* Paraguayan daily life and healing culture. Schmeda-Hirschmann and Bordas contend that, though herbal remedies have long been a part of Paraguayan culture, they remain an important part of the Paraguayan healing system due to the shortfalls of the current formalized healthcare system (1990:170). They contend that cost and inaccessibility of healthcare services contribute significantly to the continued widespread use of natural medicine. Young would agree, stating, “The point that traditional practices persist because people believe they are efficacious should not be pushed too far, however. Even in traditional communities, there are occasions when people are not wholly convinced by empirical evidence, and the persistence of certain medical practices owes more to the absence of alternatives than to people’s strong beliefs in their efficacy,” (Young 1971:71). Certainly, natural herbal remedies or seeking out the care of a natural healer are often much more readily available and geographically and financially accessible, particularly in isolated rural regions like Lindo Manantial. I would contend, however, that the continuing popularity of ethnomedicine, both in Paraguay and internationally, has much more to do with Waldram and Reed’s observations of healing concepts being able to transcend

the physical and the spiritual and understand an individual's suffering within their own particular context, rather than simply a matter of cost and accessibility.

Miles (1998) discusses the ability of natural healing epistemologies to combine different, and often contradictory, cultural symbols and belief systems to best treat an individual, rather than their ailment, and how this has encouraged the continued proliferation of ethnomedicine around the world. She eloquently states,

“Living on the margins of urban life, the lower classes have long felt the ills of modernization but are denied its benefits. Natural medicine transcends the usual dichotomies created between science and nature and modernity and tradition – a dichotomy that tends to stigmatize those most closely linked to the latter of these dichotomies. By doing so, it provides a “double action” commodity of powerful symbolic potency. Natural medicines take science, the cultural symbol of the elite and powerful, and use it to validate the (sometimes lost) natural world of the peasant farmer and rural dweller,” (Miles 1998:221).

In keeping with the integrative nature of the political ecology of health theoretical framework, Reed links the experience of ill health within rural Paraguayan communities to the misappropriation of land during the Stroessner-era agricultural boom. He states, “If we consider the health of the Guaraní as a social phenomenon created by agricultural development rather than a biophysical effect caused by pathogens, it is clear that technical programs such as medical assistance cannot solve the underlying problem. Curing individual cases of disease simply masks the greater issue of land expropriation from indigenous producers,” (Reed 1996). Reed goes on to argue that the anthropologist is uniquely positioned to investigate the broader picture of illness and healing, and use this information to improve the overall health status of research communities, rather than treat individual ailments. The ultimate goal of this thesis is to further illuminate the multi-dimensional context of health, the experience of ill health, and the methods of healing sought out by the Lindo Manantial community.

### *Health Implications of Environmental Change:*

In more recent anthropology and population health research there has been a significant shift towards recognition of the role climate changes can have on human health, particularly within the context of agricultural communities (Epstein & Guest 2005:239). Historical analysis of epidemics and paleo-demography have indicated that human health typically corresponds with trends in the local ecological and socio-political stability: when natural resources are consumed at sustainable rates and environmental patterns remain consistent, disease vectors, such as insects and pests, and pathogens are restricted by natural biological controls and community health is typically stable. Conversely, during periods of rapid change, such as natural disasters, species extinctions, warfare, or economic disruption, human health has suffered (Epstein 1997). Today, as we experience an increasingly unstable climate globally, researchers have already begun to note an international increase in the emergence and resurgence of infectious and, increasingly, drug-resistant disease (Epstein & Guest 2005:240). While this has implications for the health of the global population, research continues to show that marginalized people within developing nations are at the highest risk for contracting these diseases (McElroy & Townsend 2004:395-396). Paraguay already struggles with infectious diseases including malaria, yellow fever, and dengue fever, especially within rural communities where exposure to disease-vectors, like insects and livestock, is much more common (Library of Congress 2005:9). Small-scale farmers in the Piribebuy district are at a higher risk for contracting such infectious diseases than ever before.

Infectious and chronic diseases, however, are not the only health risks exacerbated by climate and ecological change within rural Paraguayan small-scale farming communities. The climate changes are affecting subsistence livelihoods as the corresponding shifts in local ecology have

decreased the quality and quantity of crop yields, as well as the variety of crops that thrive in the local agrarian environment (Kintz & Ritchie 2004:197). Epstein points out that global warming may at first seem beneficial for agricultural development, as it extends growing seasons and higher levels of atmospheric carbon dioxide can stimulate accelerated plant growth. The grace period, however has shown to be short-lived, particularly in equatorial and higher altitude regions, including rural Paraguay, as carbon dioxide also increases the reproductive success of crop-destroying microbes and increased heat destabilizes weather patterns, resulting in unpredictable periods of extreme weather that diminish crop success (Epstein 1997). Kintz and Ritchie recently undertook an extensive study of changes in indigenous farming in Latin America. Their participants noted that in the 1970s, traditional farming communities were able to store corn crops for up to three years, but climate change had already begun to have a pronounced impact by the mid-1990s, when indigenous farmers were struggling to store corn harvests for three months (2004:197). They found that this trend was consistent in indigenous subsistence farming communities throughout much of South America, including Paraguay (Kintz & Ritchie 2004:201). Climate change is not the only threat to local agriculture and ecology; Paraguay's environmental quality is currently characterized by rapid degradation, caused by extensive deforestation, destruction of fragile local ecosystems through pollution, and a general loss of biodiversity (Pan American Health Organization 1998:409). Ecological destruction and deforestation have led to the rapid erosion of soil in eastern Paraguay and salinization of agricultural land in the western region, resulting in a considerable loss of fertile land and local crop viability (Pan American Health Organization 1998:409). Poor waste management procedures have led to an extreme issue with surface- and underground water contamination, which threatens both local ecological environments and the health of populations reliant upon

these water sources for survival (Pan American Health Organization 1998:409). My research builds upon these findings, extending the implications of climate change and environmental degradation from issues of food security and biodiversity to community health, both physiological and psychosocial, within the Piribebuy district.

Harper (2004) positions political ecology of health as an interdisciplinary approach to the study of human relationships with and within their environment, combining both broad definitions of health determinants with local, case-specific research data to better understand the complex relationships between humans and their environment, and how the dynamics of these relationships impact human health (295-6). Anthropologists are uniquely positioned to provide this specific local data, through participant observation and detailed ethnographic study. Harper states, “Political ecology is increasingly strengthened by anthropological perspectives that draw out the cultural meanings and practices through which people perceive, use, and live in their environments,” (2004:297). Harper laments, however, the “top-down” approach most political ecology of health research investigations have taken, in exploring only the effects of environmental change on human health from a primarily biomedical perspective (Harper 2004:298). She calls for future political ecology of health research to focus also on how human health influences interactions with, and local perceptions of, changing environments. In this thesis research, I attempt to pursue Harper’s suggested use of the political ecology of health framework to examine, “the ways in which biological disease processes associated with environmental change intersect with culturally mediated interpretations of health and disease,” (Harper 2004:298).

Paraguay as a whole currently lies in the middle of the pack in terms of major health indicators in South America (Library of Congress 2005:9), however the health of rural

Paraguayans, including the subsistence farmers in Piribeby, is typically considerably lower than that of city-dwelling citizens (Library of Congress 2005:9). In addition, Paraguay's current three-tier and multilevel healthcare system is notoriously inefficient at collecting reliable national health data. Most of the current data comes from the Ministry of Public Health and Social Welfare's specialized and basic complementary level institutions. Data from semi-public and private institutions, as well as from the Ministry's most basic health posts and health centres, goes largely unreported (Pan American Health Organization 2007:557). The Pan American Health Organization describes Paraguay's self-reported health data as, "characterized by low coverage, poor quality, low availability, and very low reliability" (Pan American Health Organization 2007:557-9).

Acute respiratory and parasitic infections account for much of Paraguay's health concerns, and these preventable and treatable diseases are much more common in rural areas where Paraguayans cannot access appropriate healthcare, in spite of government initiatives to increase health coverage and care for their citizens (Diaz 2010). On December 25<sup>th</sup>, 2009, President Lugo implemented a campaign promise to provide free healthcare to Paraguayans by lifting the fees for most diagnostic tests and medical care (Diaz 2010). While this is undoubtedly a crucial first step towards the improvement of the national health status, the fact remains that most rural areas do not have access to adequate healthcare services. With the government financially stretched to pay for healthcare for those who can currently access services, it seems unlikely that they will expand healthcare infrastructure into rural areas in the near future.

As Nef discusses, the major health concerns in the region are viral and bacterial, in addition to emerging non-infectious chronic health problems like cancers, diabetes, heart disease, and nutritional deficiencies (2003:180). These chronic diseases are typically considered to be

“diseases of development” that result from more modern and urban lifestyles (Guest & Jones 2005:11). The prevalence rates in rural Paraguay are much lower than in urban centres, however they are on the rise in rural regions like Piribebuy as these subsistence farming communities are introduced to new higher cholesterol diets, social stresses, and addictive substances by family members that have migrated to urban areas (Nef 2003:181). In addition to increasing cultural diffusion, the rise in migration and accessibility of transportation between rural areas like Piribebuy and large cities increases the opportunity for the spread of disease, and rural areas are not as well equipped to manage infectious disease outbreaks (Eyles & Consitt 2005:159). Paraguay still struggles with several “old” communicable diseases, including malaria, cholera, and tuberculosis, while also experiencing a re-emergence of diseases like yellow fever and dengue fever, which have been linked to the instability of the climate (Nef 2003:180). Rural areas of Paraguay continue to face severe issues with the control of treatable and vaccine-preventable illnesses, including measles, whooping cough, tetanus, rubella, hepatitis, and meningitis, to name a few (Nef 2003:180).

Average life expectancy as of 2006 was 72 years of age, with women living on average four years longer than men (World Health Organization 2006:1). The leading health concerns for Paraguay’s elderly population are cardiovascular disease and hypertension, acute respiratory infections, anemia, and work-related accidents (Pan American Health Organization 1998:404). Paraguay’s population is relatively young, with a median age of 21 years. Approximately 38 percent of the population is aged fourteen or younger, and 57 percent of the population is aged fifteen to 64; currently only five percent of the population is over 65 years of age (Library of Congress 2005:7). As such, issues relating to senior healthcare in Paraguay have typically been overlooked in health research as of yet. Most seniors have been cared for in their senescence by

immediate family members (Library of Congress 1988), a support system unavailable to many Piribebuy seniors whose children and grandchildren have migrated to urban centres. Though the current senior demographic is relatively small, Paraguay has seen a consistent population boom since the 1970s and the majority of the population will be entering into the senior age bracket within the next two decades (Library of Congress 2005:8). As healthcare initiatives are further enforced, Paraguay's already relatively high life expectancy will likely increase also. The combination of these two factors makes geriatric healthcare an area of emerging concern in Paraguay, particularly in the rural areas where healthcare infrastructure is currently lacking. The intention of my investigation is to address this gap in the current research and, in working with local students and researchers, create a qualitative data set that will be useful in creating healthcare systems in Paraguay that can appropriately manage the health concerns of the ageing rural population.

## **CHAPTER 3**

### **METHODOLOGY**

All of the qualitative research data for this investigation were collected over the course of a four month period, from late May to early September of 2010 in Paraguay. Having arrived in Asunción in late May 2010, I took a couple of weeks to acclimatize to local culture and language, and establish a connection with faculty members within the Human Ecology Department at the Universidad Nacional de Asunción. Working with agronomists and social scientists from the Universidad Nacional de Asunción added depth to my research through collaboration with local experts in order to determine the best research methods within the primary rural village fieldsite. Through these contacts, I was also able to employ a research assistant, Noelia, a student in the Human Ecology Department who travelled to the community with me, helped to contextualize the qualitative data and was fluent in English, Spanish and Guaraní, which was imperative for interview translations and situating my own participant observation research notes. To maintain and appropriately utilize this collaborative research team, I planned to spend much of my time in the field rotating between the capital city, Asunción, and the rural Piribebuy farming community.

My individual research took place within the broader context of an ongoing research project in the Piribebuy region conducted by Dr. Elizabeth Finnis, my graduate adviser at the University of Guelph. Dr. Finnis' work in Paraguay examines local dietary practices, food security, and farmer agency. The partnership with my adviser was integral to the success of my project. Dr. Finnis, working with faculty members from the Universidad Nacional de Asunción, commenced fieldwork in the summer of 2009 and has created invaluable community contacts, as well as navigated the local political and social systems that eased my transition into the field in

May of 2010.

My primary research fieldsite was a small rural subsistence farming community located on the outskirts of Piribebuy town, in the Piribebuy region of the state of Cordillera. The particular community was selected following consultations with faculty members in the Human Ecology department at the Universidad Nacional de Asunción. This village was the site of former community-based research and development projects run by faculty and students in the Human Ecology department, and the villagers had been receptive and welcoming to these smaller-scale projects and to Dr. Finnis' ongoing research project. The community had expressed an interest in community health-related study, and it was therefore determined to likely be a fruitful and mutually-beneficial fieldsite for a qualitative research study and for my own extended stay within the community.

***Primary Research Fieldsite:***  
***Lindo Manantial***

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According to the 2002 national census, the population of the Piribebuy region was 19 435 individuals (Dirección General de Estadística 2003:16). Approximately two-thirds of the district's population resides in the small town of Piribebuy, while the rest inhabit rural farming communities around the town. This project focused on the subsistence farmers living in the rural areas of Piribebuy. The main community featured in my own research, known henceforth as Lindo Manantial, is a small village of approximately 140 individuals, located around eighty-five kilometres from the capital city, Asunción, and fifteen kilometres from the town of Piribebuy. Owing to the lack of paved or well-maintained roads, especially once past Piribebuy town, this journey typically takes approximately three hours by private car, which I usually contracted, along with a driver, from the Universidad Nacional de Asunción for the day's journey and the

pre-arranged return trips. Almost the entire final fifteen kilometres once past Piribebuy town consisted of unpaved dirt roads, which take about an hour to navigate along in good weather. These roads are almost entirely washed away and, indeed, become much more akin to riverbeds, when there is any notable precipitation; the roads then become largely impassable for several days at a time, while the paths dry out and the dirt is re-levelled. As such, accessing this community can be quite challenging, in spite of its relatively close proximity to the capital city, existing within the traditional *mestizo campesino* one hundred kilometre radius from Asunción (Hetherington 2009:225). Private transportation is almost non-existent amongst the residents of Lindo Manantial; I encountered three households that owned *motos*<sup>3</sup> and none, to my knowledge, had the full-time use of a vehicle. Public transit is inconsistent at best; though a bus does run from the largest village between Lindo Manantial and Piribebuy three times per week, the dilapidated old bus was unable to make the journey more than half of the time during my stays in the community due to poor road conditions, engine failure, or lack of fuel. In short, Lindo Manantial remains unusually isolated and the lack of available or accessible transportation became a recurrent theme in terms of healthcare access and management of critical and chronic health concerns within the community.

This village has been affected by the mass rural-to-urban migration of youth looking for work, and so the population demographic consists largely of children aged twelve and under, and adults aged fifty-five and older. This made it an exceptionally interesting site for conducting health-related research, as the young and the elderly are identified high-risk health groups, and the young-to-middle-aged adult demographics typically responsible for shouldering the burden

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<sup>3</sup>Small motorcycles, often something of a hybridization between a mo-ped and a sport motorbike. They appear to be designed primarily for urban use but serve as the most common mode of personal automotive transport throughout urban and rural Paraguay, owing to their low cost and ease of manoeuvring through poorly maintained roads and pathways.

of health issues for these two age subsets are entirely absent. Young women often return to the village to birth their children and may remain in the village for a few months to a year before returning to work in urban centres, leaving children to be raised by their grandparents. Thus, when young women do return to the community, they may represent a high health risk group in terms of pre-and-post-natal care and complications.

Over the course of approximately three months, I conducted interviews with the villagers concerning their individual and familial health concerns, how they typically deal with health problems and accessing healthcare services, and how these issues may have changed over the past two decades, which correlates to the beginning of the soybean boom, rural-to-urban migration of youth searching for employment, and shifts in climate patterns.

***Secondary Research Fieldsite:  
Healthcare Providers & the Piribebuy Centro de Salud***

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While in the field, an opportunity presented itself to conduct further related interviews and participant observation research in the town of Piribebuy at the regional hospital, or Piribebuy Centro de Salud. Given the significance within the political ecology of health theoretical framework of conducting a multi-layered analysis of any underlying issues, in this case, concerning access to healthcare services, I decided that this was an important research opportunity. Having gained research ethics board approval, I proceeded to develop a multiple fieldsite analysis of Piribebuy region's healthcare access issue.

The Centro de Salud essentially functions as a free clinic, open Monday to Saturday, that serves the approximately 22 000 people in Piribebuy town and the surrounding rural villages. It is a two-story L-shaped building about a kilometre from the main road into Piribebuy. The Centro de Salud primarily offers outpatient services, though they have a small ward for the

overnight care of more critical patients that can comfortably accommodate approximately six patients, but no overnight visitors. They are equipped with four exam rooms, a small pharmacy, two administrative offices, an admissions and triage office, and a small operating room, which is not currently being used. They most commonly deal with respiratory infections, gastrointestinal issues, colds, flu, fevers, minor injuries, and provide vaccinations, pre- and post-natal care, gynaecology and obstetrics consults, and dermatology. They are not able to handle emergency surgeries, broken bones, diabetes and other chronic health concerns, acute infections, and tropical illnesses, including insect and snake bites or stings. The clinic is generally run by nursing staff; one doctor from the capital travels in for three hours on Monday to Friday mornings, and it is never the same doctor two days in a row. In addition, many of the Piribebuy Centro de Salud nurses and the biochemist who runs the hospital laboratory are forced to supplement their work in Piribebuy with additional work in urban centres; two of the senior nurses taught at private nursing universities during the week, and funding was only available for the biochemist to work two days per week, so she also had a full time job in Asunción. As inconsistency of care and the inability to manage severe health problems restrict the capabilities of this rural hospital, many patients must be evaluated there and then transported to a larger, and usually private, healthcare facility in the closest large city, or often the capital city. Piribebuy regional hospital has been campaigning for the last several years to be upgraded to a district hospital, which would grant them a full-time physician, X-ray equipment, and an increased monthly allowance of free medical supplies. Despite qualifying for this upgrade in terms of number of patients served for almost a decade, they have yet to achieve this status, an issue that will be addressed in detail in my analysis.

### **Data Collection & Methodology:**

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This project utilized a variety of qualitative research methods to investigate the research questions. The research methods used were: focus groups, semi-structured interviews, participant observation, and open-ended discussions. Random sampling was not utilized, as I did not want the selected community members to feel obligated to participate in the focus groups and interviews, especially in light of the heavy workloads individuals carry in subsistence farming communities. I began by contacting key volunteer participants who had expressed interest in the project to the Paraguayan research team and to Dr. Finnis during their research in the region. I then used a snowball sampling technique, in which these participants referred me to other interested individuals within the community.

I first conducted a focus group interview, which served as an introduction to the community and allowed participant responses to shape the future direction of my research. The participants were asked questions about community history, focusing particularly on shifts in local climate and community demographics and their relation to local perceptions of health and health risks (see Appendix A for interview specifics). I planned to conduct a single focus group lasting up to an hour with a minimum of five individuals and maximum of eight; I felt that this was a realistic goal considering scheduling and individual workloads, initial interest levels of the community, and also the size of a group I could follow and direct discussion with in Spanish. This focus group was intended to give me a sense of how the community perceived this project and what they hoped to achieve by participating in my research. Though only four adult women capable of providing consent attended this focus group interview (they were accompanied by several of their children and grandchildren, who observed but largely did not participate in the discussions and any limited participation was not recorded due to ethical restrictions), these

particular women were central figures in the small community and spoke on behalf of themselves and their extended families, which constituted a significant portion of the village population, in addressing their health perceptions, healthcare concerns, and issues of recent local socio-political and environmental changes.

Once establishing myself within the community and settling into a host household, I proceeded to conduct semi-structured interviews. I had proposed a sample population of fifteen to twenty individuals, and eventually conducted full interviews with seventeen people. Each participant was over the age of eighteen, however as my research focus pertained primarily to changing health concerns within the elder demographic, the average age of the research participants reflected this focus and most were over fifty years old. Of the nineteen Lindo Manantial participants from both the focus group and the individual interviews, two participants were in their thirties, an additional two were in their forties, seven were aged between fifty-five and sixty-four, and eight fell into the World Health Organization's definition of elderly, sixty-five and older. Detailed age distribution of the Lindo Manantial participants can be seen in **Figure 1** of this chapter. Interviews with women typically took place in the family home while I participated in household tasks with the women, including food preparation and other daily chores. I anticipated that interviews with men would likely have to take place in family homes in the evenings after the workday or at community events like holidays or religious festivals, should it be situationally appropriate, however I was able to interview several male participants at length within their own homes (see discussion of limitations for further details).

The use of semi-structured, as opposed to structured, interviews provides a broader context to the social and environmental shifts that are contributing to health concerns and healthcare provision in Piribebuy farming communities and allowed for participants to discuss

concepts and details that may not have been obvious to a researcher with an outside perspective. Personal and community oral histories obtained through these semi-structured interviews contributed to the first and second research objectives, allowing for an examination and discussion of how perceptions of health, health risks, and the provision of healthcare may have changed with the social, demographic, and environmental shifts also occurring within the community. See Appendix A for sample interview questions. More casual, open-ended conversations with interested participants in community settings also served to further supplement the information gathered from the semi-structured interviews.

The four-month period of participant observation highlighted the individual voices and experiences of the participants. This method of participant observation is central to the discussion of health, particularly through the political ecology perspective, as the concept of health is deeply rooted in local and individual perceptions and experiences. The context of my participant observation research was a result of my living within the community and staying with a family, where I was quickly accepted into daily household routines and participated in community events. Participant observation served as both an entry point to the community and participants as well as a continuous central aspect of the fieldwork.

Though I had intended to record all of the focus group and interview discussions with a digital recording device, I found that I was able to follow the Spanish conversation quite closely following the first few interviews, and my note-taking became a conversation point with the participants which served to establish rapport, and so I moved away from recording the individual interviews whenever possible. The introduction of the recorder seemed to disrupt the initial flow of some of the interviews. In the early focus group and interview, I found that participants often looked to the device when finishing their thoughts, instead of to Noelia and

myself. This seemed to stunt the flow of conversation, and seemed to make some participants uneasy. As the Lindo Manantial participants seemed much more comfortable with a familiar pen-and-paper approach, I chose to discontinue using the recorder on most occasions in Lindo Manantial. One participant commented early on in my fieldwork process that she felt her views were significant because I was taking such care to record them by hand, and several participants found my attempts at Guaraní notations to be very comical and stated that they enjoyed teaching me how to say and spell traditional health, healing, and remedy terminology; as a result of this positive feedback I tried to remain consistent in taking notes by hand. Noelia, the research assistant from the Universidad Nacional de Asunción, was enormously helpful with translations both during and following interviews, and played a large role in the establishment of positive rapport with the community members. I did, however, choose to use the recorder when interviewing the traditional healer in Piribebuy, as she was listing many ailments and treatments consecutively, and it was a challenge to keep up with detailed notes and encourage conversation. For all of these qualitative research methods listed above, verbal consent was obtained (please see the proceeding Ethics section for further information).

In total, I spent approximately one month in the community over the course of a four-month period, through two extended home-stays and several day trips from the capital, and conducted full interviews with eighteen village residents (see Appendix A for detailed interview questions and structure). Three of these individuals, plus one additional woman, participated in the initial focus group. I conducted follow up interviews, with the purpose of gaining more insight into issues addressed in the first round of interviews, with five participants who were selected based on their individual interest in the project, participant-interviewer rapport, depth of information provided in the initial interview, and participant availability (See Appendix A). I also

conducted a more detailed and occupation-specific interview with a woman best described as a regional matriarchal figure who served as a traditional midwife and provider of very basic medical care for her own village and several surrounding communities (see Appendix C for specific interview structure details).

### **Identifying & Interviewing Additional Stakeholders:**

During my time conducting fieldwork, I was presented with several opportunities to interview additional several stakeholders in the provision of healthcare services in Paraguay. Firstly, a senior relative of one of my key contacts within the Human Ecology Department at the Universidad Nacional de Asunción happened to be a nursing professor at the national nursing university in Asunción. When this professor expressed an interest in participating in my research concerning the perceptions of health risks and the provision of healthcare services within remote rural populations, I readily accepted her offer and formulated research questions. These questions were based upon the discussions within the initial community focus group, my preliminary participant observation analysis, and my expanding first-hand experience with Paraguayan culture and society (see interview questions and structure, detailed in Appendix C).

Following the establishment of this connection with the Asunción-based nursing professor, I arranged a meeting with the head administrative nurse at the Piribebuy Centro de Salud, the regional hospital in Piribebuy town which was the closest clinic for the villagers in my primary fieldsite, as well as other nearby and similarly remote communities. This nurse granted me access to the entire nursing staff at the Piribebuy Centro de Salud, and I was able to interview seven employees, approximately two-thirds of their regular healthcare team, including the biochemist who ran the hospital laboratory, a hospital administrator, the pharmacist, and the

national health insurance representative nurse, during a three-day stay in Piribebuy centre. (See Appendix B for further interview questions and detailed structure).

Finally, given the significance of natural medicine and traditional healing as discussed by the research participants, I also chose to interview a *doctora naturalista* ('natural doctor') in Piribebuy. There are many proficient professional natural doctors in Piribebuy and the surrounding area, however this particular natural doctor was mentioned and recommended to me several times throughout my interviews with both villagers in Lindo Manantial and Piribebuy's government-sanctioned healthcare providers at the Piribebuy Regional Hospital. Due to her prominence in the local natural healthcare community and the frequency with which she was discussed in my initial interviews, I determined that she was both a highly regarded and proficient natural doctor, as well as the most appropriate healer to interview in the context of this research endeavour. This particular woman was incredibly receptive to the interview and took time away from her busy schedule treating patients to address all of my specific questions (see Appendix C). I arranged the visit and travel as a day trip from the Lindo Manantial community fieldsite.

In total, 28 individuals were interviewed directly through the focus group and the semi-structured interviews. In addition to these interviews, I completed four months of participant observation, situated in the capital city of Asunción, at the Universidad Nacional de Asunción in San Lorenzo, in Piribebuy town, and in the small village community. As part of my participant observation notes I kept a detailed journal, noting daily household activities, excursions, diet, the local weather, my interactions with locals, and details regarding my own perceptions of health and daily life in each research setting. I carried a small day planner with me at all times so that I could record my observations in note form, and wrote detailed journal entries based on these

notes each evening, during the nightly *telenovelas* in Lindo Manantial or during daily *siesta* breaks the following day. Together these experiences informed much of the further research results discussed in the analysis section of this thesis.

### **Anticipated Research Limitations:**

The first potential limitation in my planned fieldwork relates to language barriers and translation issues. There are two official languages in Paraguay: Spanish and Guaraní, a local indigenous dialect. Though my conversational Spanish was passable upon entering the field, it was unrealistic for me to study much Guaraní prior to arriving in Paraguay and, even then, it is a complex indigenous language that bears no resemblance to Spanish and was very challenging to learn. Most Paraguayans speak both Spanish and Guaraní, and occasionally other indigenous dialects (Pan American Health Organization 1998:401). The primary role for Noelia, the research assistant from the Universidad Nacional de Asunción was to aid in translation during interviews and focus groups, as well as in the process of transcribing interviews to avoid translational errors, to provide additional qualitative observations, and to help contextualize the results in the Paraguayan perspective.

The second limitation I had anticipated was in recruiting male participants. Firstly, many households do not have adult male members as paternal figures and grown male children often work and live outside of the village on *estancias*<sup>4</sup> or in urban centres both in Paraguay and abroad in neighbouring countries. The total pool of potential male participants in the Lindo

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<sup>4</sup>*Estancias* are large rural estates, akin to ranches, which consist primarily of grasslands upon which herds of cattle are free to roam and graze. These *estancias* are attended to by ranchers on horseback, who monitor, herd, and eventually participate in the slaughter of the cattle for commercial meat production. Some ranchers' families also subsidize their income by collecting firewood, or *liña*, from the *estancias* and selling it in their own villages.

Manantial community was therefore limited to start with. Secondly, the burden of physical labour involved in non-mechanized subsistence farming in Piribebuy is immense, due in part to the aforementioned climate shifts and lack of younger and more able-bodied family members within the community to help the remaining male farmers manage family plots. As a result, men typically work a minimum of six days per week, and often from sunrise until after dark. As such, I expected to only have access to the working men within the community after their long workdays, during midday siesta breaks, and during communal meals, at which point they were likely to be physically exhausted and perhaps reluctant to participate in interviews. In this regard, I was largely correct; most of my interviews with men within the community were with those who were too elderly or frail, by their own definitions, to work a full day in the field. In anticipation of this concern, I planned to conduct these interviews over the course of several visits or to only have access to the male farmers in my host households. Also, I planned to potentially discuss the health histories and concerns of male farmers while interviewing their female family members, so long as I had verbal consent from the farmer as well. Finally, I planned to use more open-ended and informal discussions with male farmers at community events to incorporate more male voices into the research. Though I was also able to schedule a couple of interviews with male participants in advance, the vast majority of my formal interview interactions with male community members were with those no longer able to work full days. All other data was obtained primarily through participant observations and open-ended discussions during more social gatherings. As I was only able to obtain detailed interview information about individual health and perceptions of community health from much more senior male participants, their personal health concerns may be more representative of their age group than community health, as defined in the Chapter 1 of this thesis.

### **Ethical Considerations & Procedures:**

The level of risk to the participants involved in this investigation was minimal. Participation in the research was entirely voluntary and based on the continued interest of the participants. For all of the qualitative research methods listed above, verbal consent was obtained. I feel that verbal, as opposed to written, consent was necessary in this context because I wished to avoid any associations with government officials or investigations and because illiteracy was a potential issue, especially within the elder demographic.

As the line between researcher and community member is often blurred over the course of prolonged fieldwork, I asked each participant to reaffirm their verbal consent prior to each interview, focus group, and during open-ended discussions that applied to the research project. In light of this method of repeated and reinforced verbal consent, participants remained informed of their ability to withdraw from the investigation at any time or to ask that certain aspects of our conversations not be included in the qualitative data recorded and discussed. I openly shared my notes with each participant and discussed my observations in detail throughout the process with the interviewees; indeed, during the commercial breaks for the *telenovelas*, my journal entries often became an interactive process, with the entire extended family who had gathered for the evening programming contributing to the discussion of our day.

In order to increase participant privacy, I changed the names of the participants and the small community in the transcriptions and thesis write-up in order to protect the identity of my informants. Finally, hard copies of fieldnotes were kept in my immediate possession and were largely recorded in English. Electronic notes and digital recordings were carefully stored on a password-locked netbook computer in Asunción during the fieldwork process and on a password-protected hard drive for the continued work in Canada. As such, identities of the

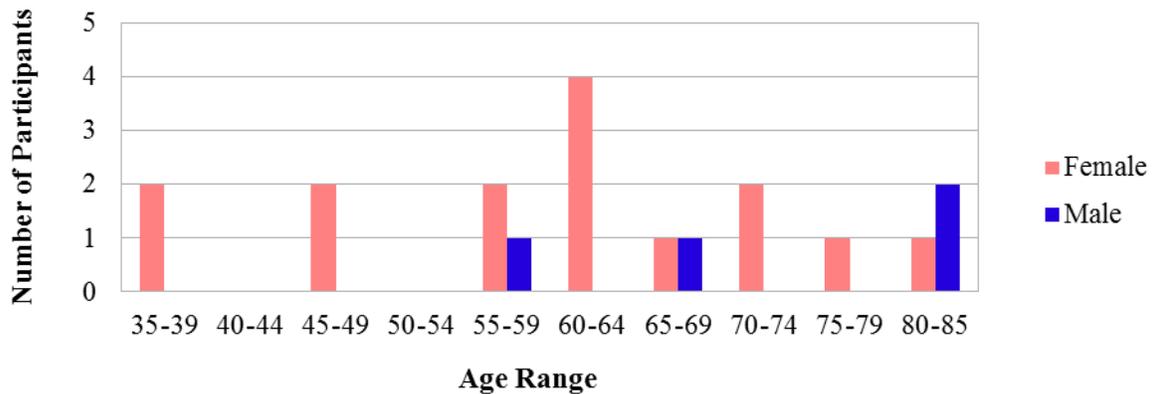
participants and the details of each interview, focus group, and other discussions were only available to the investigator and the research assistant while in the field. Finally, the potential benefits of this investigation for the community strongly outweighed any possible risk to the participants who willingly contributed to this research. The most specific benefit to the community is the desire to use the collection of qualitative health and healthcare data from this region to better inform and hopefully restructure the relatively new healthcare provision policies in Paraguay that currently neglect the needs of most rural areas, especially in comparison to urban centres.

***Summary of Participants & Fieldsite Data:***

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For a detailed summary of participant information and interview themes, please refer to **Appendix D**. The following graphs summarize key participant data, with a particular focus on the age and gender demographics of the Lindo Manantial participants, as this directly influences the data analysis. **Figure 1** correlates with my observations of the age and gender demographics of the Lindo Manantial community as a whole, with few adult residents under the age of fifty and a high female to male ratio. The anticipated difficulty in finding male participants proved realistic, only four of the nineteen Lindo Manantial participants were men.

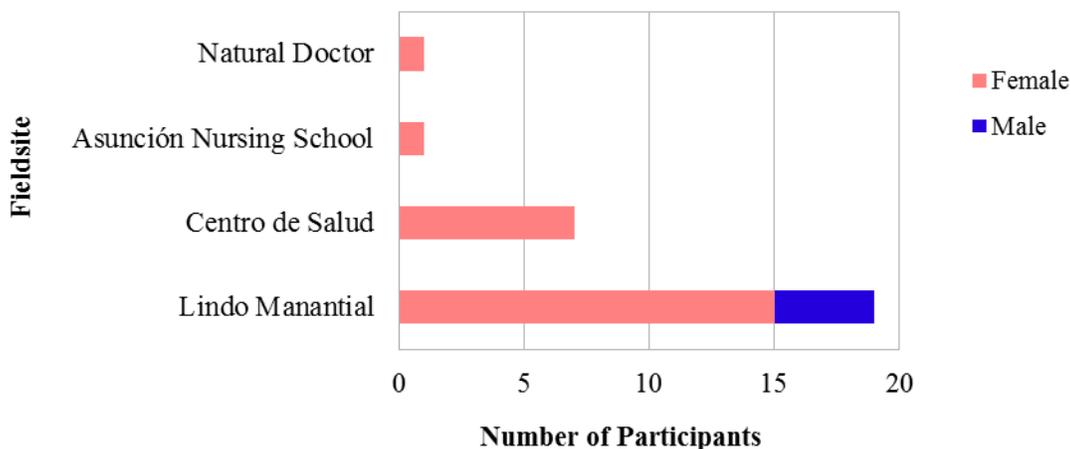
**FIGURE 1: Age and Gender Distributions of Lindo Manantial Participants**



**Figure 2** shows the number of male and female participants at each of the two main fieldsites, Lindo Manantial and the Piribebuy Centro de Salud, as well as the two additional participants, the natural doctor and the nursing professor in Asunción. **Figure 2** clearly illustrates the disproportionate number of female participants and stakeholders in rural community health and healthcare in Paraguay. The many factors contributing to this gender ratio in Lindo Manantial have been discussed at length. At the Centro de Salud the doctors were predominantly male; however, due to the rotational nature of rural medicine shifts, they were not constant

members of the healthcare community. Due to their limited scope of the community at large and their own time constraints, the doctors were not interviewed for this project. The nursing profession in Paraguay is dominated by women, and therefore they represented the total sample population of participants at the Centro de Salud and the Asunción nursing school professor. All of the nurses at the Piribebuy Centro de Salud were female and of varying ages, as was the sample population used in this research. In total, I interviewed five of the eleven full-time nurses at the Piribebuy Centro de Salud, in addition to the biochemist and a pharmacy technician.

**FIGURE 2: Gender Distribution of Participants at each Fieldsite**



While over the course of my research I was informed that both men and women traditionally held the role of natural doctor in rural Paraguayan communities, both of the natural doctors I encountered, including the one I was able to interview for this research project, were female. As members of such rural communities, families that historically filled the roles of natural doctors have been subjected to the same socioeconomic pressures as the rest of the community. As a result, it would seem that many youths, especially the men, had migrated to

urban centres for work, leaving women to fill the role of natural doctor for the community. As will be discussed in further detail later, the female natural doctors often serve as both medicine woman and local midwife, and many of the natural remedies centre on female reproductive health. Rural health and healthcare in the Piribebuy region of Paraguay would appear to be a female-dominated sector.

This chapter served to introduce the research community, Lindo Manantial, and the secondary fieldsite, the Piribebuy Centro de Salud, as well as identify the further stakeholders in rural Paraguayan health and healthcare services who were interviewed as part of this research project. The research methodology and data collection process used in gathering the qualitative data for this thesis were also presented in detail, along with ethical considerations and project limitations. The next chapter, Chapter Four, will present the data collected throughout the fieldwork process outlined in this chapter. Further, I will present a discussion of the data results, contextualizing and examining in detail the participant responses in order to build the foundation for the following data analysis chapter.

## **CHAPTER 4**

### **DATA COLLECTION & DISCUSSION**

In this chapter, I present and discuss the data generated over the course of my four months in the field conducting qualitative research. I have organized the data according to thematic areas that were both implicated by the nature of the interview questions and emerged throughout the research process according to participant responses. I will begin by exploring the general perceptions of community health as discussed by the Lindo Manantial residents and the Centro de Salud employees, respectively. I then discuss emerging and changing community health concerns, which featured in all of the interviews in both Lindo Manantial and Piribebuy. This section is presented in three sub-sections: improved areas of health and healthcare; consistent health concerns; and, increasing and emerging health concerns. In the final section, I present a case study of high blood pressure, which was one of the most commonly discussed health issues in both the Lindo Manantial and Centro de Salud participant groups. The following section deals with nutrition, food, and food preparation, and also includes a case study of type II diabetes within the Lindo Manantial village. I also discuss accidents and injuries, and disease vectors and venoms, exploring local perceptions of risks associated with the transmission of diseases from insects and animals, as well as the local risks associated with venomous creatures. I will then present a discussion of seasonal health concerns, and how local climate and ecology are perceived to impact various health issues. Finally, I will discuss community perceptions of the health risks associated with ageing, and the impact that this has for the changing community demographic.

## ***I. GENERAL PERCEPTIONS OF COMMUNITY HEALTH***

### ***i) Lindo Manantial:***

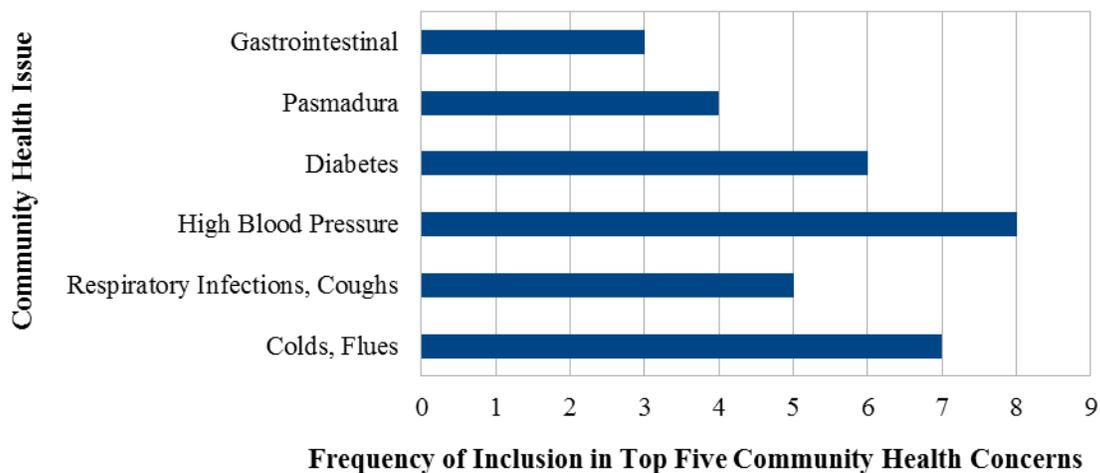
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As one of the primary objectives of this qualitative research project was to assess and understand the local perceptions of community health and health risks, much of the first stage of interviews was directed towards facilitating discussions about general health within Lindo Manantial. The eighteen Lindo Manantial residents who participated in individual interviews were asked to list the five most common health issues within the community today. The results of these discussions are listed in **Figure 3**. In their responses, the participants tended to group colds and flus and coughs and respiratory infections together, and so I also grouped the responses according to these classifications.

The most commonly cited health concern was, by far, high blood pressure, which will be discussed in further detail in Section II(*iv*) of this thesis. Respiratory infections, coughs, colds, and flus were also mentioned by most participants; respiratory infections and coughs are evidently year-round health issues, particularly for the young and the elderly, however colds and flus were discussed as being much more common during the winter months. Diabetes was frequently brought up as a health concern, which the participants found quite worrisome. Again, this warranted a complete discussion section, which can be found in Section III(*i*) of this chapter. Ocular health concerns were frequently mentioned, mostly related to basic myopia, glaucoma, and cataracts in the ageing demographic. Diarrhoea was considered a constant problem, but several participants noted that it tended to be worse and more frequently occurring through the summer season. High cholesterol and arthritis were also of particular concern for several of the interviewees, as were issues with painful varicose veins.

A couple of the participants discussed *nervios*, which is a frequent health complaint in Latin America, as an issue that was exacerbated or even caused by the presence of other health concerns (Baer *et al.* 2003:317-8). *Nervios* is described by Baer *et al.* (2003) as a condition that can develop or be aggravated by stressful or traumatic events, and symptoms include signs of depression, increased crying, headaches, stomach aches, intensified emotional responses, and even acts of violence or hysteria (317). Don Claudio stated that his recurrent kidney problems were a great source of stress to him and his wife, and this resulted in increased susceptibility to *nervios*. The difficulties of managing chronic health problems, like diabetes, were also listed as a source of stress, which increased the likelihood of an individual suffering from *nervios* attacks. Urinary tract infections and yeast infections, known locally as *flor blanca*, were also commonly cited health preoccupations for middle-aged women. Don Claudio stated that he had back pains, which a natural doctor in Cerroléon, Paraguarí had diagnosed as a kidney inflammation, caused by his nervous temperament and propensity for stress.

**FIGURE 3: The Most Common Health Concerns in the Lindo Manantial Community, as per Participant Responses**



Three of the most frequently mentioned community and individual health concerns - *nervios*, *pasmadura* and *frialdad* - are what could be considered culturally-bound syndromes. *Pasmadura* was largely described as a sudden and debilitating cramped pain that struck when one washed their hands or body in cold water after performing physically strenuous work and becoming hot. *Frialdad* was used as something of an umbrella term for any female reproductive health concerns, ranging from menstrual issues, menopause and infertility to endometriosis and ovarian cysts. These culture-bound syndromes, and their relationship with and implications for local healthcare access and services, will be discussed in detail in the following chapter.

**ii) Piribebuy Centro de Salud:**

At the second fieldsite, the Piribebuy region hospital, the healthcare providers interviewed generated a list of general health concerns that differed somewhat from those expressed by the Lindo Manantial residents. The same predominant issues of high blood pressure and diabetes were discussed as being common health concerns within the community, however the hospital is currently not equipped to manage and treat these chronic illnesses, and so the healthcare professionals rarely see these diseases in their daily work. Within this participant group, the most prevalent concerns for community health issues were maternal and infant health, and sexually transmitted diseases, particularly gonorrhoea and syphilis. Respiratory infections, in particular tuberculosis, were also a very commonly cited cause for concern, along with flus; the nurses seemed particularly concerned about the emergence and spread of 'new' flu viruses, namely H1N1 and bird flu, both of which posed a potential risk to community health and had accounted for a large proportion of their professional care services during outbreaks over the past several winters. These nurses and hospital administrators also discussed colds and coughs as

being most common community health issues through the winter months and that diarrhoea and stomach issues presented much more of a cause for concern during the summer months, as was discussed within the Lindo Manantial residents. Finally, dermatological issues were discussed as being very common in patients at the clinic, particularly those from the smaller villages who come to Piribebuy for treatment; this was an additional health concern that was not brought up in discussions of community health and perceptions of health risks with the Lindo Manantial residents.

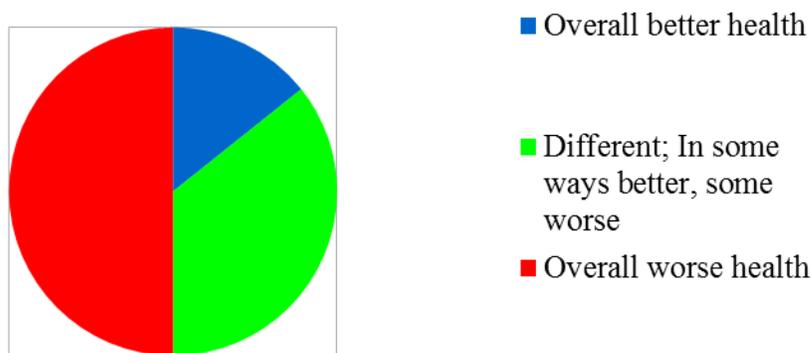
## **II. EMERGING & CHANGING COMMUNITY HEALTH CONCERNS**

In keeping with the political ecology of health approach to this research project, it was important to gain an understanding of how the local health conditions, local perceptions of health risks, and the nature of healthcare services available to the residents of Lindo Manantial might have changed in conjunction with or in response to local environmental, socio-political, and cultural shifts. As such, this was a central discussion topic in all of the interviews and the focus group. The following subsections detail the data collected on this subject in both Lindo Manantial and at the Piribebuy Regional Hospital. Also included in this section are three case studies that explain in further detail two emerging health issues in Piribebuy district, high blood pressure and type II diabetes, and the details surrounding the re-emergence of certain infectious diseases within the two fieldsite communities.

When asked to describe how general health conditions within the village of Lindo Manantial had changed within the past two to three decades, nine of eighteen participants told me that, in spite of significant improvements in access to medical services and communication technologies within the past thirty years, they believed that overall community health conditions

were much worse now than they had ever been in the past. A further seven participants indicated that community health was “*igual*”; though in many ways general health had improved, it had also deteriorated dramatically with the emergence of new diseases and the adoption of unhealthy lifestyles, and so overall community health had remained on an even level with the past. Only two participants indicated that they felt that community health had improved since their own childhoods, as the community became less isolated and better treatments became available to the residents of smaller villages like Lindo Manantial. **Figure 4** provides a graphical representation of the Lindo Manantial interview participant responses to the question, “How would you describe the health of your community? Is it better or worse now than it has been at other times in your life?”

**FIGURE 4: Lindo Manantial Participant Perceptions of Changes in Community Health**



In contrast to the evaluation of general community health currently, as compared to two to three decades ago, the healthcare providers at Piribebuy Centro de Salud all responded that, in their professional experience, the general health status of Piribebuy and the surrounding villages had remained the same, as some health indicators had improved while new health concerns had emerged. As one nurse, Alejandra, said, “Lots of things are better, but now there are new

illnesses to worry about.” In the individual interviews, they too were asked to list in detail aspects of community health that had improved, that had remained constant, and that had worsened in the past thirty or so years.

**i) Improved Areas of Health & Healthcare:**

The Lindo Manantial residents detailed specifically how the health of their community had changed by organizing the health concerns we discussed into three categories: that which had improved; that which had worsened, and; the health risks that have remained unchanged. Most stated that public healthcare services were now easier to access and more readily available to them; Don Arturo recalled how when his son, now in his late forties, had fallen while climbing a tree and broken his arm as a child, they had fashioned a sling out of some old cloth and he and his son had walked the fifteen kilometres to Piribeby to be examined at the Centro de Salud. Much like today, the hospital had not been equipped to treat broken bones, so Don Arturo had to take his son on a bus to Asunción. In short, though still limited, there has been a considerable increase in the availability of private and public transportation for Lindo Manantial residents in the past three decades, and this has considerably improved the accessibility of medical care. Residents also discussed that polio, known locally as “*paralysis*” and measles were both now non-issues; while they were still extremely common twenty years ago, the locals attributed the community-wide eradication of these illnesses to the introduction of childhood vaccinations to the community in the early 1980s. The Lindo Manantial participants also mentioned that non-specific low-grade fevers and infections also posed less of a risk to community health now, given the availability of basic pharmaceuticals, particularly paracetamol, and first aid supplies. Most households now possessed a small first aid kit, which typically included bandages, disinfectant,

and pain medication, which allowed them to treat and manage minor illness and injuries at home.

The nurses also cited the eradication of polio, in addition to consumption, as one of the great achievements in improving community health over the past few decades, which, like the residents of Lindo Manantial, they too attributed to the Stroessner-era vaccination programs. While the nurses celebrated this accomplishment, vaccination programs also were responsible for an enormous burden of stress for the healthcare providers, who since the local eradication of these illnesses have recently seen a severe drop in the number of patients who comply with the vaccination routines. They stated that, as the diseases were no longer highly visible and did not pose an imminent threat to the health of their children and their community, mothers no longer came from the rural villages to have their infants vaccinated, or follow-up booster shots were skipped. “We can knock on doors in Piribebuy town,” nurse Elena said, “but we have to trust the mothers from the villages to bring their children here, and now lots of them don’t.” Even more frustrating was the re-emergence of the rumours that vaccinations actually caused children to develop illnesses and that healthcare workers were somehow targeting rural people with diseases. New dengue vaccination initiatives have recently encountered such anti-vaccination rumours stating that unsafe dengue and H1N1 vaccines had been sent to South America at discount prices after being rejected by the European drug commissions (Douglas & Stone 2010:10). Such rumours, in combination with the decrease in overall patient compliance with vaccination regimens, have been extremely damaging to the public health vaccination campaigns and healthcare professionals in Piribebuy expressed anxiety and concern that they would soon see a re-emergence of the preventable illnesses they had managed to stifle in recent years.

Similarly, issues surrounding rural patient adherence to full courses of therapy and the threat this posed to the emergence of drug- and vaccine-resistant forms of diseases was a

pressing concern for the Piribebuy healthcare providers. Tuberculosis is a widespread health problem in the region, although there have yet to be any reported cases of resistant-tuberculosis in the area. Nurses were highly concerned, however, that inconsistent access to patients suffering from tuberculosis was impacting their ability to comply through the full course of treatment, which can last up to eighteen months, and might soon lead to the development of drug-resistant tuberculosis in the area, which requires much more complex treatment procedures (Francis J. Curry National Tuberculosis Center and California Department of Public Health 2008).

Antibiotic resistant infections are also a considerable source of concern for the healthcare providers; antibiotics are sold in pharmacies in Paraguay without the need for prescriptions, and now that these drugs are readily available to rural residents as well, they are often taken as a first line of defence for minor bacterial infections and viral infections for which they are not only not necessary, but also not medically advisable (McNulty *et al.* 2007:164). The overuse and incorrect use of antibiotics renders them largely ineffective on an individual's immune system, so when more serious bacterial infections are contracted, the standard medications provide little to no relief. In spite of the high health risks associated with the over prescribing of antibiotics, especially under conditions in which accessing follow-up care is highly inconvenient for the patient, the public remains largely unaware of these risks and the overuse and misuse of antibiotics is on the rise (McNulty *et al.* 2007:163). A recent study in the United Kingdom following a nationwide campaign promoting safe antibiotic use and the dangers of antibiotic resistance found that one third of the population still believed that antibiotics could cure the common cold, while just shy of one half of respondents inaccurately thought that antibiotics could target viruses (McNulty *et al.* 2007:164). A second international survey noted that an average twenty-two percent of individuals prescribed antibiotics admitted non-compliance with

treatment criteria (Pechère *et al.* 2006:247). In a nation such as Paraguay, where patients have considerably lower access to and knowledge of formal medical healthcare services and policies, these statistics are likely to be higher. I witnessed this over-reliance on antibiotics while in the field. One afternoon upon my arrival at my host home in Lindo Manantial I was met by the youngest daughter who frantically asked where my first aid kit was and if I had any antibiotics for her mother. Worried, I quickly asked what the matter was, and was told that she had developed a chest cold and wanted to take the antibiotics “*para recuperar*”, “to recuperate”, from the cold. “If I take the antibiotics it will go away faster,” Ña<sup>5</sup> Graciana insisted, “it’s the best thing to take.” She seemed sceptical when I offered over-the-counter decongestants instead, and was surprised at the effectiveness of the medication instead of the antibiotics. The immediate desire to self-medicate with unnecessary antibiotics is something the nurses see in their patients on a regular basis, and a trend that deeply worries them in terms of the emergence of so-called “super bugs” and multi-drug-resistant infections.

## ***ii) Consistent Health Concerns:***

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The health indicators that had remained relatively unchanged in both prevalence and severity within Lindo Manantial over the past few decades were widely agreed upon by the participants. The two culture-bound syndromes, *pasmadura* and *frialdad*, were reported to have been just as much of an issue thirty years previously as they were now. *Pasmadura* in particular was discussed as having been present for as long as the community members could recall, as several of the elderly participants discussed their own grandparents having struggled with the

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<sup>5</sup> In Paraguay, locals use the honorific titles ‘Don’ and ‘Doña’ for adult male and female community members, respectively. These terms are primarily used in the place of the equivalent ‘Señor’ and ‘Señora’. In rural Paraguay, the term ‘Doña’ is most commonly abbreviated to ‘Ña’, and this is the standard respectful manner of greeting and referring to an adult female member of the community.

condition. Also listed as consistent health concerns within Lindo Manantial were general colds and flus, which remained community health problems throughout the year but especially during the colder seasons. Similarly, gastrointestinal upsets were said to be just as common now as before, and were exacerbated by warm weather and therefore worse in the summer months. The alternating seasonality of these consistent community health concerns is discussed in greater detail in section VI of this chapter.

Just as the Lindo Manantial residents had described, the healthcare providers echoed the observation that prevalence rates of colds and flus had remained constant, and were much more common during the winter months, while rates of gastrointestinal complaints had also remained constant and were a much more commonly reported issue in the summer months. In addition to colds, flus, and stomach upsets, the nurses felt that rates of sexually transmitted diseases, especially gonorrhoea and syphilis, had neither increased nor decreased since the early 1980s, and that maternal health risks had also remained relatively constant. In terms of sexually transmitted diseases, the nurses blamed this consistency on the ineffectiveness of treatment when only prescribed to one member of the sexual partnership; they observed that, in general, only women came to the clinic for sexually transmitted diseases while men seemed to actively avoid seeking treatment. The nurses pointed out that these diseases would continue to spread and be passed back and forth until both partners received the appropriate medications. The nurses cited this as an example of the desperate need within the community for preventative health education programming, and increased consistency of health care services offered by both male and female practitioners, as the hospital is currently dominated by female nurses who men may feel uncomfortable approaching for sexual health treatment and advice.

The nurses also discussed the unchanging issues with maternal health in the area, stating

that though they had designed and implemented excellent pre- and post-natal, gynaecological and obstetric care facilities at the Centro de Salud in response to the great community need in this area, most rural women continue to choose to give birth at home with the aid of their female family members or natural doctors instead of at the hospital. The nurses thought this was because the women were concerned about hidden healthcare costs, due to ongoing transportation and access issues, and because of the advice given to them by their female elders and the natural doctors, who all advocated traditional home births. The nurses discussed how they currently only see mothers from rural villages after they have already developed extreme, and often preventable, complications, and by that stage the life of the mother and child are often at risk. The nurses expressed extreme frustration at their inability as yet to improve maternal and infant health within the community in spite of the time, effort, and funding that had been allocated to their infant and maternal health facilities and again stated that healthcare education would be central to improving patient access to these services.

**iii) Areas of Increasing & Emerging Health Concerns:**

When asked to discuss specific diseases or access issues that formed the local perception of changing community health, the responses indicated that new chronic diseases like type II diabetes and hypertension, which had been entirely absent within the community three decades previously, now accounted for many community health concerns. This trend has been well documented in recent years the world over, as globalization has reached some of the furthest corners of the planet, and with it has come so-called ‘diseases of development’, non-communicable and chronic illnesses associated with dramatic lifestyle changes. Guest and Jones write,

“Non-communicable diseases such as cancer, diabetes, and cardiovascular diseases have also become a burgeoning global health problem and are linked to common risk factors – tobacco and alcohol use, unhealthy diet, physical inactivity, occupation hazards, and environmental carcinogens. [...] As cultures in developing countries adopt the heavily promoted Western lifestyle, so too do they acquire the corresponding chronic diseases. These cultures will not, however, have the same access to medical care and treatment as their counterparts in developed countries,” (2005:11).

The World Health Organization estimates that currently approximately sixty percent of the global disease burden lies with non-communicable diseases of development, and this figure is predicted to grow in the coming years (World Health Organization 2002). The village of Lindo Manantial is certainly beginning to experience the full impact of these chronic diseases, although I would predict from my own research data that, diagnostically, they have as yet only scratched the surface of these non-communicable disease epidemics.

Most participants blamed the sudden prevalence of high blood pressure and type II diabetes on a community-wide dietary shift over the course of the last twenty to thirty years. They stated that the increase in use of salt, sugar, and non-traditional, non-“natural” foods that came with the rural-to-urban migration of youth and the corresponding decrease in reliance upon subsistence farming practices and produce was the most likely culprit for the dramatic rise in diabetes and high blood pressure within their village. In addition to chronic health problems, dengue fever was also discussed as an emerging health concern. Dengue fever was first discussed in the initial focus group, and it was mentioned that dengue was not considered a constant health issue, but that they had experienced an outbreak two years previously in Lindo Manantial. Asunción had been inundated with cases requiring hospitalization in the past summer, so it was something that many people were talking about and starting to worry about. When asked why they thought this had suddenly become such an issue, two participants told me that the disease

was coming “from Brazil”, saying that a combination of warmer year-round temperatures that encouraged the dengue-carrying mosquitoes to flourish and the youth travelling to and from Paraguay and Brazil for work were bringing dengue into Paraguay and into their community.

Along with the Lindo Manantial residents, the healthcare providers at the Centro de Salud also cited chronic health problems as the most pressing emerging health issue for both citizens of Piribebuy and their patients from the surrounding smaller villages. In order of perceived severity, they listed hypertension, type II diabetes, cholesterol, and asthma as the most frequently observed chronic health conditions in patients attending the Centro de Salud. They too blamed dietary and lifestyle changes, including increased consumption of high fat and high salt foods and decreasing physical inactivity as the causal factors for the emergence of these non-communicable chronic diseases within their community. They also discussed how these health conditions had only emerged as concerns for the community within the past fifteen years, however they noted that this likely was attributable to a certain degree to the fact that they only started testing individuals for these chronic health concerns in large proportions within the same time frame. The nurses also discussed an increase in the prevalence of malaria and dengue fever within the community, which one nurse described as being the result of increased deforestation in the region, which has created more areas of stagnant water that offer breeding grounds for disease-carrying mosquitoes. Finally, the Centro de Salud employees discussed dermatological issues, particularly leprosy, as being of greater concern within the community, although again they associated the increased accessibility of dermatology diagnostic specialists in the area with the increase in community recognition of skin infections. As patients are more aware of health concerns and more easily able to access medical services, they are likely seeking treatment at the hospital for conditions that otherwise might have gone ignored in the past; skin irritations and

other seemingly minor afflictions may not have been deemed worthy of the financial costs and inconveniences associated with seeking formal medical treatment for rural citizens.

Climate change and its many implications for the community were discussed at length throughout this investigation, both during the interviews and in casual conversation during my stay in Lindo Manantial. When asked about the effects of climate change within the community, many participants discussed the impact the changing climate had on individual and community health. All but two participants felt that climate had changed significantly in the past thirty years, stating that the average summer temperatures were consistently higher and that weather throughout the winter was much more inconsistent, fluctuating between extreme heat and extreme cold temperatures. Ña Fernanda told me, “There have been lots of changes with the *clima* (climate). We are in winter now and it is too warm. The summer is much hotter now, it is too hot.” Ña Eufemia said, “It is much warmer now. The winter used to be cool all the time, now it is either very hot or very cold.” Several participants noted that planting seasons had shifted, and that winter precipitation patterns, as with temperatures, tended to alternate between extreme droughts and extreme storms. Both the temperature and precipitation inconsistencies were blamed for exacerbating health problems; higher temperatures were blamed for increasing the effects of high blood pressure and nervousness, extreme temperature fluctuations were cited as the cause of colds and flus, and lack of precipitation was listed as the cause of increased respiratory problems because of the proliferation of dust. Ña Fernanda told me, “You wake up warm in your bed because it was warm yesterday, but you go outside and now it’s cold. So you dress warmly, but then it gets warmer and you get too hot. But then the winds make you cold. This is what makes you sick!” Cold winds were frequently blamed for causing or exacerbating respiratory conditions. Ña Esperanza told me that her daughter’s asthma was much worse

because of the periods of extreme cold in the winter. Don Claudio also spoke of how the climate changes had affected his working, stating, “It is hotter all the time now. I have to go out to the fields earlier and come back early because of the heat.” These responses indicate that, in a community where the locals have traditionally relied upon their relationship with the land and climate to survive and thrive, the impact of climate change on individual and community health is perceived as being hugely significant.

***iv) Case Study: High Blood Pressure:***

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Hypertension, also known as high blood pressure, was the most commonly cited emerging health concern by both the participants in Lindo Manantial and the healthcare providers at the Centro de Salud in Piribebuy, and additionally by the nursing professor in Asunción. Eleven of the eighteen participants in Lindo Manantial, just over sixty-one percent of the interviewees, listed high blood pressure as one of the five most common health problems in the village, while nine of the participants, or fifty percent of respondents, had been officially diagnosed with the condition. All of the diagnoses had been made within the past decade. Perhaps most alarming was the discussion amongst the Lindo Manantial residents of the younger age at which their family members and neighbours were being diagnosed with the condition; both of the interviewees aged under fifty had been diagnosed with hypertension while in their thirties, and this trend was increasing throughout the community. Ña Maria even attributed the death of her adopted son and nephew at age thirty-five to high blood pressure.

Blood pressure measurements describe the force applied to the arterial walls by blood as it is circulated by the heart, and high blood pressure, or hypertension, refers to abnormally elevated force against the walls, due to arterial hardening or extremely rapid heart rates (Zieve &

Eltz 2010). Primary or essential hypertension is the chronic form of the disease that often has a genetic element, but can be caused or exacerbated by unhealthy lifestyle and dietary choices, especially obesity, lack of exercise, and high sodium content diets, while secondary hypertension is often a temporary condition caused by another underlying medical condition or adverse reactions to medications. Primary hypertension, the chronic form, increases risks of heart disease, stroke, kidney disease and early death (Zieve & Eltz 2010). Though generally considered to be asymptomatic, some hypertension sufferers may experience irregular heartbeats, fatigue and headaches, confusion, and vision and hearing changes. Complications that can arise from hypertension include heart attacks, stroke, vision loss, chronic kidney disease and arteriosclerosis, damage to blood vessels (Zieve & Eltz 2010).

Three of the individuals who had been diagnosed with the disease used only natural medicine to manage the symptoms of the disease (predominantly *yaguaretepo* in daily *maté* and *tereré*, but also *hoja de naranjo*, *tilo tilo*, *ñuati pytã*, and *hoja de mburucuja*; see Figure 5); two felt that their symptoms were currently not severe enough to warrant regular medications and so they used natural remedies preventatively while one woman stated that consults with medical doctors and prescribed pharmaceuticals were far too expensive, and so she instead chose to seek regular treatment from a natural doctor in Cerroléon, Paraguari for her condition. Three of the participants were originally diagnosed by doctors in Piribebuy or Cordillerita and five had travelled to doctors in Asunción. Ña Dominga had been diagnosed by a doctor who had visited the village with a campaigning politician and was offering free medical advice to those who allowed the politician to discuss his platform with them and secure their votes in the upcoming elections. “He told me I have high blood pressure,” she said, “but it’s not too bad. I use natural medicine.” This was an alarming trend in the rural areas around Piribebuy; privately contracted

doctors often travelled with the politicians making the rounds in rural areas, providing quick examinations, medical advice, and handing out medications to all those who expressed interest in the visiting campaigner. In fact, several of the hypertension sufferers within the community had been provided with high blood pressure medications by a visiting politician-doctor team during my own stay within the community. On one specific occasion, medication was handed out in a manner akin to distributing refreshments at a community meeting, without any individual medical examinations. Ña Lupita's husband Don Estéban returned from that all-male meeting with ibuprofen and high blood pressure medications, and without having had a medical exam or diagnosis. The potential long-term health implications of these practices are enormous; they open the door to misdiagnoses, raise issues concerning lack of follow-up care and misuse of medications, and politicize community perceptions of and access to quality medical care.

Aside from the medications obtained through this incredibly contentious political campaign strategy, all those taking regular hypertension medication had to get their prescriptions from Asunción. Though some of the participants' children purchased the medicines for them, the majority bought their own drugs from Ña Esperanza, who travelled to Asunción every few months and purchased the medication for herself and her friends and family members. All of the participants with hypertension discussed the extreme cost of taking regular medication for their condition, stating that the cost of these drugs was much higher than any others they regularly took. The lack of direct contact most of the Lindo Manantial residents had with medical professionals for follow-up appointments or consultations concerning the effectiveness of their current medication regimens for their high blood pressure was astounding; less than half of the officially diagnosed patients reported keeping regular doctor's appointments for follow-up care, as this had to be dealt with through medical insurance, if the participant had familial coverage

through one of their children employed outside of Lindo Manantial, or private healthcare services.

The most commonly described symptoms the villagers associated with high blood pressure were feeling faint or weak, dizziness, and heart palpitations, which were described as “*ataque del corazón*”, having a “heart attack”. I was frequently told that these symptoms were often precipitated or exacerbated by extreme heat, and had restricted sufferers from being able to work the long hours they once had in the fields. Almost all of the participants linked the recent dramatic increase in prevalence rates to changing diet, specifically increased salt and sugar consumption, though some differed in their opinion as to which was the worst causal factor. Most participants discussed their increased salt intake as the prime culprit, while others, my host household included, saw excessive sugar consumption as the root cause of hypertension. These opposing views of the cause of high blood pressure were reflected very clearly in individual food choices during a festival celebration I attended in August. For the Feast of the Ascension, one of the most significant religious festival days for Paraguay, I joined several of the Lindo Manantial residents in travelling to the next small village, appropriately named Pomelo for its abundance of grapefruit trees, to participate in the church service and all-day fair. We were stationed quite near to the popcorn stand, which was selling both salted and sugar-coated varieties. Over the course of the afternoon, I witnessed several people refuse the salty popcorn in favour of the sugar-coated option, stating that they could not have the salted variety due to their high blood pressure, while still more refused the sugar-coated popcorn and instead opted for the salted, citing their concern that the excess sugar would exacerbate their own hypertension symptoms. Salt, and not sugar, is medically recognized as a causal factor for the development of primary hypertension, although high-fat diets and sedentary lifestyles are also known to contribute (National Health Services

2011).

The healthcare service providers at the Piribeby Centro de Salud also expressed concern at the rapidly increasing rates of hypertension diagnoses within the community, especially the surge in prevalence within the thirty-to-forty year age bracket. Professora Sofía, the nursing professor in Asunción, confirmed that this was not only the case in rural areas, but was currently a nation-wide phenomenon and a serious source of concern for public health officials. All of the healthcare workers I interviewed, including Sofía, discussed the need for prevention education in addressing this serious health issue. They seemed to be under the impression that the rural residents in particular were unaware of the implications of their increasingly unhealthy lifestyles, however my own research would indicate that this is not entirely the case. From as early on in the data collection process as the first focus group, participants discussed the health risks associated with the local high-fat, high-salt diet, which they primarily associated with heart disease and hypertension. The focus group discussion of high blood pressure quickly revealed that locals were well aware of the potential repercussions of their diets and increasingly sedentary lifestyles; they indicated, however, that they generally remained disinclined to alter their eating habits because things were considered unappetizing or bland without the added fat and salt content. “We eat what we want because we can, because we can get these things now,” Ña Lupita informed me. Her mother, Ña Pilar, smiled and followed up with, “Everyone is the owner of their life.” While it seems that preventative health education is certainly necessary in this region, any programs encouraging significant dietary alterations will face an uphill battle for acceptance.

Though most residents of Lindo Manantial seemed to understand that hypertension was ultimately caused by poor diet and lack of physical exercise, both of which had likely contributed

to the rapid increase in the prevalence rates of the disease within their community recently, several also expressed their perception that perhaps the rates were not so dramatically different than before, but simply that more residents were seeking regular medical care now and had therefore been diagnosed. This theme has permeated both the Lindo Manantial and Piribebuy communities in their understanding of the current emerging community health crises; with increased access to medical care also comes increased diagnoses rates for chronic and acute illnesses, certainly, and any future preventative education methods must address this perception in order to be successful within such an environment.

### **III. NUTRITION, FOOD & FOOD PREPARATION**

As discussed in the previous sections, nutrition, food choices, and the preparation of food were consistently addressed issues relating directly to the general health of the community throughout the interviews and focus group, and also constituted a large portion of my own participant observation research. Many of the individual interviews took place in the participants' homes, usually while food was being prepared or, especially for the interviews with male participants, during mealtimes. The nature of local diet and resources makes food preparation – from the gathering of firewood through the storing of meals and perishables – an almost constant task. As Ña Matilde stated, “Cooking, cooking, cooking – all my life I’m cooking!” *Mandioca* (*Manihot esculenta*), a starchy tuberous root native to South America, is a staple part of almost every meal in Paraguay’s countryside. The outer layer of *mandioca*, a form of cassava, contains moderate levels of toxic cyanogenic glucosides and therefore must be processed correctly in order to avoid possible cyanide poisoning. The preparation for this food item alone takes a considerable amount of time and effort and is performed daily in the vast majority of households.

Most of the food preparation and cooking in Lindo Manantial is done outside, over either an open fire or in a traditional Guaraní clay stove, a small beehive-shaped oven made of red earth that slowly cooks foods. The household I stayed in had an enclosed kitchen with a wood-fuelled oven, but the household preferred to cook over an outdoor fire because it was what they were used to and the indoor kitchen quickly became too hot and smoky after hours of daily cooking. In fact, for much of my stay, this particular kitchen was being used to house eighteen chicks through the night and when we left the property, as they were too young to forage effectively and roost in the low trees at night with the other chickens. Fires are maintained throughout the day, from dawn until dusk, to cook and heat water for *maté*, tea, bathing and washing clothes and utensils. Many of the homes I visited had no indoor plumbing, while others had basic plumbing for their bathroom but not in the kitchen area. The majority of water used in the households came from outdoor taps that distributed water from the collection tower at the community school. The water flow was, however, extremely inconsistent; prior to my arrival in the community the water had not been running for several weeks and throughout my stay in Lindo Manantial water regularly stopped running during peak hours. As a result, household members filled every available container with water first thing in the morning, and there were therefore litres and litres of uncovered standing water littering the cooking areas of each property throughout the day and into the evening. When I asked if people were concerned that they might be providing breeding grounds for mosquitoes and therefore inviting opportunity for illnesses like dengue, malaria and Yellow Fever, everyone responded that the mosquitoes would be there no matter what, and so it was better to have water easily accessible than worry. Some homes are not connected to running water, so they rely upon the rivers, creeks, and wells throughout the community, as do the other households when the piped water supply dries up. None of the water, piped or otherwise, is

filtered prior to use.

In the homes I visited, all food was prepared on a communal surface, typically a wooden table. Some houses continue to be unconnected to the electric grid, so meat, dairy, and other perishables must be carefully stored in cool areas of the home. Meat, particularly red meat, is a huge part of the local, and indeed national, diet. Most residents of Lindo Manantial keep chickens and pigs, which are occasionally used for food, but most meals include *carne* (beef), which is most often purchased from Piribebuy. One of the women from the community went to Piribebuy and bought large quantities of meat on Saturdays, which she brought back to Lindo Manantial on the bus and sold to the community over the noon hours at the community bus stop. While *carne* is part of most meals, several of the participants told me that the *carne* now has hormones in it, which worries them and they think has contributed to the poor nutritional health of their community. In my own research, I did not find any evidence that Paraguay had approved the use of bovine growth hormones. In fact, much of the information I found regarding beef and cattle exports suggested that Paraguayan beef was an all-natural, free-range *estancia*-raised beef option for health conscious buyers. Beef exports are a huge source of national income, with Paraguay ranking ninth in international beef exports (Economist Intelligence Unit 2008:4). I would hypothesize that, given the importance of beef to the Paraguayan economy, the villagers were reiterating areas of concern with regards to Paraguay remaining competitive in beef production and export, as they are progressively more exposed to national economic concerns through radio, television, and increased rural-to-urban transit.

Most of the food is fried or cooked with copious amounts of oil and lard. Many participants identified the liberal use of cooking fats as a potential source of diet-related health concerns, especially high blood pressure, but that the community was unwilling to change these

cooking habits because they enjoyed the flavour. Several participants in the older generation stated that they did not have access to salt, sugar, and cooking oil as much when they were growing up and that now that the community has these items they are often overused. I personally struggled immensely with the high levels of grease and salt, and could certainly see these methods of food preparation as being harmful to long-term community health. As Armelagos and Harper note, “The industrialization and commercialization of food often results in malnutrition, especially for those societies in transition from subsistence forms of food provision to agribusiness,” (2005:39).

As many research studies have shown, the commoditization of the agricultural system, moving away from subsistence farming and towards the production of cash-crops has many severe dietary implications for the local population (Dewey 1980; Pelto and Pelto 1983; Daltabuit and Leatherman 1998). Not least of these impacts is dietary delocalization, the increased reliance upon purchased food items which, according to Luber, “leads to poorer dietary quality and, ultimately, lowered nutritional status,” (2005:150). Several participants discussed how this shift away from subsistence farming and towards industrialized, commercialized food products has played into their increasingly unhealthy diets. Ña Valencia stated, “Before we used to walk, used to work, and ate natural, good food all the time, but now we buy bad food, like cookies, from Piribebuy.” Indeed, aside from the rice and corn staples, most food products sold at the small *dispensas* in Lindo Manantial are processed and pre-packaged, and high in sugar, salt and preservatives. Sweets and candies have become incredibly popular with adults and children alike, as they are now able to easily access and purchase sugar-laden goods. I made the daily pre-breakfast trips to the *dispensas* with my host family’s youngest daughter, who always managed to save leftover change for some morning chocolate or hard-boiled candies, to be devoured on

the walk home. I routinely saw children under the age of two chomping on *chicle* (chewing gum), or with lollipops in hand. Aside from candies, the standard recipe for a pitcher of fresh-squeezed lemonade consisted of water, the juice from two lemons, and seven-to-eight tablespoons of sugar. While sugar cane, or *caña*, has long been a crop in this region of South America, my participants suggested that the addition of refined sugar, salt, and oil to almost all foods was a development of the past few decades. Ña Adelina told me, “Before everything was natural, now foods have chemicals. Before we didn’t have sugar or salt with anything, now we use a *lot*.”

Concurrent with the increased reliance on delocalized and highly processed foods, fresh vegetables, aside from *mandioca*, are rarely grown in the community now and families must make the inconvenient trip to Piribebuy to purchase them. While *mandioca* is rich in carbohydrates and calories, it is low in other essential vitamins and nutrients. Obesity is a growing problem in Lindo Manantial, especially among middle-aged women who have less daily exercise now that many houses are connected to running water and electricity, albeit inconsistently. Armelagos and Harper continue on this issue, stating, “Obesity, linked to the increasing incidence of heart disease and diabetes, is considered to be a common form of malnutrition in developed countries and is a direct result of an increasingly sedentary lifestyle in conjunction with steady or increasing caloric intake,” (2005:39). The Lindo Manantial participants frequently discussed the link between their more sedentary lifestyles and dietary changes as the source of high blood pressure and diabetes within their community, sometimes in Guaraní and then Spanish, for added emphasis and to ensure that I understood. “People used to eat good food and go to work in the fields, but now they eat as much food as before but they don’t work or exercise after,” Ña Dominga explained.

One food item that continues to be harvested in abundance locally is fruit; citrus fruits, in the form of *pomelos*, *limones*, *naranjas*, and *mandarinas* (grapefruit, lemons, oranges, and mandarins) are readily available throughout the winter and consumed constantly, while mangoes and bananas are equally abundant through the summer months. Other fruits, including *mburucuja* (passion fruit), *cocos* (tiny local variety of coconuts), and even *piñas* (pineapples) are also common, though these are typically purchased in Piribebuy too. Apples, imported from Argentina, are considered a special treat and, I was told, are exceptionally high in nutrients that are good for the children's health.

Overall, my research would indicate that the residents of Lindo Manantial are increasingly aware of the potential repercussions of their current average eating habits, but aside from the personal dietary choices of a few individuals, they remain reluctant to move away from the previously unavailable, highly-processed foods which they themselves correlate with a drop in community health status. This also was the general consensus of the healthcare workers interviewed at the Piribebuy hospital. I would postulate that the long-term health effects of these dietary and lifestyle shifts are only just beginning to manifest in Lindo Manantial and, if this is the case, the point at which these behaviours are not only recognized as harmful but are actually changed remains to be seen.

#### ***i) Case Study: Type II Diabetes:***

The second most commonly cited emerging chronic health concern within the Lindo Manantial and Piribebuy communities was type II diabetes. Four of the eighteen participants in Lindo Manantial, all women, had been diagnosed with the disease, while four more participants had one or more immediate family members who had also been diagnosed. Formally known as

Diabetes Mellitus Type II<sup>6</sup>, type II diabetes is a metabolic disorder characterized by hyperglycemia, or unsafely elevated blood glucose levels, caused by an acquired resistance to and relative deficiency in the production of insulin, the hormone responsible for carbohydrate metabolism within the circulatory system. Type II Diabetes is of particular importance in the public health sphere due primarily to its associated acute and chronic complications. Type II diabetes eventually leads to micro-vascular degeneration, which in turn affects the circulatory systems, and can lead to kidney disease and failure, diabetic retinopathy and resultant blindness, damage to the peripheral nerves and subsequent amputations, heart disease, strokes, and arterial deterioration (World Health Organization 2006:5). Estimates suggest that over 171 million people worldwide had Type II Diabetes in 2000, and this number is projected to more than double over the course of the next two decades (World Health Organization 2006:5). Between 2001 and 2003, diabetes was the third leading cause of death in Paraguay overall; it was the second leading cause of death for women and the fifth for men (Pan American Health Organization 2007:565). Type II Diabetes is caused by a combination of factors, but is primarily attributed to poor diet and lack of exercise. These dietary and behavioural issues have had a pronounced impact on the Lindo Manantial community over the past two to three decades and continue to increase prevalence rates of type II diabetes and other non-communicable chronic health concerns in the Piribebuy region.

Two of the diabetic participants in this investigation had been diagnosed some time ago, one fifteen years and one ten years previously, during pre-screening tests when they had each had surgeries in Asunción, one to remove an ovarian cyst and the other to remove a breast cyst. The other two women had been diagnosed quite recently after extensive, and very expensive, testing

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<sup>6</sup> Formerly referred to as non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes.

for general health complaints. All of the women were currently using natural medicinal remedies to manage their symptoms on a daily basis; three were using natural local treatments, known as *remedios yuyo*<sup>7</sup>, in conjunction with physician-prescribed medications, while the fourth woman, Ña Valencia, had opted to use only natural medicine and consult with a natural healer in Cerroléon, Paraguarí due to the extremely high costs of consistent biomedical treatments and her own personal preference for natural medicine. The three women taking physician prescribed medications stated that while the extensive testing associated with initial diagnoses and occasional check-ups was very expensive, the cost of their daily diabetes medication was much more manageable than the cost of other prescription medications, like those for high blood pressure. Two of the women attend a private diabetes clinic in Asunción every three to six months for follow-up care and prescription refills. The third woman, Ña Fernanda, who has been diagnosed the longest, regularly travels to Ca'acupé, keeping routine physician consultation appointments every three months and attending a support group for diabetics once monthly.

The women reported symptoms of fatigue, thirst, nausea, general body aches, and difficulty walking due to pain and poor circulation to their extremities. All of the diabetics talked about how their nerves and stress aggravated their symptoms, and that this contributed to a vicious cycle of suffering. Their diabetes was most often the source of their anxiety, as they worried about the financial burdens of their disease, the inconvenience of accessing healthcare services, and their symptoms increasing in severity. As mentioned above, all of the women diagnosed with type II diabetes used natural medicine to both treat and stave off their symptoms;

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<sup>7</sup> *Remedios yuyo* is the local term for natural or traditional herbal medicines and treatments. Many Paraguayans continue to rely upon *remedios yuyo* to treat or prevent a broad spectrum of ailments. All of the Lindo Manantial residents I interviewed were well acquainted with a wide variety of *remedios yuyo*, many of them growing the plants themselves. The local use of *remedios yuyo* will be discussed at length in the next chapter of this thesis. A list of the most commonly used plants, or *yerbas*, for the local *remedios yuyo* can be found in Appendix E.

they all used *yaguaretepo*, *yaguareteka'a*, and *ajenjo*<sup>8</sup> in their daily *maté* and *tereré*<sup>9</sup>, often in combination with other local plants for flavour or to address other health issues. In addition to self-medicating with these *remedios yuyos*, two of the women discussed having dramatically changed their diet following their diabetes diagnosis in order to slow the progression of the illness and decrease the severity of their symptoms. Ña Fernanda had made a conscious effort to cut heavy, salt- and fat-laden foods from her diet, and had replaced red meat almost entirely with lean meats, like chicken, and fish. Ña Adelina had replaced sugar in her tea drinks with leaves from the local plant *ka'a he'ê*, which she described as a “natural sweetener”. More widely known as stevia (*Stevia rebaudiana*), *ka'a he'ê* is emerging on the international market as a desirable sugar replacement for diabetics, as it has negligible effects on blood glucose levels, especially as compared to sugar (Weeks 2009).

Aside from the diagnosed diabetics, over half of the Lindo Manantial residents listed type II diabetes as one of the most common health problems in their community without any prompting. Three individual interview participants identified diabetes as the main reason why they perceived community health to be worse than in the past. Ña Benita had recently lost her daughter-in-law to diabetes-related complications following a cancer diagnosis, and she was now the primary caregiver for her ten-year-old granddaughter. She was also extremely concerned that

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<sup>8</sup> *Yaguaretepo*, *yaguareteka'a*, and *ajenjo* are all commonly used *yerbas* for *remedios yuyo* in Lindo Manantial. All three are described as being digestive aids, helping the consumer to efficiently process nutrients and ease digestion and stomach issues. *Yaguaretepo* and *yaguareteka'a* were described by Lindo Manantial residents and natural doctors alike to be particularly helpful in managing diabetes and even high blood pressure.

<sup>9</sup> *Maté* and *tereré* are staple drinks in Paraguay. Both are essentially a water-brewed tea, made with locally-grown and cultivated *yerba maté*, a caffeine-rich tea plant native to the region. *Maté* refers to the tea brewed with hot water, and *tereré* with cold water. It is consumed throughout the day from travelling thermoses and communal gourd cups, known as *guampas*, through a specialized filtration straw called a *bombilla*. Additional herbs are often added to the *yerba maté* mixture for added flavour or *remedios yuyo* health benefits. For further information, see Folch 2010.

the granddaughter, who was visibly overweight, had developed or would develop type II diabetes. They had just gone through the process of getting IPS insurance for her son, the young girl's father, so that they could run the appropriate diagnostic tests.

Four individual participants and the focus group members discussed nutrition as being the ultimate source of the surge in type II diabetes cases in the region. Several interviewees described the sudden rise in this chronic health problem as being the result of a combination of less physical labour and exercise and poor eating habits, through increased consumption of salt, sugar, and processed, “unnatural” foods. I repeatedly was told that people used to eat heavy, starchy foods, but this was quickly worked off while cultivating the family plots. Now, however, as the community has moved away from their primary reliance upon subsistence farming livelihoods, they continue to eat the same heavy foods and additionally consume more sugar, salt, and saturated fats, so diet has only just begun to have a significant impact on the chronic health of the community. Ña Domiga said, “People used to eat good, strong, natural foods and lots of *mandioca*, and then go to work in the fields. They needed the heavy foods to work hard. But now, people eat the same heavy foods as before, but they don't work in the fields, they don't exercise afterwards. That is why there is more high blood pressure and diabetes.” Healthcare providers at the Centro de Salud in Piribebuy stated that they had certainly observed a community-wide increase in type II diabetes and diabetes-related complications, however they are not equipped to manage or treat diabetes at the hospital, so they do not see the diabetics professionally, aside from offering referrals to private care facilities in Ca'acupé or Asunción.

Without consistent medical care and regular health check-ups, type II diabetes and pre-diabetic conditions can easily go undiagnosed for extended periods of time. Given the community-wide lifestyle and dietary changes that have led to the rapid onset of relatively

advanced type II diabetes diagnoses in Lindo Manantial, one could easily project that the actual prevalence rate of type II diabetes and pre-diabetes in Lindo Manantial is much higher than currently diagnosed. While treatment facilities and programs for diagnosed diabetics need to be developed closer to the rural communities, like Lindo Manantial, so that patients do not have to travel so far for necessary treatment and follow-up care, education programs need to be designed and implemented at the community level also. Type II diabetes is technically a preventable illness, and early diagnosis and consistent disease-management can slow the progression of the disease and reduce the risk of patients developing severe diabetes-related complications. In the case of diabetes in particular, the impact of consistent and culturally competent healthcare services at the primary and secondary service levels, in the facilities remote communities can more easily access, would likely have a significant impact on community health and disease prevalence rates. Culturally competent healthcare services in the context of the health concerns faced by Lindo Manantial residents will be discussed further in Chapter Five.

#### ***IV. ACCIDENTS & INJURIES***

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Given the heavy manual labour workload, for men and women of all ages, I anticipated injuries to be one of the most commonly reported health issues. Indeed, my own observations seemed to confirm this – small scars from cuts and burns were easily visible on most of the participants, particularly on their forearms and hands. When I posed the question about injuries, how frequently they occur, and how they are managed, I was almost uniformly met with the same response: “Never, no serious injuries in my family”. Three participants reported that their adult children, had been involved in motor vehicle accidents in urban centres. Though most of these accidents resulted in minor breaks and brief hospitalization in Asunción or Ca’acupé, one

woman reported that her nephew, whom she had adopted, had been hit by a bus and died as a result of head injuries in Asunción.

A couple of interviewees did report the type of agricultural work-related injuries that I had expected to be common; one woman's son had fallen off of a cart while collecting firewood and dislocated his elbow while her other son had stepped on a sickle and needed to go to Ca'acupé to get lots of stitches. A male respondent had also dislocated his thumb while cutting back vegetation around his home just a week before our interview.

Ña Eufemia chuckled as she recalled the night when her nephew had stumbled upon the family bull when returning home from an evening of heavy drinking. The bull was startled and charged at him, breaking his collarbone, and they had to take him to the district hospital in Paraguarí on their neighbour's *moto* the next morning. All of the cattle in this region, both male and female, retain their horns and precautions must be taken not to startle them when walking through the fields between properties, where they graze throughout the day. I was told it was important to make plenty of noise and given the cattle a wide berth, and walking sticks were clapped together to keep them from coming too close. Cattle-related injuries were widely recognized as a possibility and I was told this nephew had been lucky not to have been gored and more severely injured.

There was, of course, the story of Don Arturo and his young son walking for several hours to the Piribebuy Centro de Salud with his son's broken arm in a homemade sling, only to be sent on to a larger specialized hospital in Asunción. Ña Elodia, one of the most elderly women in the community, had also fallen and broken her hip at home about ten years previously and now moves around with the help of two walking canes. When the accident had happened, they had urgently contacted the men working on the nearest *estancia* to borrow a truck, in which they

drove straight to Asunción, as they knew it was too severe to be treated anywhere closer. She had had to remain in hospital for quite some time and had surgery to reset the broken hip.

In addition to the frequency of minor injuries, the risk of infection was seemingly very high and something which came up often in my own observations. At one point I grazed my own knuckles after a slip on a forest pathway, and my host family insisted I use antibiotic cream for it. I did not think it necessary, pointing out that it was only very small, but I conceded when Ña Graciana informed me that, “Here, even if it’s small it can get very big with infection.” She was correct; though I had cleaned the cuts with rubbing alcohol, coated them with antibiotic cream and bandaged them carefully, my knuckles were inflamed and mildly infected by the next evening. From then on, bandages were changed daily and I was encouraged to drink *tereré* with *malva* leaves, which I was told were a natural antibiotic. Though my own mild infection cleared up rapidly, it quickly became apparent that even the minor cuts and scrapes that did not warrant mentioning require a certain amount of care and monitoring to avoid infections, which are a serious risk in such a humid environment with limited sanitation and treatment capabilities.

Though many of the injuries reported were quite severe and required urgent medical care, almost all of the participants had to be prompted, often multiple times, before these examples occurred to them. Still, very few reported any other injury complaints, in spite of the abundant evidence of minor injuries I was able to gather independently through observation. I suspect that the reasoning for this is that minor injuries, which many in urban settings would deem serious enough to seek out medical care, occur with such frequency that they are not considered worth mentioning in a semi-formal interview; as with colds and flus, the small cuts and burns are simply part of everyday life. Indeed, a considerable proportion of the village population perform intensive manual labour while the daily tasks of those remaining around the home, such as

cooking over an open fire, also expose them to frequent opportunities for more minor injuries; with lifestyles like these, minor injuries would be, and certainly in my experience are, commonplace. When I asked villagers what course of action they would take if they were to be injured, all responded that they were aware that the Piribebuy hospital was unequipped to handle any serious injuries, and that even simple stitches required a trip to Ca'acupé. In light of these issues accessing treatment for injuries, minor to moderate afflictions are typically dealt with at home. These examples served to further illuminate the failings of the local public healthcare system in terms of accessibility and their ability to effectively serve the needs of the remote communities surrounding Piribebuy, including Lindo Manantial.

## ***V. DISEASE VECTORS & VENOMS: The Health Implications of Insects & Animals***

### ***i) Animals & Zoonoses:***

The many health implications of people's proximity to and relationships with animals and insects are well documented (Armelagos & Harper 2005; McElroy & Townsend 2004; Roberts & Manchester 2007). Recently, zoonoses – illnesses transmitted from animals to humans – have dominated recent health reports in the media, with hard-hitting viruses like 'avian flu' and 'swine flu', and are feared to be the source of the next devastating global flu pandemic (Watanabe 2008:680-4). Zoonoses are able to jump from animal to human hosts more easily under conditions where humans and animals live together in close quarters and, often, under poor sanitation or ventilation conditions. In Lindo Manantial, where most households keep, at a minimum, chickens, guinea fowl, pigs, dogs, and cats, animal vectors are a serious health consideration. Given the open, outdoors set-up of most homes and properties in Lindo Manantial, the animals typically have free-range of the home, often including bedrooms and food

preparation areas. As was mentioned earlier, in my own host household the kitchen served as a temporary home for a new brood of baby chicks for much of my stay.

Under conditions such as these, direct and close contact with a wide range of animal species is a reality, but also poses a considerable health risk to the population. Almost all of the cats and dogs, though typically affectionately cared for, have fleas and many have intestinal worms. Children are encouraged to play with the pets, but not to cuddle or allow them to excessively lick them in recognition of these potential health risks. Both the residents of Lindo Manantial and the healthcare providers at Piribebuy hospital discussed the bird and swine flu epidemics as being of serious concern for community health, and that any word of outbreaks in the past winters had the entire area on edge. They were grateful that there had not yet been an increase in H1N1 cases so far that season. The Pan American Health Organization's 2007 report on health in Paraguay noted that zoonoses and the other disease vectors associated with keeping foraging animals - such as ticks, fleas, and worms - remain a consistent source of risk to community health in the region, though not one that is regularly discussed by the locals in the context of their own homes and lifestyles (Pan American Health Organization 2007:563-3, 565).

***ii) Insects:***

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Insects are also common sources of disease transmission; Piribebuy region is considered a high-risk zone for mosquito-borne diseases like malaria, dengue, and Yellow Fever (Pan American Health Organization 2007:562-3). Being a subtropical climate, mosquitoes are present year-round in Paraguay, though are much more prolific in the warmer summer months. Locals are well aware of the risks these mosquitoes can pose to their health, especially given the recent rise of dengue and Yellow fevers in the region over the past several decades. It therefore came as

a surprise to me that malaria was never independently raised by locals in our discussions of health concerns in Lindo Manantial. Much of Paraguay is considered a moderate-to-high risk area for malarial transmission, though only for the generally milder and rarely fatal form. When I expressed my surprise that malaria was never independently mentioned in my discussions with Lindo Manantial residents, I was repeatedly told that malaria was not an issue within their community, and that they could not recall anyone in Lindo Manantial ever having been diagnosed with malaria. Rather than indicating that Lindo Manantial represents an isolated region of malarial resistance, I would postulate that the majority of cases are simply going undetected. The predominant symptoms of the milder form of malaria that proliferates in this part of the continent are generalized body aches, headaches, and intermittent fever. Given the widespread issues concerning access to diagnostic tests and healthcare facilities for isolated rural communities such as Lindo Manantial and the relative frequency of low grade fevers, locals would rarely seek medical treatment for such general and non-urgent symptoms. Yellow Fever, another mosquito-borne illness for which this region is also considered a high-risk transmission area, was similarly absent, although people had heard about it becoming an issue in Paraguay over the radio and television broadcasts. Dengue, however, was a much more common concern.

Certain protective measures against mosquitoes are taken within the community, depending on the household and the time of year. Locals identified the larger *mbutu* mosquitoes, which are much more present during the summer months and are more active during daylight hours, as being the dengue-carrying species. “*Mbutus* are the only ones to really worry about,” I was regularly told. The two beds in the main bedroom in my host home had the distinct luxury of mosquito netting, which I soon came to realize was a rarity in Lindo Manantial. Some houses had ceiling fans in the main bedrooms to keep the air circulating and the mosquitoes from

settling on the skin, while others had frayed netting over open window frames as a basic line of defence. The open wells and frequent sources of standing water, as discussed in greater detail in the preceding section on Nutrition, Food, and Food Preparation, provide a steady supply of potential breeding grounds for mosquitoes. Locals' perceptions, however, were that mosquitoes would constantly be present either way, and the need for convenient water sources far outweighed the mosquito-borne health risks create by the proximity of standing water to their homes.

The participants also surprisingly never mentioned Chagas disease, a lifelong chronic parasitic infection primarily transmitted by insects carrying the *Trypanosoma cruzi* parasite. The insect vectors for *T. cruzi* transmission are common throughout Latin America, and Paraguay is considered an endemic zone for Chagas disease (Rassi, Rassi & Marin-Neto 2010:1388, 1391). Due to the region's socio-political history and the persistent geographically centralized nature of healthcare services, it is difficult to accurately ascertain the infection levels of Chagas disease throughout Paraguay, and in the Piribebuy region, however the Pan American Health Organization estimated in 2005 that approximately 58 percent of the population was at risk of Chagas disease infection, the highest risk rate recorded, while approximately 2.5 percent of the population had been formally diagnosed (Rassi, Rassi & Marin-Neto 2010:1391). The disease is most commonly transmitted by large, blood-sucking insects, predominantly members of the Triatominae subfamily, although the disease can also be congenital, as it passes from mother to child at birth, or acquired through blood transfusions (Rassi, Rassi & Marin-Neto 2010:1388). Paraguay has recently successfully limited the transmission of Chagas disease via blood transfusion through implementation of new screening and testing protocols, however it is estimated that Chagas transmission occurs in at least five percent of all pregnancies in Paraguay

(Rassi, Rassi & Marin-Neto 2010:1388). In terms of vector-transmission, the thatched roofing common in rural Paraguay and predominant in Lindo Manantial provides a perfect nesting environment for the nocturnal Triatominae insects, and they are easily able to feed on the human and domesticated animal household members.

Chagas disease is a systemic infection, the health implications of which can be catastrophic. Of the estimated eight million people infected in Latin America, 30 to 40 percent will develop cardiomyopathy, digestive megasyndromes, or both. In Paraguay, the cardiac presentation is most common, developing in 20 to 30 percent of affected individuals (Rassi, Rassi & Marin-Neto 2010:1393). Chronic symptoms include generalized circulatory deficiencies, aneurysms, tachyarrhythmias and bradyarrhythmias (the heart rate being extremely fast or extremely slow, respectively), cardiac failures, and sudden death (Rassi, Rassi & Marin-Neto 2010:1393). Sudden death is the most common cause of death for individuals with Chagas heart disease, causing approximately two-thirds of all Chagas-related deaths (Rassi, Rassi & Marin-Neto 2010:1394). Sudden death, caused by complete cardiac arrest, most often occurs in patients who have previously been asymptomatic, and often, therefore, undiagnosed. This is particularly true of rural or remote populations, such as Lindo Manantial, where access to basic healthcare services, let alone diagnostic testing, is restricted. Given the prevalence of circulatory issues and frequent descriptions of rapid heart rates, nerves, and brief intermittent periods of “*ataque del corazón*” in the Lindo Manantial community, one must wonder how many of those symptoms may be caused or exacerbated by undiagnosed Chagas disease. It is hard not to consider Chagas disease as a potential culprit for the sudden, otherwise unexplained passing of Ña Maria's nephew and Don Julián's daughter, both of whom were otherwise generally healthy and in their thirties. Both deaths were described as being heart-related, but neither family knew

further details. Don Julián said, “She was living in Asunción and she died suddenly. We don't know why. She wasn't sick. Something to do with her heart, maybe a heart attack? We don't really know, she was living away from us.”

Chronic Chagas disease cannot be cured, so treatments focus on the management of any symptoms. Chronic Chagas disease can be prevented, however, if the patient receives appropriate anti-parasitic treatment during the acute phase of the illness in the weeks immediately following infection; the parasite can be completely eliminated and the chronic form avoided (Rassi, Rassi & Marin-Neto 2010:1391). Much like malaria, the symptoms of acute infection are typically very mild, including general fatigue, prolonged low-grade fever, and enlarged lymph nodes (Rassi, Rassi & Marin-Neto 2010:1392). Given that these symptoms are extremely mild and could indicate any number of non-urgent health issues, many individuals would not consider seeking professional medical care, particularly those in isolated or remote rural communities like Lindo Manantial. Acute Chagas infection, therefore, most often goes undiagnosed and patients ultimately develop the chronic form. A further 60 to 70 percent of those with chronic Chagas disease will never develop clinical symptoms, however they remain carriers and can pass along the infection congenitally or through donor procedures (Rassi, Rassi & Marin-Neto 2010: 1391). The nature of the chronic stage of infection further complicates the diagnostic process; in the chronic phase, the parasites themselves are scarce, and so *T. cruzi* antibodies must be confirmed by at least two different serological testing methods for official diagnosis (Rassi, Rassi & Marin-Neto 2010:1396). For Lindo Manantial residents, such a diagnosis would require multiple time-consuming and expensive trips to access extensive diagnostic services in Asunción, journeys they are unlikely to undertake to diagnose an illness that is locally so poorly understood.

Given the complete lack of discussion of Chagas disease in my interviews, along with a

general absence of preventative measures, particularly a deficiency in effective insect netting around beds, in many households in Lindo Manantial, I would postulate that this is an underestimated health risk within the community. It is also particularly worrisome that locals are so much more acutely aware of the short-term vector-borne infections, such as dengue and Yellow fevers, than the chronic, systemic infections like malaria and Chagas disease. Given that Paraguayans are currently considered the most at risk national population for Chagas disease, significant steps must be taken to address this considerable health issue. Education programs designed to help locals implement preventative measures and notice the first signs of acute infection are essential in this community. At the Piribebuy hospital, I saw educational posters for dengue, leprosy, tuberculosis, vaccination programs, and a host of other conditions, but I failed to see one describing Chagas disease risk factors and symptoms. This absence may be related to the Centro de Salud resources being stretched so far that they cannot manage endemic health issues that they are ill equipped to diagnose. If systems are not implemented to diagnose and treat chronic illnesses such as Chagas at rural health centres, however, these conditions will remain largely unchanged, as locals simply cannot afford, in terms of time and finances, to travel to Asunción regularly enough to treat, prevent, and lower current infection rates in rural communities.

### ***iii) Spiders & Scorpions:***

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In addition to insects transmitting diseases, some can also be the direct cause of serious health concerns. Lindo Manantial is home to many poisonous insects, which also pose a considerable threat to community health. The thatched roofs and hollow clay bricks, of which most of the homes in Lindo Manantial are constructed, provide perfect locations for nests of

insects to flourish in extremely close proximity to people. Beds are pulled out from the walls and blankets carefully tucked into the bed frames to avoid unwanted bedmates creeping in. My host mother, Ña Graciana, informed me, “Our nets are just as much for keeping out other things as the mosquitoes. We have nets because I don’t like the spiders, not really because of the mosquitoes!”

Spiders pose the largest threat, as Paraguay is home to thousands of species, several of which have potentially harmful bites, and all of which are active year-round in the subtropical environment. In Lindo Manantial I was told by most residents that the large, furry tarantulas, or *ñandu kavaju*, were the only ones to really worry about, and that these had become a less frequent sighting around Lindo Manantial in the past few years – although that did not stop me from coming across several during my own stays within the community. There were at least three other species of arachnid the locals classified as tarantulas, however, which were much more abundant, and could be seen living in the walls and roofs, inside and outside of the houses after dark. The bites from these spiders were not lethal, I was told, but they “make you ill, give you a fever and dizziness.” The area around the bite would swell in an inflamed circle, spanning several inches in diameter and eventually leaves a ringed scar around the afflicted area. Most residents told me they would likely not seek treatment for spider bites, as the symptoms, though uncomfortable, are not serious and subside within a few days without any formal treatment. I was told that rubbing crushed garlic on the affected skin often helped soothe the inflammation and the spread of the venom. Again, in true Lindo Manantial fashion, I was told that bites from these spiders were not worth worrying about because they happened infrequently and were difficult to prevent.

Stings from scorpions, another pesky venomous creature that flourishes year-round in Lindo Manantial territory, were met with the same nonchalance as the spiders. The stings, while

extremely painful, are not deadly and caused relatively minor full-body symptoms, including fevers, chills, and shakes. I was, however, told that scorpions are much more abundant in the fields and forest pathways, and when they are spotted near one's home they are considered a bad omen. The effects of scorpion stings are considered to be more severe in young children, and three participants mentioned that a bad sting for a child might warrant medical attention. Adult home remedies include rubbing crushed garlic on the sting site and drinking *caña*, a potent home brew alcohol made from cane sugar, to help alleviate any symptoms. Most of the elder participants in the return interviews indicated that they had been stung by scorpions several times throughout their lives, and that it was simply an unavoidable reality when working in the fields.

#### ***iv) Snakes:***

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Snakes and venomous snakebites, on the other hand, were taken much more seriously by the residents of Lindo Manantial. “Yes,” Ña Fernanda told me sternly, “snakes are certainly a problem for health here.” Villagers told me that the snakes emerged during the summer months and were only really a concern then, although sometimes during extremely cold weather they may leave their winter dens in search of a warmer home, and wander into bedrooms, and even under blankets, at this time. A dangerous snake had been spotted in the main room of Ña Lupita's home during the extreme cold snap in July, so our household began folding the warm blankets at the end of the bed during the day and shaking them out before using them each night. I was told this was common practice, like pulling the beds out from the walls, and also observed this ritual in many of the other homes I visited. Residents identified four different types of poisonous snakes that frequented the area during the warm months. Like scorpions, they are much more common in the fields and along pathways through the woods and are considered a bad omen

when they are spotted near the home. “Any snake near the house should be killed immediately with a stick,” Ña Valencia told me, “as their home is likely nearby.”

Of primary concern are the four venomous snakes that frequent the area. Most of the participants told me that the snakebites were not deadly, but could make someone very sick and had to be dealt with urgently. Using a tourniquet to stop the spread of the venom is very important. Described symptoms of a poisonous bite included fever, shakes, nausea, and, if the venom really spreads, temporary or possibly permanent blindness. While the participants insisted that the venom was not deadly, they also said that bites from certain species required immediate medical attention and posed a very serious health threat. This leads me to believe that the local perception is that snake venom is not deadly because no one in their community has died from a poisonous bite – a slight but significant difference between the local interpretation and my use of the term “deadly” in the interview discussions. Snakes were, however, blamed for killing chickens in the summer months. Perhaps somewhat ironically, then, chicken feces was cited as a good deterrent for snakes around the home. Ña Valencia said, “If lots of snakes are seen near houses, I sweep all of the chicken droppings into a circle around the house, instead of putting them in the waste pile like usual, because it keeps the snakes away.”

Snakebites were fairly uncommon and were becoming less common. The residents of Lindo Manantial said this was because fewer people worked in the fields now, and they thought there were fewer snakes around now than there had been in the past. Don Aureliano and Don Arturo, two elderly brothers, both of whom continue to work almost daily in their own fields despite being in their eighties, explained some other factors that have changed the level of risk posed by snakes. “The men working on the *estancias* wear closed boots now, so they are less likely to be bitten on the foot or ankle if they accidentally step on a snake,” Don Aureliano said.

“It is different for farmers though,” Don Arturo continued. “We used to always work barefoot but now we wear plastic flip flops, because we cannot afford boots but everyone always wears shoes now. Flip flops are more dangerous than barefoot for snake bites because your whole foot, ankle and leg are still bare, but people pay less attention to where they step because the bottom of their foot is protected, so they are more likely to step on a snake and have it snap up and bite them,” Don Arturo said, laughing and pinching my ankle. “Boots are best, but it was better when we went barefoot everywhere,” Don Aureliano continued, “because we were tougher and more careful.”

When I questioned what they would do if they or someone else were bitten by a poisonous snake, most of the return interview participants told me that applying a tourniquet and then driving to ASISMED hospital in Asunción was now the most effective form of treatment. ASISMED is a large state-of-the-art private hospital in Asunción, which is now renowned as the best place for the treatment of ‘tropical diseases’, including snakebites. Ña Valencia, a participant in the return interviews was, however, extremely wary of doctors and biomedicine, and stated that she would seek treatment from a natural doctor in Paraguari first. She recalled a time when someone working in the fields was badly bitten by a very poisonous snake in his calf. She said they quickly applied a tourniquet, but that he got much worse, starting shaking and sweating and he began to lose his vision. They had rushed him to the natural doctor in Cerroléon, Paraguari, who had bathed him in *agua sancti*, blessed water, and said prayers and blessings. The doctor had treated him with natural medicine and he returned well and with his eyesight fully restored a few days later.

Though all of the return interview participants confirmed that venomous snakes posed a definite threat to community health, and all seemed to take this threat rather seriously as

compared to other health concerns, the same easy-going perspective persisted. As Don Aureliano said with a smile, “Yes, it is a big problem here, but why worry? If they bite you, they bite you, and we go from there.” In a village where not only viral, bacterial, and chronic illnesses, but also tropical insect- and animal-borne diseases and venomous creatures, pose a constant threat to community and individual health, this come-what-may attitude perhaps serves as an effective defence against what could otherwise be a constant source of fear and stress.

## ***VI. SEASONAL HEALTH ISSUES***

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As noted in the general health section, a recurrent topic in the interviews with both the residents of Lindo Manantial and the healthcare providers at Piribebuy hospital was the issue of seasonal health concerns. Both groups identified cold and flus as a considerable health burden through the winter months, while the risk of gastrointestinal problems rose dramatically in the summer months. The Lindo Manantial residents said the young and the very old are most at risk for contracting all of these illnesses, which poses a significant threat to community stability and health risks, given the unique demographic of Lindo Manantial. My own observations correlated with these perceptions of health risks; my fieldwork took place during the colder winter months, May through September, and coughs, colds, and flus were an ever-present reality in the community. The seasonality of these health concerns was so clearly defined that several healthcare providers at Piribebuy regional hospital stated that their patient load was balanced throughout the year, as colds and flus kept them busy through the colder months while gastroenteritis cases surged in the summer. Given the frequency with which this differentiation between seasonal health risks was discussed in interviews and generally within both communities, one of the follow-up questions for the return interviews was designed to obtain an

understanding of what locals believe to be the cause of the marked shifts in health risks as the seasons change.

***i) Colds, Flus, & Viral Upper Respiratory Tract Infections:***

With regards to the higher levels of colds and flus in the winter, I anticipated the general response that cites colder temperatures as the causal factor for increased susceptibility of colds. Indeed, this is the most common folklore explanation for seasonal fluctuations of colds and other viral upper respiratory tract infections (Eccles 2002:183). Dropping temperatures have long been correlated with an increase in common colds and though this theory has more recently been disproved by biomedicine, which notes that an individual must be infected with a virus to become ill and does not contract the common cold virus through exposure to cold alone, the correlative understanding between cold temperatures and the cold virus persists (Eccles 2002:184).

The Piribeby region of Paraguay is classified as sub-tropical, and winter temperatures, though moderate during daylight hours, often dip to chilly ranges overnight. During my own fieldwork, the country experienced one of the coldest winters on record, with temperatures hovering around freezing for approximately a three-week period. In remote rural areas, such as Lindo Manantial, where houses are largely exposed to the elements due to the open nature of their construction and the fact that they have no internal heat source, this cold snap had an enormous impact upon daily life and the community at large was very concerned about the potential health implications of such extreme weather fluctuations. While I had anticipated that colder temperatures would likely be identified as the causal factor in increased rates of upper respiratory tracts infections by the residents of Lindo Manantial, I did not anticipate that the

standard response would have more to do with fluctuations in temperature and maintaining balance than simply exposure to cold. Though the cold Southern winds were listed as the culprit for coughs, the most common participant response was that the body became susceptible to upper respiratory tract infections when one woke up warm in bed and then suddenly exposed the body to external cold temperatures by going outside. Rather than basic exposure to cold, it was actually the rapid change from warm to cold that locals perceived as being the cause of colds and flus. This local perception of causality is echoed in the discussions of the two culturally-bound syndromes, *pasmadura* and *frialdad*, which are the focus of Chapter Five.

#### **ii) Gastrointestinal Problems:**

In this region, viral gastroenteritis remains a concern year-round, while bacterial gastroenteritis is likely the root cause of the summer surge in stomach problems, according to the nurses at the Centro de Salud. Surprisingly, based on the frequency with which I observed these issues during my time in Lindo Manantial, respiratory and gastrointestinal problems were rarely brought up independently by the participants as community health concerns during the Lindo Manantial interviews. Once prompted, I was told that these were indeed very common afflictions and part of daily life within the community. When I asked why these were not initially listed amongst their common health concerns, I was routinely met with a smile and the somewhat nonchalant, “They’re always around, so why worry about it?”

The nurses suggested that the increase in gastrointestinal issues during the summer was a result of the warmer temperatures allowing bacteria to proliferate in the wells and springs used as drinking water sources in the rural villages. Additionally, it was suggested that villagers bathe in the fresh water springs more often during the warmer months, leading to increased exposure to

the gastroenteritis-causing bacteria. I would also postulate that, given the higher temperatures, food storage would become a more pressing concern in the summer months and may also lead to food contamination and spoiling issues. One hot afternoon, to celebrate a visit from Ña Graciana's elder daughter Valeria, I was sent to the community centre to purchase a local delicacy, *mundungo*, or tripe, for the next day's dinner. We purchased the meat from Ña Esperanza, who had travelled to Piribebuy early in the morning to purchase groceries to re-sell in Lindo Manantial later that day. The *mundungo* meat had travelled with her on the hot and dusty bus journey home in a basic plastic grocery bag, and had sat in the hot sun for much of the afternoon as she waited for villagers to come to the community centre in Lindo Manantial to make their purchases. By the time the precious cut of *mundungo* reached our home and was able to be refrigerated, it had been transported in an unsealed grocery bag in the heat and sun for several hours, and I was certainly concerned about the safety of consuming it. While many of the households have some form of cold storage in Lindo Manantial, the issue of acquiring and transporting perishable food items to remote rural villages, particularly in the summer months, may account for some potential food spoilage issues.

Again, however, the residents of Lindo Manantial had a considerably different perception concerning the cause of increased gastrointestinal problems in the summer months and, again, this explanatory model centred on a need to maintain balance between hot and cold influences. Four of the five return interview participants told me that the reason for increased stomach problems in the summer was because people's insides were warm and so it is healthy to maintain that warmth, but in the summer when it is hot outside, the majority of people seek to quench their thirst and escape the heat with cold drinks. The introduction of external cold to the stomach is the perceived cause of diarrhoea and other stomach upsets. Some identified the use of ice in *tereré* as

a particular culprit.

Two participants stated that it was specifically the combination of lots of cold beverages and eating too much or too little because of the unpredictable influence heat can have on one's appetite that causes the frequent stomach upsets in the summer months. Again, all of the explanations offered centred around a difficulty in maintaining a hot-cold balance, with cold being the causal factor. I was told that drinking hot tea, milk, or *maté* containing a mixture of herbal remedies was the most effective way to treat stomach upsets, to restore temperature balance. Ña Dominga, however, linked the excess use of water in springs and wells in the summer to the increase in gastrointestinal problems, saying that the water gets dirtier in the summer because everyone uses it more, and then drinks it. When I raised this as a discussion point with the other participants, they insisted that water cleanliness was not the issue. One woman stated that her grandparents had drunk only the spring water and were fine, while another told me that because the river was flowing, and not a still lake, the water was always fresh, clean, and safe to drink. The difficulty maintaining an optimal hot-cold balance in the warm summer months, as opposed to Ña Dominga's water contamination theory, seemed to be the most commonly-held perception of the source of seasonal gastrointestinal health concerns.

## ***VII. AGEING:***

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Given the unique age distribution of the village of Lindo Manantial, which consists almost exclusively of children and adults over the age of fifty, much of this research project was dedicated to gaining further insight into the perceived health risks and health worries of Lindo Manantial's population as they aged. My interviews targeted the more senior community members, those who had resided in Lindo Manantial for most of their lives and could offer

perspective on community health issues that spanned several decades. As such, some of the interview questions related specifically to any increased health concerns due to ageing. After only a limited time spent in the field, however, I learned that “worrying” about health was simply not in the community’s vernacular. Indeed, the responses I received to questions concerning health risks and ageing echoed the sentiments expressed concerning general community health – the elders in this community had almost uniformly adopted a “come what may” outlook, and several of the interview participants teased that there was little point to worrying, as something else would always come along. Some interviewees even suggested that fretting over such things would likely only make any pre-existing health problems considerably worse.

When pressed, however, the most common concerns related to health and ageing were: increased susceptibility to chronic diseases, especially high blood pressure; ocular health degeneration; concerns about developing or worsening arthritis; and, memory loss or dementia. Two participants also noted that elderly people within the community tend to have more stomach-related problems year-round, and not just in the summer months. Memory loss, however, was the most freely discussed ageing-related symptom among the older participants. Ña Fernanda, aged 64, chuckled with me, stating, “Now I always forget what I need to buy by the time I get to Piribe to buy groceries,” and told me that she forgets recipes or to pre-prepare parts of the evening meal, like *mandioca*, on a regular basis.

Don Aureliano and Don Arturo, both in their eighties, informed me that diet was particularly important for the ageing to prevent memory loss, and I was told regularly that *dulce maté* – tea made with hot milk, sugar, and ground *cocos* – when consumed in the morning was the key to maintaining mental acuity throughout the day. Ña Eufemia told me that *dulce maté* had been a staple at breakfast time during her own childhood, but that it was much less common

now, and she, along with several other participants, lamented this loss, stating that children would do better at school and working in the fields, as well as protect their long-term memory, if they would return to incorporating *dulce maté* into the morning routines. Ña Valencia hypothesized that it had fallen out of regular practice because the availability of pre-prepared items for purchase at the *dispensas*, like *cocitos*, small bread biscuits, made breakfast simpler to prepare. Gathering and grinding up the *cocos* is certainly a time consuming and demanding task, and we only had *dulce maté* on special occasions in my own household. *Cocos* must be gathered from the tall coco trees, which are covered in dangerously sharp spines, then roasted over the fire, cracked open using a sharp rock surface, and ground up using a pestle and mortar. It is then simmered with milk, sugar, and a small amount of caffeine-rich *yerba maté* tea for quite some time before it is ready to drink. The whole process can take close to two hours, if *cocos* are not already on hand, and so it is easy to understand how this has lost its status as a local breakfast staple in recent years. Ña Valencia told me she feared the long-term repercussions of this loss for today's youth, especially her own grandchildren.

Five of the participants in the over-fifty age bracket cited ocular health problems as being of a growing concern as they aged. Three had or were scheduled to have cataract surgeries performed in Piribebuy by a visiting international team of doctors through the Lions' Club charitable organization. The group had conducted ocular health screening appointments and performed cataract surgeries for hundreds of patients at the Piribebuy hospital over a two-week period in both July 2009 and July 2010. I was able to visit Piribebuy hospital during this period and witness the somewhat chaotic scene as dozens of patients from Piribebuy and the surrounding villages, including Lindo Manantial, waited for their own operations or follow-up appointments. Cataracts are the leading cause of preventable blindness in the world, and cataract

operations are listed as a priority for Paraguay's healthcare system in both the urban and rural areas (World Health Organization 2009). The Lion's Club visit was highly publicized in Piribebuy and the surrounding area prior to their visit in order to maximize the number of patients seen, and a similar national healthcare initiative was undertaken in May of 2010 in Asunción, where people of lower incomes qualified for free surgeries for that month. Given that the risk of developing cataracts increases exponentially with age and that the Lions Club surgeons were also in the community at the same time that I was, it is not surprising that cataracts were a commonly discussed theme within the community, especially among the more elderly participants.

Worsening arthritis and chronic health concerns related to ageing were brought up in the interviews in the context of work and the ability to continue to perform physically demanding daily tasks into senescence. Two of the older women, Ña Matilde (late 70s) and Ña Benita (63) discussed their arthritis as already limiting them; Ña Matilde said that she can no longer mill corn because of the extreme arthritis in her hands, and Ña Benita said that she had difficulty performing her daily duties around the home when her arthritis was bad, like when it was cold or about to rain. "I do worry about my arthritis getting worse as I get older, because it started so long ago," said a solemn Ña Benita. Don Aureliano and Don Arturo discussed having to change when and how long they are able to work in the fields due to high blood pressure, which had become much more pronounced in recent years. Both had started going to work earlier and coming home before the heat of the day as the high temperatures and direct sunlight aggravated their conditions. They both said they wondered how long they could continue to work, should their chronic health conditions become worse with increasing age. I suspect, given these responses, that health issues related to ageing are more of a concern than the initial surface

answers indicated.

**IIX) NATURAL MEDICINE:**

During my initial stay in Lindo Manantial, I quickly discovered that everyone in this community acts as their own natural doctor. This observation correlates closely with the Pan American Health Organization’s 2008 report on health services in Paraguay, which stated that, of the members of the population who chose not to seek a formal medical consult for their health concerns, 76 percent did so because they favoured self-medication (Pan American Health Organization 2009:50). Each person incorporates specific local *yerbas* as *remedios yuyo* into their daily *maté* and *tereré* for their own individualized preventative medicine or as treatment for any health problems they may currently be facing. **Figure 5** contains a list of the most common local *remedios yuyo*, sorted by their local names and commonly described uses.

**FIGURE 5: Commonly Cited Remedios Yuyo in Lindo Manantial**

Local name for Plant	Usage
Anjejo	Leaves are consumed in <i>maté</i> and <i>tereré</i> to treat stomach problems and diabetes.
Yaguareteka'a	Added to <i>maté</i> to treat diabetes and stomach issues.
Yaguaretepo	Diabetes, triglycerides, cholesterol, and high blood pressure. Used in <i>maté</i> and <i>tereré</i> .
Verbena	Used in both <i>maté</i> and <i>tereré</i> to treat blood circulation, stomach and digestive issues, diabetes.
Siete sangria	Improves heart health, lowers high blood pressure. Used in <i>tereré</i> .
Cangorosa	Consumed in <i>maté</i> to treat infections and menstrual problems.
Para para'i	Treats kidney problems, <i>nervios</i> .

Agua cate	Treats kidney problems, <i>nervios</i> . The leaves are used in <i>tereré</i> .
Ka'a he'e	Used as a sugar replacement, to sweeten <i>maté</i> and <i>tereré</i> , and was frequently discussed as being good for diabetics.
Canella	Used to treat diabetes.
Pyno	Improves blood circulation, used for diabetes.
Ka'are	Good for the blood, consumed in <i>maté</i> to address stomach issues and stomach worms.
Suico	Improves circulation, combats infections, addresses stomach issues, and used to treat diabetes. Used in <i>tereré</i> , it was described as being good to drink after eating meat.
Menta'i	Added to <i>tereré</i> to relax nerves and as a “ <i>refrescante</i> ”, refreshing.
Malva	Used in <i>maté</i> and <i>tereré</i> to treat colds.
Yaguarundi	Added to <i>maté</i> and <i>tereré</i> to treat colds.
Flor de mamon (papaya flower)	Flowers are brewed in hot water or added to <i>maté</i> and <i>tereré</i> to treat coughs and colds.
Burrito	Described as having a calming effect and used to soothe stomach upsets in both <i>maté</i> and <i>tereré</i> . Several participants described using burrito in their daily <i>maté</i> and <i>tereré</i> to maintain health.
Hoja de mango (mango leaf)	Consumed with <i>maté</i> and <i>tereré</i> to help manage diabetes.
Hoja de naranjo (orange leaf)	Treats high blood pressure and used to enhance the flavour of <i>tereré</i> .
Yatebuka'a	Added to <i>tereré</i> to treat fevers.
Tilo tilo	Used to treat high blood pressure.
Taropé	Added to <i>maté</i> and <i>tereré</i> to treat throat inflammation and coughs.
Yerba de Luzero	Used to treat stomach problems in small children.
Hoja de mburucuja (passion fruit leaf)	Consumed in <i>tereré</i> to treat high blood pressure.
Augusto pytã	Small amounts of this toxic flower are added to the cane sugar alcohol, <i>caña</i> , and consumed on August 1 <sup>st</sup> of each year to ward off the “bad winds” and keep the drinker healthy for the remainder of the winter.

Perdurilla	Leaves are used as a <i>refrescante</i> in daily <i>tereré</i> to maintain overall health.
Doradilla	Consumed in <i>maté</i> and <i>tereré</i> to treat feminine health issues, especially <i>flor blanca</i> (yeast infections).
Mbaraguanambi	Directly translated as “cat's ears leaves”, these are also consumed in <i>maté</i> and <i>tereré</i> to treat feminine health issues.
Hoja de guava (guava leaf)	Used in <i>tereré</i> to treat <i>flor blanca</i> .
Hoja de limone (lemon leaf)	Added to <i>maté</i> and <i>tereré</i> to treat fevers, colds, and the flu.
Koku	Used to treat fevers.
Caña ruda	Used topically and consumed in <i>tereré</i> as an anti-inflammatory and to treat arthritis.
Ysyπό milhombre	Consumed in <i>tereré</i> as an anti-inflammatory.
Ñuati pytã	Added to <i>maté</i> and <i>tereré</i> to treat high blood pressure.

The use of *remedios yuyo* quickly became a central theme of my research in the field. In the initial interviews, I asked participants which plants they used for which ailments. During the follow up interviews, I focused on how and why natural remedies are administered. I was principally interested in whether there was a distinction between plant remedies used preventatively and as treatment of a specific ailment, the role of natural medicine for the younger generation, and when participants would use natural medicine, natural doctors, and medical doctors.

The participant response to the first question, regarding any distinctions between the uses of natural remedies preventatively and as direct treatment, were fairly consistent amongst the participants. “I use everything the same for prevention and treatment,” Ña Valencia told me, “But I might use a little bit more of certain things if I am sick, depending on what the problem is.” Ña Fernanda’s response echoed the same sentiment: “I use the same plants in *maté* and *tereré* for maintaining my health as when I’m sick, but I use more plants when I’m sick.” Ña Adelina, Don

Aureliano and Don Arturo all told me that they have a normal daily concoction for their *maté* and *tereré*, but will include additional plants to treat specific ailments if they are ill. “I will add *burrito* for my stomach or *koku* for a fever,” Ña Adelina told me.

With regards to youth understanding of *los remedios yuyo*, the answers were somewhat mixed. “The youth who are from Lindo Manantial but work in the city still know about natural medicine,” Ña Valencia said. “For coughs and colds they use the *remedios yuyo*, but for bigger problems they prefer to see doctors.” Ña Dominga had a different view, however: “The younger generation don’t know about natural medicine,” she said, “it is not important to them. But they should know. It is important for their culture and for their health.” Don Aureliano and Don Arturo reiterated this sentiment, stating, “Natural medicine is slower, but it is better for you. Younger people need to learn more, for *cultura y salud* (culture and health).”

When asked about the situations in which participants would choose to self-medicate with *remedios yuyo* at home, visit a natural doctor, or visit a biomedical doctor, the answers were quite varied. Ña Dominga, who spends extended periods of time in Asunción with her daughter, told me that she would always prefer to see a biomedical doctor if she can. Ña Valencia, on the other hand, expressed her distrust for medical doctors and said she would always choose to see a natural doctor first. Ña Adelina said she would only see a biomedical doctor if the situation was “*muy grave* (very serious).” Most of the participant responses were somewhere in between the two extremes. Most echoed Ña Graciana, who told me, “I go to both natural doctors and medical doctors. It depends on the illness.” The issues associated with choosing when and where to seek treatment, and the safety of combining biomedical and natural remedies, for the Lindo Manantial participants is discussed in further detail in the analysis section, presented in Chapter Five.

In addition to their own at-home remedies, most of the Lindo Manantial residents utilize

the services of several natural doctors in the surrounding area. I encountered two natural doctors during my time in the field, both of whom were women who had been practising ethnomedicine within their communities for several decades. Ña Reina was the most commonly discussed natural doctor among the Lindo Manantial participants, and many sought regular treatment from her. My own experiences with Ña Reina are discussed in further detail in Chapter Five. I was also able to interview a natural doctor in Piribebuy, Ña Marisol, who was gracious enough to provide depth and insight into her practice of natural medicine.

#### **IX) SUMMARY OF COMMUNITY HEALTH CONCERNS:**

In many ways, community health in Lindo Manantial is in a transitional phase. Increased access to transportation and a gradual expansion of healthcare services offered in relatively nearby town centres have improved certain health indicators through vaccination programs and general formal healthcare service accessibility. Many health indicators, however, remain unchanged, including gastrointestinal issues, seasonal flus, respiratory infections, and local health conditions like *pasmadura* and *frialdad*. Many Lindo Manantial residents feel that the overall health status of their community has worsened through the past several decades, as health services are financially less accessible and the community is facing new health concerns, like diabetes, high blood pressure, and acute infections like Yellow Fever. As the local ecological and man-made environments are currently in the midst of dramatic changes, several associated health risks have emerged also. Seasonal unpredictability has altered seasonal health patterns, chronic respiratory issues like asthma are becoming more commonplace as environmental pollutants increase, and the ways in which Lindo Manantial residents are exposed to aspects of the environment, including insect vectors and poisonous creatures, have changed with these

environmental shifts.

Local attitudes towards health concerns are another source of intrigue. The nonchalant attitude towards insects, spiders, and snakes echoes the general community sentiment towards acute health issues; though there is a recognition of the very real health risks within the village, there is also a level of acceptance that health and healthcare access issues have always been a part of life in Lindo Manantial, and are not worth concerning oneself with on a day-to-day basis. The attitude towards chronic health concerns, in contrast, differs significantly. Those diagnosed with persistent chronic health issues like high blood pressure and diabetes seem very concerned with these diseases and their management of them. This is evident in their development of resource networks for accessing medications and healthcare services, and their incorporation of traditional health and healing treatments into their daily routine. The perspectives of the individuals suffering from chronic health concerns seem to differ dramatically, however, from those who do not. Prevalence rates and risk factors for such chronic illnesses were largely not discussed with those participants who did not suffer from these conditions. I was repeatedly told that, despite the high percentage of my participants who reported diabetes in their family or had the disease personally, it was not a disease other community members worried about developing themselves; these participants indicated that while many individuals suffered from such health conditions, but they were not a general community health risk. Other endemic chronic diseases, like malaria and Chagas disease, were also completely absent from our discussions of community health. Given these responses and results, I propose that the region is in need of preventative health education and access to consistent healthcare services that are capable of navigating and working within traditional local epistemologies regarding health and healing in order to prevent and manage these critical chronic health concerns. This would require greater

steps towards the decentralization of public healthcare services in Paraguay, and a renewed focus on chronic community health concerns at the primary and secondary healthcare service levels, which are currently only equipped to treat acute infections and minor injuries. The next chapter will address these healthcare reform issues, using the culture-bound syndromes *pasmadura* and *frialdad* to frame my analysis and discussion.

## CHAPTER 5

### **DATA ANALYSIS & DISCUSSION**

#### **Contextualizing Healthcare Service Concerns in Piribebuy Region - Culture-Bound Syndromes, Patient Perspectives & Ethnomedicine :**

In this chapter, I describe the ways in which the current Piribebuy healthcare system is failing to understand and meet the needs of rural patients, and I use the examples of *pasmadura* and *frialdad* to describe how the development of culturally competent healthcare services would improve issues of accessibility, patient trust and compliance with treatments, and overall health status for communities like Lindo Manantial. I encountered two culture bound syndromes in undertaking this research, *pasmadura* and *frialdad*, which were commonly described illnesses and frequently experienced by the residents of Lindo Manantial. Of these two concerns, *pasmadura* was most commonly discussed, and was listed as one of the most pressing health issues in the community by many of the participants; in fact, it was the fifth most commonly cited community health problem by the Lindo Manantial interviewees. Both of these local health conditions are viewed as acute health problems that have tangible, physical consequences for Lindo Manantial residents, and I would argue that they warrant attention within the formal medical realm.

As introduced in Chapter One of this thesis, the concept of a culture bound syndrome can be defined as a set of symptoms and way of describing and classifying said symptomology that is specific to a localized cultural group, and not widely experienced outside of that cultural group. As Rebhun (2004) notes, “Every cultural group has ways of describing things that go wrong in body and mind. Although biological cause can be identified for many sicknesses, the way local groups identify, understand, classify, interpret, and respond to conditions is cultural, not

biological,” (Rebhun 2004:319). The term “culture bound syndrome” was developed by psychiatrist Pow Ming Yap in the 1960s upon noting that researchers working in tribal communities, as well as Asia and the Pacific Islands, described behavioural syndromes named in local languages which at the time did not correlate to known conditions in mainstream psychiatric practice (Rebhun 2004:319; Yap 1962; Yap 1969). Yap believed that, while the local cultural values, epistemologies, and societal structure could affect the presentation of syndrome symptomologies, these were, essentially, different representations of universal psychological conditions that had been classified or described differently according to local customs (Rebhun 2004:319). While culture bound syndromes are often described as isolated cultural experiences of illness that have no identifiable physiological cause and are psychosocial in origin, they manifest with very real, and often very serious, physical symptoms. The perspective that culture-bound syndromes are purely psychosocial, and non-physiological, in nature has since largely fallen out of the anthropological rhetoric, however it persists within much of the biomedical community, especially in those areas where healthcare providers frequently come into contact with patients presenting these illnesses.

Medical anthropologists have instead proposed that culture bound syndromes are indeed real illnesses, but ones that do not, as of yet, fall within the formal medicalized categorization systems for diseases and symptomology presentation. Scholars like Kleinman who have influenced the field of medical anthropology for decades have challenged the accuracy of the ‘culture-bound syndrome’ label, stating that psychiatric and other medical phenomena cannot be accurately deconstructed and understood outside of their unique cultural context (Kleinman 1977). Many anthropologists have criticized the idea of cultures being “bound”, or constricted, which would also imply that cultural groups are static and relatively unchanging (Rebhun

2004:319, 325). Medical anthropologists have raised questions instead about the universality of currently accepted medical classifications, and begun to discuss the complex relationships between biology and culture in the light of culture-bound syndromes. Some have also noted the potential dangers for patients suffering from these 'folk illnesses' when healthcare providers view them as entirely separate entities from 'real' medical disorders (Launer 2003:875).

Much of the recent literature on the concepts of *emic* and *etic* perspectives in anthropology has been centred on their applicability to the understanding of culture-bound syndromes. Rebhun explains, "Anthropologists often use the word "emic" to describe phenomena as viewed from within a particular cultural perspective and "etic" to describe phenomena as viewed from an imposed non-native perspective, especially when an imported definitional or interpretive category is used to describe some local phenomenon," (Rebhun 2004:320). Many medical doctors who have direct contact with the patients exhibiting these illnesses continue to be largely informed by the belief that these are not "real" conditions. As Waldram notes, "The cultural and individual expression of disease and illness becomes clinical noise that the biomedical practitioner must tune out in order to find the "real" problem," (Waldram 2000:608). Medical professionals are, therefore, not only denying their patients' own perceptions of their self and body, but can also neglect to recognize potentially severe medical complications as they attempt to sift through and separate the medically defined and culturally created symptoms. The patient is undoubtedly affected by the doctor's perception of their health complaints as 'not real' or their descriptions of symptoms as being distorted by local health and healing language and belief systems, and can often develop feelings of deep discomfort and distrust towards formal medical professionals. This would certainly appear to be the case among the Lindo Manantial residents when accessing healthcare services at the Centro de Salud in

Piribebuy. Several residents discussed how they felt uncomfortable when accessing biomedical healthcare services.

One of the common reasons Lindo Manantial residents gave for feeling uneasy or restricted from accessing medical services was financial cost. The Pan American Health Organization reports that, in 2005, twenty percent of the population with a serious health condition that chose not to seek formal medical consultation did so due to financial restraints; this number had increased dramatically from fifteen percent in 1997 (Pan American Health Organization 2009:50). Though the Centro de Salud in Piribebuy now offers all of their in-house medical services for free, any local care for long-term, chronic illnesses, acute infections, or serious injuries must be addressed through the formal private healthcare system in Piribebuy or other close peri-urban centres. The villagers may choose to access higher levels of public health services for more comprehensive care, however these are concentrated in urban centres, primarily Asunción, and Lindo Manantial residents must also factor added transportation and accommodation costs into their decision-making process. In the past, the participants were able to arrange individual payment plans that allowed them to pay for healthcare services over time, and through either financial or non-financial goods. Don Julián, one of the most financially limited participants, told me that he does not trust doctors now because, “They know we’re poor and can’t pay, so they say silly things to send us away.” Not trusting the doctors to listen and take the time to accurately diagnose a patient with extremely limited financial means, he chooses to avoid accessing formal medical services whenever possible, and manages his health concerns at home or consults with a natural doctor. This was a fairly frequently expressed sentiment; many participants stated that, while they felt reassured that when serious health problems did arise they could access medical care much more rapidly and easily than in the past, they have to consider

much more carefully what ailments are worth seeking potentially expensive treatment for. Ña Fernanda and Ña Adelina, both type II diabetics, repeatedly expressed their dismay and, from a practical perspective, irritation, that, in spite of an increased ease of physical accessibility to medications, the treatments they require on a daily basis are actually much more costly, and therefore inaccessible, than they would have been several decades before when medical services were more frequently traded for food stuffs and other goods produced within subsistence farming communities. Ña Adelina said, “Now it is easier to see doctors and so fewer people worry about getting medical care for emergencies, but it is too expensive when you need medicines every day.”

Language barriers also create a significant deterrent for villagers like those in Lindo Manantial in accessing medical services. The Pan American Health Organization found that in 2005, approximately 50 percent of the population who had developed a health problem and had not elected to access formal public health services had done so because they felt excluded based upon cultural inaccessibility, most commonly due to their preference to speak Guaraní or their lack of ability to communicate in Spanish (Pan American Health Organization 2009:50). While most residents of Lindo Manantial were able to communicate in Spanish, they frequently reverted to Guaraní when discussing their own individual health concerns and health histories. It seemed that they were much more comfortable explaining their own health in their first language, and avoided clinical Spanish terms when describing symptoms and health conditions. While some of the nurses, most of whom are originally from Piribebuy, are able to communicate with their patients in Guaraní, the visiting doctors from Asunción typically are not. The little time each doctor is available at the Centro de Salud leaves them with insufficient time to see all of their patients, let alone spend time with translators to explain diagnosis and treatment plans. In

order for a healthcare provider to accurately diagnose and treat individual patients, they must be able to communicate effectively with their patients; preventable and treatable health concerns will never be adequately addressed in the wider community if doctor- and health practitioner-patient communication does not become a priority in primary and secondary health service facilities such as this.

It is also important for healthcare providers to understand that speaking the dominant language of a society does not necessarily mean that someone is comfortable or able to understand biomedical and clinical terminology. I found this in my own research, as many of the participants chose to speak with me primarily in Guaraní instead of their second fluent language Spanish when discussing their personal health and health histories. In the twentieth-century medical paradigm, models of illness-related explanation are largely based on information that is inaccessible and incomprehensible to the patient, even if it is presented in a language the patient is fluent in. Countless studies have shown the importance of a patient being able to communicate with their care provider and the significance of being able to name their ailment in the process of coping with illness (Kleinman 1980:42). When communication between a patient and their healthcare provider breaks down, it can have disastrous effects on disease control. The emergence of antibiotic resistant strains of previously treatable conditions, such as tuberculosis, is closely linked with the improper use of antibiotic medications and inadequate patient follow-up (Farmer 2006:374). When a patient is able to develop a better understanding of the nature of their ailment, they are more likely to be compliant with treatment protocols, which decreases the opportunity for the spread of infectious diseases and simultaneously increases the rate of effective healing in patients. It is clear that the improvement of practitioner-patient communication is an essential aspect of improving cross-cultural access to Paraguay's national

healthcare system.

Consistency of care in remote primary and secondary healthcare facilities like the Piribebuy Centro de Salud present a further barrier to the formation of a positive doctor-patient relationship and can increase patient feelings of distrust and discomfort in accessing healthcare services. Primary and secondary healthcare facilities serve predominantly small, remote rural communities like Lindo Manantial, where everyone is well acquainted and has known their neighbours for much of their lives. The current rotational nature of the doctors' schedule at the Centro de Salud means that patients are unlikely to see the same physician from one appointment to the next. This system does not allow for the development of positive doctor-patient working relationships, and the *campesino* patient is likely to experience the same uneasy feelings when confronted with a strange doctor at each visit. The inconsistency of care also makes it difficult for healthcare providers to ensure appropriate follow-up care is delivered to each patient. In such small, tightly-knit communities, a consistent rotation of physicians would allow patients to feel comfortable accessing medical services and discussing personal health issues with the same doctors each visit, and would increase patient compliance with treatments and follow-up care procedures.

Doctor-patient power dynamics can also have a severe impact upon doctor-patient communication and the willingness of rural patients, like those in Lindo Manantial, to seek formal medical attention. Within Paraguayan society, highly educated physicians, typically of an elevated socio-economic background and urban upbringing, represent an elevated position of social power. For the average rural patient, with limited education and socio-economic resources, the discrepancy in agency and societal influence is often amplified and patients feel unable to interact with physicians with the level of honesty and openness required for an effective doctor-

patient relationship to develop (Elliott & de Leeuw 2009:443). Patients may feel uncomfortable discussing their private lives and using their own traditional Guaraní descriptions of symptoms with doctors who may judge or simply not understand them, however the details they hold back may have considerable bearing on the diagnosis of their health concerns and the efficacy of treatments.

In many cases, patients were so disheartened by previous uncomfortable or unrewarding experiences with formal medical services that they chose, whenever possible, to seek treatment elsewhere. Specifically with regards to *pasmadura* and *frialdad*, many participants in my own research project confessed that they feel uncomfortable discussing these health concerns with formal medical professionals, including the doctors and nurses at the Piribebuy hospital, because they were made to feel silly for abiding by traditional local health classifications and as though their pressing individual health problems were inconsequential and not “real”. Many of the Lindo Manantial residents, therefore, relied upon the non-regulated, traditional healthcare sector for their regular health and healing needs.

The first *doctora* I met, Ña Reina, was an extremely old and highly revered woman in Lindo Manantial and the surrounding communities. Many of the participants in my research credited Ña Reina with healing either themselves or a family member on several occasions throughout their lives. When I brought up her name, I was met with knowing smiles and the common sentiment, “Ah, you know Ña Reina; she has helped us all.” I visited Ña Reina on several occasions, making the hour-long hike through the jungle to her neighbouring village, hoping to discuss her work with her. Each time, she had a line-up of patients of both sexes, all ages, and from all over the region patiently waiting for her services. I was able to observe her routine, without invading patient privacy, while waiting for several hours at a time to meet with

her. The typical consult consisted of a detailed discussion with her patient, and often their extended family, in the extra bedroom of her home complex. She often prayed with the patient at the shrine filled with prayer candles and Catholic images in the back of the bedroom. She would then disappear to the back of the housing complex and return some time later with a two litre pop bottle filled with various liquid herbal concoctions for the patient. Some of these were to be bathed in or administered topically, while others were intended for consumption. There was a small standard fee for the consult, and an additional fee for the take-home remedies, which patients could return to purchase more of should their problems persist.

Ña Reina's gift as a healer seemed to be based in her ability to listen to and understand individual patients as unique presentations of health concerns, each requiring individualized treatments. She was also purported to have special powers to change the lives of her patients; I was warned on more than one occasion to be wary, as Ña Reina had a reputation for enjoying interfering in the love lives of young people. Ultimately, Ña Reina declined a formal interview with me, as she could only communicate in Guaraní and did not like the thought of the details of her work being misunderstood through translation. She described how so much of her work is based upon the direct and very personal conversations she has with her patients, and so she was uneasy to participate in any formal interview where we would have to communicate through a third party. We did, however, enjoy several lighthearted personal conversations, through which I was able to gain some understanding of the way in which she communicates with her individual patients, putting them at ease and trying to solve their personal and health problems in the most effective possible way for them.

Detailed and lengthy discussions with patients about not only their symptoms, but their lives as a whole, is a key aspect of most ethnomedical practices worldwide (Miles 1998:216),

and was frequently cited in my own research as a significant part of the appeal of natural medicine for the Lindo Manantial residents. In these discussion-based consultations, the patients have a great deal of control over the therapeutic process, as the natural healer actively listens to their patient and then patient and healer arrive at an agreed upon diagnosis together (Miles 1998:217). Going from such an interactive consultation process to the strictly-defined clinical diagnostic procedures in the formal healthcare system represents an enormous departure from the norm for residents of remote communities like Lindo Manantial who have traditionally relied upon and continue to primarily use natural healers. Natural medicinal treatments are also much more flexible than biomedical pharmaceuticals, which can further complicate issues of treatment compliance. Miles writes, “I believe [...] that the popularity of natural medicine goes beyond issues of cost and accessibility and can be located in its proficiency in combining important and potent symbols from different, and sometimes even contradictory, healing traditions” (1998:212). As Miles points out, natural remedies and healing techniques are highly adaptable, making it easy for patients and healers alike to adjust combinations of *yerbas* in the *remedios yuyo* to accommodate changes in patient health concerns, tastes, or plant accessibility. For example, as diabetes has become more common within remote rural Paraguayan communities, plants from previously different classificatory systems have been combined to address the specific chronic health issues related to diabetes. *Yaguaretépo* and *yaguaretéka’a*, both classified as digestive aids, are now combined with the use of *ka’a he’ê*, a natural sweetener, to regulate digestive processes and maintain healthy blood sugar levels. The adaptability, accessibility, and interactive nature of ethnomedical practices in rural Paraguay have allowed the field of natural medicine to remain a relevant and effective treatment option for their patients, particularly in remote rural areas like Lindo Manantial.

Despite the level of effectiveness and satisfaction natural medicine may bring to their patients, the formal medical sector and many factions of mainstream society have been quick to dismiss or challenge the place of ethnomedicine today. Just as local descriptions of symptoms and health conditions are brushed off by biomedical scientists and service providers as “not real”, natural medicine and ethnomedical treatments are often regarded with the same attitude. Waldram states, “These [traditional] medical systems are often seen as culturally constructed, subjective, and primarily symbolic. They are counter posed against a universal, acultural, and empirical biomedicine, shrouded in a scientific 'aura of factuality'” (2000:604). Cross and MacGregor point out that, “Ideas about what constitutes appropriate knowledge proceed from a biomedical frame which calls into question ways of knowing or practising medicine that fall outside it” (2010:1594). Though natural remedies are often regarded as inert, ineffective treatments, modern empirical analysis has shown the very opposite. “Extant laboratory and clinical studies suggest that a *majority* of the remedies used in traditional pharmacopoeia are not only effective, but require careful preparation, including compounding, to ensure that they have strong, selective, and non-toxic effects” (Barsh 2006:66-7). The reality of the efficacy of the *remedios yuyo* for Lindo Manantial residents, based upon participant responses regarding their reasons for continuing to use natural remedies, led to another research focus, which was examined predominantly during the return interviews and my second stay in the village: are these potentially potent natural remedies being prescribed and used safely? I specifically focused on how patients were combining biomedical and natural treatments and the perceived risks, if any, associated with combining treatment regimes.

Almost all of the participants responded that they do routinely combine natural and pharmaceutical treatments, and most insisted that there were no potential health risks associated

with combining said treatments. In fact, I was told, using a combination of natural remedies and doctor-prescribed drugs optimized treatment and prognosis. “Medicine from the doctors gives you quick relief, because it takes away your symptoms,” Ña Esperanza told me, “but natural medicine is a better long-term solution, because it treats your problem for the future.” “Yes,” Ña Fernanda continued, “young people living in the city are using more pills instead of *remedios yuyo* because they want an instant fix, but natural treatments keep you healthy longer, they solve the problem.” Many natural doctors, including Ña Marisol who I interviewed in Piribebuy, also promote the combination of biomedical and natural treatments. “Of course it's not dangerous to use them together,” Ña Marisol chuckled. “The *remedios yuyo* are all natural, and the doctors' pills are chemical. They work differently, there is no contraindication. Because the *remedios yuyo* are all natural, they aren't dangerous.” The potential for extremely dangerous health outcomes following the combination of pharmaceuticals and natural remedies, however, is well documented (Cross & MacGregor 2010:1593). The nurses at the Piribebuy Centro de Salud also expressed extreme concern over the issue of unsafe and unregulated natural and biomedical treatment combinations. Senior nurse Alejandra told me, “*Remedios yuyo* are a facet of our culture. Eighty percent of the time, the *remedios yuyo* are either harmless or beneficial, but there is the twenty percent of the time when treatments are improperly administered or combined, and it can be very dangerous. It can lead to intoxication or poisoning. It can be very bad.”

While natural healers were described as offering effective treatment for chronic health concerns, as will be discussed in further detail in the following sections on *pasmadura* and *frialdad* in this chapter, their ability to provide effective urgent medical care was less clear. The Centro de Salud staff expressed concern that natural doctors, who are often the first and most accessible healthcare provider patients seek out, too often fail to refer serious or critical cases to

biomedical treatment facilities, which may be better able to handle urgent care procedures. By the time a patient's health condition is severe enough to warrant the trip to Piribebuy, they are often unable to handle the level of advanced care the patient would require, and must send them to Asunción or a private care facility.

In his article, 'Why Not Call Modern Medicine Alternative?', Bates divides the primary concerns biomedical healthcare professionals have with regards to ethnomedicine into three categories, listed as follows: “1) people with serious conditions may be diverted towards treatment that is not effective in cases where modern medicine could have helped; 2) without scientific scrutiny, some alternative treatments might prove to be harmful; and 3) also because of the lack of scientific regulation, patients risk being exploited by fraud” (Bates 2006:38). While the medical care providers I spoke with clearly addressed the first two issues, no one seemed concerned with the third category. It seems widely accepted that both traditional healers and their patients wholeheartedly subscribe to the efficacy of their treatments, and there was no suggestion of intentional deception or taking advantage of patients who choose to access and follow traditional treatment regimes. Perhaps this is related to the continued daily use of some traditional healing plants in *maté* and *tereré* in both rural and urban communities and among Guaraní, *mestizo*, and European-descent Paraguayans.

The already strained relationship between healthcare professionals and natural healers is further aggravated in Piribebuy by professional competition. Elena told me, “My neighbour is a natural doctor and there are always lines of people at her house, everyone paying her cash. I look at my two nursing degrees on the wall and sometimes wonder if it was worth it. I have nothing with my degree, but she has so many patients, lots, always.” The polarization of healthcare professionals in the biomedical and ethnomedical sectors certainly does not serve the best

interests of the patients, particularly those in rural areas who rely on a combination of services from both types of healthcare providers. Several of the participants in my own research investigation described feeling ashamed to admit to the healthcare workers at the Centro de Salud that they used natural healers, and often neglected to inform their biomedical care providers of the other treatments they were currently using. Don Arturo stated, “The doctor told me that the natural doctors know nothing about medicine, but people here use more natural medicine instead of pills; they prefer natural medicine.” Bates points out that the idea that differing medical epistemologies are mutually exclusive has never been a universal concept, and that many societies have historically adhered to the concept of medical pluralism, in which a variety of medical practices are able to coexist and, often, be used in combination (2006:38). Miles states, “Biomedicine, folk medicine (especially home remedies), and traditional medicine (including spiritualist healing) have been shown to exist alongside one another and to be alternately or even concurrently utilized by individuals,” (1998:207). Clearly in the rural Paraguayan context, a restructuring of the healthcare system to allow for collaborative efforts between natural doctors and formal medical services, in the areas of treatment and preventative health education, is required. I propose that the creation of more culturally competent healthcare services, by incorporating aspects of local health and healing epistemologies and language into primary and secondary healthcare facilities like the Piribebuy Centro de Salud, will increase the accessibility of these healthcare services for those who are currently uncomfortable or uncertain. In the next sections of this chapter, I will use the two culture-bound syndromes I observed in Lindo Manantial, *pasmadura* and *frialdad*, to explore the specific ways in which the current healthcare service system is failing to recognize and meet the needs of their target communities, and how the introduction of culturally competent practices and procedures could dramatically

improve the accessibility and effectiveness of Paraguay's primary and secondary healthcare services.

As both *pasmadura* and *frialdad* were described as conditions that arise as a result of an imbalance of hot and cold in the body's equilibrium, I will first discuss the applicable concept of hot-cold humoral folk medicine, and the role it plays in the provision of healthcare in Latin America. Reyes-García defines the central concept of humoral medicine models as the idea that illnesses occur as a result of an imbalance of bodily humors, the intangible dualities of the human body (2010:8). In the Latin American humoral system, health is understood as the result of body temperature equilibrium; illness is explained as a loss of temperature balance, resulting in the body or a part of the body being “too hot” or “too cold”. Treatments with the opposite thermal properties are prescribed to rebalance the body's equilibrium and restore health and well-being (Foster 1988:121). If the individual is “too hot”, for example, they will be treated with foods, herbal remedies, or medicines that are classified within the local cultural context as being “cold” in order to restore thermal balance within the patient (Reyes-García 2010:8). The hot-cold humoral medical model has existed in Latin America for centuries, yet despite its antiquity, it remains a dynamic aspect of contemporary healthcare in Latin America (Manderson 1987:329).

Foster's work is responsible for the foundation of much of the current anthropological understanding of hot-cold humoral medicine in the Latin American context (Manderson 1987:330). In his 1987 article, ‘On the Origin of Humoral Medicine in Latin America’, Foster argues for an Old World origin of hot-cold humoral concepts, stating that the Spanish systematically introduced the concept during the process of colonization. Foster argues against a New World, native origin of the humoral system, pointing to the widespread, cross-cultural homogeneity of hot-cold humoral concepts throughout Latin America, the Caribbean, and as far

afield as the Philippines, all of which share a Spanish colonial history (Foster 1987:355). Foster argues that, along with the dissemination of language, religion, and material culture, the Spaniards were responsible for introducing and reinforcing hot-cold humoral medicinal practices within Latin America, including Paraguay (Foster 1987:367).

Tedlock takes a more interpretive approach to the role and origin of hot-cold humoral medicinal concepts in Latin America. Here, Tedlock draws upon Kleinman's model of medicine as being a cultural system of symbolic meaning anchored in local sociocultural context and revolving around the overlapping popular, folk, and professional sectors of healthcare service provision (Tedlock 1987:1069,1080). In her own ethnographical research in Momostenango, in the Guatemalan highlands, Tedlock found the interpretive model to allow for a better understanding of the context of the hot-cold humoral system, and critiqued past research for reducing the hot-cold continuum to a dichotomy, therein not allowing for the overlapping of various different local classificatory systems for illnesses and treatments within the hot-cold spectrum (Tedlock 1987:1080).

The hot-cold humoral medicine model retains a significant role in local concepts of health and healing throughout Latin America, including Paraguay. Through the following examples of hot-cold duality-based culture bound syndromes, *pasmadura* and *frialdad*, I will demonstrate how these humoral concepts remain significant in the local concepts of health and healing in Lindo Manantial specifically, and outline the importance of the recognition and validation of such concepts by local physicians and healthcare professionals in the effective treatment and management of these health conditions.

### *Pasmadura:*

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I encountered *pasmadura* on my first morning conducting interview in Lindo Manantial, and it quickly emerged as an extremely common local health concern and became a central focus of my own research. Many residents quickly began to discuss *pasmadura* with me as though I would have known the illness prior to my immersion in their community, and as though I would have experienced it before. My requests for participants to further and more specifically define the causes and symptomology of the condition were met with some confusion, and the standard, “Well, it’s just *pasmadura*,” response. My own research in Lindo Manantial, at the Piribebuy Centro de Salud, and in Asunción further indicated that *pasmadura* is a common affliction and an understanding of the condition and its symptoms is considered common knowledge, even outside of rural areas.

The most common description of *pasmadura* was of a general, though very intense, cramping that came with rapid temperature change when one transitioned from a hot environment or activity to cold, usually through immersion in cold water. The extremities, specifically hands and feet, were cited as the most common areas to experience *pasmadura*, although the entire limb could be affected if the condition was severe. Ña Fernanda and Ña Esperanza defined *pasmadura* as “cramps in the hands and feet that happen when you go from being hot or touching something hot to touching something cold.” Men said they experienced *pasmadura* pain when returning home from hot work in the fields and immediately began bathing their hands and feet in cold water to wash off and cool down. Women predominantly complained about experiencing *pasmadura* pains when washing hands that were warm from cooking, or feet that were hot after long walks on the sun baked sand paths that ran throughout the community.

When pressed, the only description of the sensation associated with *pasmadura* offered by the residents of Lindo Manantial was “cramps”, and that these cramps could cause hands and feet to seize up temporarily, and were both a source of great health concern and a general nuisance. The Spanish root words for the term *pasmadura* further exemplify the symptomology associated with the condition; likely stemming from *espasmo*, meaning ‘spasm’, *pasmado*, meaning ‘stunned’, and *dura*, meaning ‘tough’ or ‘hard’, the literal translation of *pasmadura* accurately describes the sensation of the conditions – a sudden spasm caused by a shock to the system. Symptoms can apparently last anywhere from minutes to hours, depending on the individual and the length of exposure to both the hot and cold stimuli.

The experience of joint pains and cramping in extremities relating to transitions from hot to cold are not specific to rural Paraguayan *mestizo* populations; for example, Pugh’s research in rural North Indian villages revealed that locals explained joint pains result from, “If a man works strenuously and becomes overheated, and then suddenly goes into a cool place,” (Pugh 2006:48). A recognized ‘folk illness’ in the Philippines, named *pasma*, also has striking similarities to the experience of *pasmadura* in Lindo Manantial, though the symptoms are less frequently described as cramps and mostly cited as being hand tremors, sweating palms, numbness and sometimes pains (Tan 2007).<sup>10</sup>

I was told that *pasmadura* had been a community health concern “*para siempre*”, forever, and was no worse now than at any other period in local community history, to their knowledge. According to one participant, who was known as a local expert on *pasmadura* and the herbs used to treat it, anyone was susceptible to *pasmadura*, but older participants seemed to experience it

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<sup>10</sup> The existence of *pasma*, a similar condition to Paraguayan *pasmadura*, in the Philippines is interesting in that the two nations share a Spanish colonial history. The similarities in symptomology and colonial history of *pasmadura* in Paraguay and *pasma* in the Philippines could also call to question the concept of a ‘culture-bound syndrome’, as these conditions exist in two dramatically different cultural and geographical locations but share a kindred socio-political history.

more frequently and easily than others. When I queried any possible relationship between *pasmadura* and arthritis, most sufferers vehemently rejected the idea, reiterating the fact that anyone could get *pasmadura*, even if they were otherwise physically fit and had no other underlying health issues. Ña Esperanza stated, “My mother’s mother had terrible *pasmadura*, and she was a strong, healthy woman.” Interestingly, however, in the same interview with Ña Esperanza, Ña Fernanda told me that, “Sometimes taking pills for my *rheuma* helps with the *pasmadura* pain.” It seems that arthritis is associated with frailty and even senility, while *pasmadura* is a socially acceptable source of suffering that locals are willing to openly discuss with one another.

The healthcare providers at Piribebuy hospital, however, offered a somewhat different perspective on the physiology of *pasmadura* pain. Alejandra, the head nurse administrator at Piribebuy Regional Hospital told me that they had many patients complain of moderate to severe *pasmadura* in their general health histories, although it was rarely the cited cause for their visit to the hospital. “Many people from the small villages around here talk about *pasmadura*,” she said. “They usually go to natural doctors for it though, not here. It’s not really anything, a disease.” She told me they thought at the clinic that *pasmadura* was caused by mild, otherwise negligible arthritis in the joints, which is aggravated by sudden vasoconstriction as a result of transitioning too quickly from heat to cold. Alejandra said, “The inflammation in the joints is made worse by sudden changes, a shock to the circulatory system.” She continued, “They believe it is caused by their work though.” Nurse Alejandra also thought the experience was exaggerated by nutritional deficits in some villages, saying that no vegetables and too much *carne*, too many fats, made all health problems worse.

Given the instant aversion most Lindo Manantial residents had to the arthritis concept, as

well as the healthcare providers' perception of *pasmadura* not being a "real" disease, it is clear that the emic and etic perceptions of this particular illness, in both classification and experience, are entirely at odds with one another. It is no wonder, then, that *pasmadura* sufferers in Lindo Manantial and the other surrounding communities are disenchanting by their experiences within the formal medical care offered by biomedical healthcare providers, and most often choose to seek treatment from natural healers within their own communities. Similar issues of discomfort accessing formal medical care can be seen with the second local health condition, *frialdad*.

### **Frialdad:**

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*Frialdad*, the second culture-bound syndrome I encountered frequently in the field, can be directly translated from Spanish to mean 'coldness', 'frigidity', or 'bleakness'. I came to understand *frialdad* as a classificatory term referring to a broad spectrum of female reproductive health concerns. Complaints attributed to *frialdad* included everything from severe menstrual cramping to infertility, and from yeast infections to ovarian cysts. Ultimately, each of these conditions was classified within the local explanatory model as *frialdad*, the direct result of having "cold ovaries". Ña Graciana told me, "*Frialdad* is when your insides are too cold," Ña Graciana told me, gesturing to her lower abdominal region. "It causes many women's problems: pains, infections, fertility problems. I have had bad pains caused by *frialdad*. I go to Ña Reina for help with *frialdad*. She makes natural medicine for me to drink. It helps the *frialdad*, it's not so bad now. But I still go to Ña Reina."

Most of the women who cited *frialdad* as a personal health concern said they primarily sought treatment for the condition from natural healers, although one woman had eventually had her ovarian cyst surgically removed. They discussed how the natural healers understood their

*frialdad* symptoms and had long-standing and effective natural remedies for whatever had caused the condition. When I asked for more detail about what caused *frialdad*, I only ever received the same response about a woman's insides being too cold. "It is always caused by cold insides. But it causes lots of different problems for different women. That's why you go to Ña Reina, because she knows what medicines to give to *you*," Ña Graciana told me, implying that treatment was potentially different for each individual. Both natural healers I visited while staying in Lindo Manantial listed *frialdad*, as well as *pasmadura*, as the most common health complaints their patients sought treatment for and they discussed how, with *frialdad* in particular, the treatments they administered were designed for each individual patient based on their symptomology and history with the ailment.

The medical practitioners at Piribebuy Hospital, who cited reproductive and maternal health as one of their main priorities took quite a different approach to their patients who presented with *frialdad*. "That's not real," I was told by one nurse, "it's always caused by something specific, like endometriosis." I would propose that such an approach, which seeks to invalidate traditional local medical classification systems using complex medical terminology, drives rural patients away from modern formal sector healthcare facilities and back towards natural doctors, who understand their healing epistemology and seek to provide highly individualized and personalized care. Until the language and approach of formal medical care providers become more inclusive and accepting of local epistemologies, I would expect the obstetrics and gynaecology ward to remain an underutilized service at Piribebuy Hospital.

A simple adjustment in patient-practitioner communication could have a rapid and remarkable impact on efficacy of rural patient care in this area. Adjustments in terminology designed to incorporate more local indigenous concepts of health and healing have recently been

introduced by healthcare professionals involved with treating Type II Diabetes in Canadian First Nations populations, and these programs have been considered a great success (Delormier *et al.* 2003:149). Physicians have found that referring to diabetes as ‘*an imbalance in blood sugar*’, which draws upon Aboriginal concepts of health as being a result of balance in one’s physical and spiritual self, as opposed to complex and inaccessible biomedical terminology, has resulted in increased patient comprehension of their illnesses and, subsequently, increased patient compliance to treatments that are framed as seeking to ‘*restore and maintain blood sugar balance*’ (Delormier *et al.* 2003:149). A similar reworking of the current patient-practitioner communication protocols in rural Paraguay to be more open to and inclusive of local understandings of health and healing could only stand to improve current access to healthcare services, understanding of medical conditions, and adherence to complete and appropriate treatments among rural village dwellers, who currently feel that their health needs are not being effectively met by formal healthcare providers. Stating, for example, “*Frialdad* is not real, you are suffering from endometriosis,” is not only a denial of the patients’ understanding of their body and health, but also uses medical terms that are difficult for laypeople to understand and for which there are no Guaraní equivalents. Instead, using statements like, “In this case, your *frialdad* discomfort is caused by an ovarian cyst, which we can treat you for here,” would allow medical professionals to treat the patients effectively and put the patient at ease, as their knowledge was not refuted and they will likely feel that their health concerns are being taken seriously and treated more effectively.

### Culturally Competent Healthcare:

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In the case of both *pasmadura* and *frialdad*, several women in Lindo Manantial expressed their mistrust in the ability of formal medical doctors to treat ‘folk illnesses’ at all, due to their lack of understanding or even belief in the ailment, and viewed natural healers as the only viable option for effective treatment. Ña Graciana told me, “I go to both natural doctors and medical doctors. It depends on the illness. But I go see Ña Reina for *frialdad*, not a medical doctor.” When I asked her why that was, she told me, “I went to the medical doctor and they told me it was an infection, and then pains in my back. When I went to Ña Reina, she prepared a medicine just for me, and I got better.” She did not know what was in the herbal concoction, and told me she keeps going back for more of the same when she needs to for her *frialdad*. The unwillingness of medical doctors and nurses to integrate local understandings of healing into patient care creates a potentially dangerous divide between natural and formal medicine; patients may feel uncomfortable disclosing past or current ailments and treatments overseen by a natural doctor to their medical doctor for fear of stigmatization. Patients may even choose to avoid potentially necessary treatment from medical doctors altogether because of previous negative experiences with medical practitioners’ attitudes towards folk illnesses.

Baer and Bustillo’s (1993) conclusions from their study of *susto* and *mal de ojo*, two other culture-bound syndromes found amongst Latin American farm workers in Florida, highlight the need for integrative and culturally competent healthcare services in providing effective cross-cultural care, specifically in light of local beliefs that folk illnesses cannot be treated by medical doctors. They write,

“This research suggests that the perception of folk healers that these illnesses cannot be dealt with by biomedical healers may be as incorrect as the perception of biomedical healers that there are mere “culture bound syndromes,” that is, not *real* medical problems. The key issue for

all healers is to recognize the aspect of the illness that they are most capable of treating. For the biomedical healer, it is the proximate and biological cause and physiological symptoms of the illness, while for the folk healer, it is the emically determined ultimate and social cause of the illness (Baer & Bustillo 1993:91).

Baer and Bustillo's work with regards to *susto* and *mal de ojo* clearly exemplifies how the development of culturally competent healthcare services, which integrate biomedical care with local healing traditions and nature medicine, can improve patient access to and compliance with healthcare services, as their perspectives of their own health and healing are both included and validated through the diagnosis and treatment process.

Cultural competency in the context of the healthcare system can be defined as the understanding and adaptation of care to meet the patient's socially and culturally informed health beliefs and behaviours at all levels of the healthcare system (Kumanan 2004). Bates states, "Since any healing art has to do with the human body, and since, in any culture, that body's relationship to the outer world is central to any understanding of it, medicine and the ways of understanding the world are always closely associated." (2006:35). According to Kleinman, the psychologist and medical anthropologist, health care systems can be considered a cultural construct in the same sense that the structure of religion or kinship organization are socially constructed to meet local cultural needs. Kleinman states, "The health care system, like other cultural systems, integrates the health-related components of a society. These include patterns of beliefs about the cause of illness; norms governing choice and evaluation of treatment; socially-legitimated statuses, roles, power relationships, interaction settings, and institutions," (Kleinman 1980:24). Kleinman later goes on to say, "In every culture, illness, the responses to it, and the social institutions relating to it are all systematically interconnected. The totality of these interrelationships is the health care system," (Kleinman 1980:24). Any healthcare services that

do not develop mechanisms to recognize and function effectively within their unique sociocultural and ecological contexts will undoubtedly fail to effectively diagnose and treat certain conditions within the local population that are associated with terms or experiences of illness that are at odds with the views of the medical community, as is currently the case with the term and experience of *frialdad* for the Lindo Manantial community. The experience of *frialdad* sufferers is brushed aside by the Piribebuy Centro de Salud employees as a folk illness, and in doing so they may fail to appropriately diagnose and treat any underlying physiological conditions the patient may be suffering from and discourage patients from seeking further treatment at the centre. This is undoubtedly the case at other primary and secondary healthcare service centres throughout Paraguay, and is a significant issue that needs to be addressed through the development of culturally competent healthcare services.

In the particular case of Piribebuy, I propose that the development of culturally competent healthcare services would have to include: language and culture training for biomedical healthcare service providers, especially nurses, who provide the most consistent care to rural patients; the introduction of policies and infrastructure that would prioritize prevention and management of the chronic health concerns that plague the surrounding villages; and, the development of a formalized system of collaboration between the medical and ethnomedical sectors - particularly between natural doctors and nurses, both of whom are primarily responsible for the continuing care of their rural patients - in order to optimize patient care and health outcomes. The following paragraphs discuss in detail how the implementation of such culturally competent healthcare reforms would improve community health and patient outcomes in communities like Lindo Manantial.

Firstly, language training, not just in Guaraní but also in the most effective ways in which

to talk to patients about their health, could dramatically improve communication between healthcare workers and their patients, which has been shown to be critical in the provision of effective medical care (Kleinman 1980:42). Incorporating local health and healing terminology is likely to not only put the patient at ease, but improve their understanding of their diagnosis and treatment options, and their overall feeling about the effectiveness of their healthcare experience. Training in cultural competency would also give the medical professionals insight into the daily lives and deeply engrained sociocultural traditions of their patients, all of which will factor into diagnoses and the development of individualized treatment plans. Increased understanding of and sensitivity to the social circumstance of their patients will also improve the relationship between health care workers and their patients, as patients will hopefully feel less stigmatized and be made to feel more comfortable using their own terminology and beliefs to frame their experience of an illness. Both language and cultural training would be best addressed during the training of all healthcare professionals practising in Paraguay. Requiring credits in cultural competency and mandating rural medicine training placements for doctors and nurses would both improve the ability of healthcare professionals to provide culturally competent care once they are in practice, but also help ease some of the staffing issues in remote healthcare facilities. Professora Sofía and I discussed at length the issue of training rotations in rural areas as part of the nursing curriculum during our interview. She told me that, while rural rotations are encouraged during their training placements, and all students are supposed to have some rural health care experience in order to complete their training, the policy is too difficult to enforce due to lack of communication and shared funding between the different subsectors and health service levels. The nursing program does not have sufficient contacts with primary and secondary healthcare centres to facilitate placements for their students. The continued

decentralization of the healthcare service sectors will hopefully serve to address this issue, and nursing and medical training programs will be better able to establish and enforce rural medicine training rotations as part of their curriculum. Rural training rotations for all healthcare service providers would draw greater attention to the needs of the community as well as the personnel and equipment deficits primary and secondary health posts are faced with, and facilitate greater communication between the different health service levels and sectors. As with any healthcare profession, continuing education is also extremely important so that healthcare providers can offer the most up-to-date and effective care for their patients. Continuing education requirements in cultural competency training would likely serve already qualified healthcare professionals and their patients extremely well.

Secondly, the current disconnect between rural patients and the healthcare services provided at primary and secondary health centres is partially rooted in the lack of ability of these services to address their chronic healthcare needs. As the previous chapter discussed, chronic health issues are emerging as more significant concerns within the communities that the Piribebuy Centro de Salud serves, including Lindo Manantial. Patients who may already feel that the centre is unable or unwilling to address their individual health concerns based on past experiences are further discouraged from accessing the medical services provided when they discover that the centre is unable to help them to treat and manage their chronic health issues, and they must seek medical services even further away. Several of the nurses I interviewed stated that the inability of the primary and secondary healthcare services in Paraguay to help patients manage chronic diseases, like diabetes, was due to the paralysis of the political reform as the country continues to slowly dismantle the long-standing dictatorship. Nurses stated that no major modifications to national healthcare services or policies had been felt at the rural community

level since the infant vaccination program was implemented in the early 1980s. One nurse even expressed a professional nostalgia for the dictatorship policies, saying, “At least during the dictatorship they got things done.” As of right now, the hospital is so preoccupied with managing preventable and treatable acute illnesses, like respiratory infections and sexually transmitted diseases, that they are unable to tackle emerging and chronic health crises, like diabetes. While it would be impossible to provide all specialized healthcare services to patients in remote communities, it is essential to the improvement of community health that local health centres are able to effectively facilitate referrals and follow-up care, acting as a consistent base for the care of the region's patients. The current system, with the public, semi-public and private sectors and the four levels of services provided, is not designed to efficiently facilitate the co-management of individual patient care.

Finally, the current system that positions biomedical and natural healthcare services against one another serves no benefit to the community, as most residents of Piribebuy and the surrounding villages, including Lindo Manantial, actively seek treatment within both realms. Any healthcare system capable of effectively serving the local population must allow for natural healers and biomedical doctors to work collaboratively to optimize the care they provide their patients. Patients would feel more comfortable and confident navigating the healthcare system while working with both their natural healers and medical doctors to develop individualized treatment plans, as their medical needs would be appropriately managed while working within, and not against, the patient's own epistemological framework. In addition to improving patient comfort and compliance with treatments, encouraging the medical and natural doctors to consult with one another about the care of a specific patient would eliminate the potential for disastrous combinations of natural and pharmaceutical treatments, which my participants identified as a

major issue in the provision of health services in Piribebuy region.

In spite of the pronounced local tensions between the biomedical and natural health and healing sectors, the Lindo Manantial residents, the Piribebuy Centro de Salud employees, and the natural doctors I interviewed all expressed their belief that it would be beneficial to offer more culturally competent medical services in remote communities, incorporating traditional beliefs and natural healing doctrines into biomedical treatment processes. Incorporating the specific changes discussed above in infrastructure and approach to the healthcare services provided at the Piribebuy Centro de Salud, and other primary and secondary health services in rural Paraguay, could ultimately improve patient access to diagnostic and treatment services, optimize patient care by offering a holistic approach to diagnosis and treatment founded in local epistemological frameworks, and elevate the overall health status of Piribebuy and the surrounding villages through effective treatment and management of illnesses and preventative education and medical care. I propose, therefore, that the development of culturally competent healthcare services at the Piribebuy Centro de Salud and other primary and secondary healthcare facilities ought to be incorporated into the restructuring and decentralization plans for Paraguay's healthcare system moving forward.

## CHAPTER 6

### CONCLUSION

This thesis presented the qualitative data collected over the course of a four-month period between May and September of 2010 in Lindo Manantial, a subsistence farming community in South-Western Paraguay. The research project set out to identify and examine the perceptions of health and healthcare services by the Lindo Manantial residents from a political ecology of health perspective. The qualitative data generated exposed the transitional state of community health in Lindo Manantial; while increased access to transportation and the gradual expansion of healthcare services in Piribebuy has eased the burden of many historical health concerns through vaccination programs and general healthcare accessibility, many health indicators, including respiratory infections and gastrointestinal issues, have remained the same. In addition, the community is now faced with several emerging health concerns, including a perceived proliferation of high blood pressure and type II diabetes. The majority of the Lindo Manantial residents who participated in this research investigation felt that, despite increased physical access to healthcare services in Piribebuy, the overall health status of their community has decreased over the past several decades. Additionally, when it comes to treating and managing their health, Lindo Manantial residents are caught between two medical paradigms: ethnomedicine, with *remedios yuyo* and natural healers; and biomedicine, with urban-trained healthcare professionals and pharmaceuticals. While all of the participants used some form of *remedios yuyo* as part of their daily *maté* and *tereré*, most expressed their desire to utilize both natural and biomedical doctors in the treatment of their individual health concerns. Often, however, they felt discouraged from accessing the biomedical healthcare services available in Piribebuy due to cost, impersonal treatment plans, and a lack of physician recognition of their

local perceptions of health and well-being. The treatment of the local ethnomedical framework and experiences of illness and symptomology as mutually exclusive from biomedicine, and the negative impact this can have on patient treatment and health outcomes, was explored in detail in Chapter Six through the examples of culture-bound syndromes *pasmadura* and *frialdad*.

The use of a political ecology of health theoretical framework in the collection and analysis of the qualitative research data presented in this thesis allowed for the examination of the local determinants of health and the relationship between health in Piribebuy region, specifically in Lindo Manantial, and the local environment, from political, socio-historical, cultural, and ecological perspectives. Using this approach, I was able to analyze both how changes in local environment have influenced community health from a biomedical perspective and, following Harper's (2004) political ecology of health research trajectory, examine the relationships between perceptions of health and the experience of illness in Lindo Manantial and local perspectives on environmental change.

Having discussed and analysed the qualitative data gathered throughout this thesis research, I argue that the introduction of culturally competent healthcare services could greatly improve individual and community health statuses in Lindo Manantial and other similar rural subsistence farming communities in Paraguay. I argue that the development of culturally competent healthcare services for the Lindo Manantial and Piribebuy communities, and other similar areas, would include the following: the training of existing healthcare professionals in the local epistemological frameworks of health and healing; language training, in both Guaraní and how to effectively communicate with their patients to ensure mutual understanding between healthcare professional and patient, and optimize patient treatment compliance; mandating rural residency placements for all trainee healthcare professionals; collaboration between biomedical

healthcare service providers and natural doctors to create individualized patient treatment plans and effective follow-up care; and, encouraging, through the process of decentralizing healthcare services, increased communication and cooperation between the public, private, and semi-private health sectors and the four levels of healthcare service centres so as to improve the efficiency of patient referrals and follow-up care.

### **Research Limitations:**

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There were some limitations to my research. Though I had anticipated some degree of a language barrier within the community, I also was aware that most of the Lindo Manantial residents spoke fluent Spanish, and I foresaw myself ultimately being able to conduct interviews by myself as my proficiency in Spanish increased. Though most residents made a concerted effort to speak socially with me in Spanish, in the interview setting some of the community members, especially the elders, seemed more comfortable discussing their community and personal health histories in their native language, and often reverted to Guaraní for either specific terms or entire portions of the interviews. Noelia was more than adept in each of these tasks, and was essential to the interview process, especially given the frequency of participant desire to communicate about their bodies, health, and familial health histories in Guaraní instead of Spanish. While I was extremely grateful for Noelia's translation expertise and encouraged the participants to speak about their health using the terms they were most comfortable with, this meant that most of my direct quotes were translated from Guaraní to Spanish, and then from Spanish to English for inclusion in this thesis. While Noelia and I both made every attempt possible to best capture the essence of the individual participants and their words, there were

many times when I wished I had a deeper understanding of Guaraní and could provide further insight into the exact terms used by participants.

Additionally, at the Piribebuy Centro de Salud, I was unable to interview any of the doctors during their morning rotations at the hospital due to the brevity of their shifts in Piribebuy and the number of patients they were required to attend to during this time. While interviews with the doctors would have added depth to the Centro de Salud research, I feel that the detailed information the regular nursing staff provided through the interviews and allowing me to observe the general functioning of the hospital was sufficient for the development of a thick description and analysis of the formal healthcare services available in Piribebuy.

Finally, a limitation I did not necessarily foresee prior to my immersion in this particular community was the inaccessibility of several potential participants based on my position within a very small, highly interconnected and, at times, deeply divided social system. In a small village of approximately 86 households where everyone seems to be related somehow, either by blood or by marriage, the social bonds and boundaries are very clearly defined, deeply engrained, and often long-standing. The particular family I stayed with lived very centrally in the village and was also very central to community politics and social life. While this certainly served to my advantage throughout much of the research process in that I was quickly introduced to and accepted by much of the community through my association with this particular extended family, I was also immediately alienated from several members of the community due to the nature of their social history or conflicting ideologies with the prominent family with whom I was residing. In navigating the complicated familial and social networks in such an isolated and small village, certain individuals were automatically off-limits as research participants, either at the insistence of my host family or the somewhat ostracized community members. While no one

explicitly refused to participate in my research, several people actively avoided being contacted for interviews, and my host family not-so-subtly suggested that certain individuals may not make ideal interview candidates. While I think the overall advantages of residing with this central family unit who were so involved in community life was beneficial to the breadth of my research, specific individuals who likely had different perspectives to offer were certainly excluded from the process, either by their own choice or at the suggestion of my extended host family.

### **Areas for Future Research:**

With regards to areas for further investigation, there are several research directions I would recommend to pursue, given the outcomes of this research. Firstly, I would be interested in conducting a similar research study, examining local perceptions of individual and community health, in a different community setting within Paraguay. I would be interested in conducting similar interviews with the landless Paraguayan population, to see how the removal of Paraguayan *mestizo campesinos* from their land has influenced their perceptions of personal and community health and use of natural medicines. In the Lindo Manantial context, so many of the *remedios yuyo* used were grown on their land as part of their subsistence farming lifestyle, and I would be interested to see how the upheaval of a community from their lands influences their use of *remedios yuyo*.

Additionally, I would be interested to conduct a similar research investigation amongst the rural youth who have migrated to urban centres in search of employment. Having been raised in the Lindo Manantial environment, I wonder if their perspectives of health, healing, and *remedios yuyo* are changed by their urban environment. Additionally, I would be interested to see

if these transplanted rural-to-urban youth feel they too would benefit from the introduction of culturally competent healthcare services in urban areas, or if they are ultimately comfortable assimilating into their urban environment and accessing mainstream public healthcare services.

Finally, there were several areas of health and healthcare access issues that came up throughout this thesis research but that I was barely able to scratch the surface of due to the time constraints associated with fieldwork for a Master's thesis. One area of particular interest to me was sexual and reproductive health. This was perhaps the most discussed area of concern with the Piribebuy healthcare professionals and in my discussion with Professora Sofía, however, outside of brief discussions regarding childbirth, was barely mentioned by Lindo Manantial participants. Given the highly delicate nature of such a research topic, I felt that I had insufficient time to pursue this issue in an adequately sensitive manner; however it remains an area of enormous interest. The Triple Alliance War in the late nineteenth century decimated the male population of Paraguay to an extraordinary degree. In an attempt to avoid complete population collapse, Paraguayan society developed a system of roaming men; men of reproductive age typically had multiple families and moved throughout the countryside following work and fathering children with multiple partners as they travelled (Library of Congress 1988). While this practice has become less common, it is still very typical in rural areas, including Lindo Manantial, for women to have children by multiple fathers who are infrequently, if ever, involved in community life and the raising of their children. In an article responding to the revelation that President Fernando Lugo had himself fathered illegitimate children while a Catholic Bishop, sociologist and coordinator of the United Nations Development Fund for Women in Asunción, Paraguay, said, ““In this patriarchal culture, this is tolerated: single mother, absent father. Many people think this way,” (Escudero 2010). Cristina Román, a clinical

psychologist and member of the Paraguayan “25 de Noviembre” feminist organization, also remarked, “Men’s irresponsibility in the children’s upbringing is a major problem. President Fernando Lugo did nothing but repeat the typical pattern of Paraguayan men,” (Escudero 2010). The author of this article, journalist Carolina Escudero, further reiterates the widespread nature of this practice, stating:

“In this South American country [Paraguay], only three of 10 children are recognized by their fathers. Although about 150,000 children are born per year, half of them don’t appear in the national registries. With a population of 6 million according to the last census in 2002, this means that 10 percent of the population was not registered. Some people say the practice is cultural, behaviors that originated when natives (indígenas) offered their daughters to Spanish Conquerors or when wars left the country decimated with a need to repopulate the country. Today’s figures reflect a different picture: 49.4 percent of the population are women and 50.1 percent are men, but many men still continue to have more than one family and children they don’t claim as their own.” (Escudero 2010).

This system of roaming men and unrecognized paternity comes with its own unique set of health implications, especially with regards to pre- and post-natal health care and the transmission of sexual diseases, both of which were commonly reported issues in my initial investigations in the field. In this and many other ways, the gender demographics of the region in which I was working emerged as a highly relevant factor with regards to community health and the provision of healthcare services, and this is the area I wish to investigate further. This is, in my opinion, a unique and important area for future research in the field of critical medical anthropology and the political ecology of health.

### ***The Role of Anthropology:***

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Anthropologists occupy a unique niche in exploring the context of health concerns, creating opportunities for the development of culturally competent and successful healthcare improvement strategies. The relevance of anthropologists in present and emerging health concerns lies in their ability to conduct ethnographically-oriented studies in epidemiology. Anthropologists are particularly adept at integrating themselves into a population in order to gain a deeper understanding of the intricacies of a specific culture. They do this by taking the time to learn the language, kinship systems, societal structure, religious beliefs, and cultural practices of their target population. This level of cultural competence also allows them to understand how a population experiences an illness, from the symptoms presented to the preferred treatments, and to navigate the epistemological framework within which they interpret and understand an illness. Through the comprehension of the nature of specific cultural practices and beliefs, anthropologists are able to determine the most effective cultural behaviours to build upon in creating positive and preventative change (Hewlett and Amola 2006:361).

This thesis represents my own attempts to develop an understanding of the context of health and healing in Lindo Manantial, which could be used to advise public health professionals and policy makers in the development of more effective, culturally competent healthcare services in the region. Further research would certainly be required, as the time constraints associated with a Master's thesis would not allow for detailed analysis of all healthcare issues and concerns in Lindo Manantial and the greater Piribebuy region. It is my sincere hope, however, that this project could serve as a starting point and to exemplify the value of similar and more extensive future research in this region and throughout Paraguay, as the nation continues in their efforts to decentralize and optimize healthcare services.

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## **APPENDIX A:**

### **Guide for Interviews and Focus Group in Lindo Manantial**

The following is the basic question format of the initial full-length individual interviews conducted in the Lindo Manantial community. According to the flow of each interview, prompts were used and side tangents emerged, however the basic structure and purpose of each interview remained consistent throughout.

1. How long have you lived (here) for? Did you grow up here?
2. Describe your immediate family. Do you have children? Grandchildren? Where do they currently live and what do they do?
3. What do you do for a living? What is your household livelihood? Describe a normal day in your household?
4. What are your main health concerns? Are there particular diseases or health issues you are currently worried about? Have these changed over the course of your life?
5. How would you describe the health of your community? Is it better or worse now than it has been at other times in your life?
6. Have you noticed any changes in the types of diseases people are worried about now compared to when you were growing up?
7. Have you or an immediate family member ever been very ill? What was the problem? Who took care of you or them? How did you or they get better?
8. Have you or an immediate family member ever been injured? What happened? Who took care of you or them? How did you or they get better?
9. How do or have your health concerns change(d) as you age? What do you worry about the most for your family as they get older?
10. Are there any farm or household related tasks you worry about performing as you age? Are there any increased safety risks?
11. Could you list the (top five) illnesses or infections currently in the community? Symptoms?
12. How have Piribebuy and the community changed in your lifetime? In the past twenty to thirty years?
13. Has the climate changed in the past two to three decades? Have these changes, if any, affected your health?
14. Are there any natural remedies that you use on a daily or regular basis? How do you use them? What do you use them for? Can you show me any of these plants?

## **Guide for Return Interviews in the Village Community, Lindo Manantial**

The following was the list of questions used in the return interviews with five of the initial interview participants from Lindo Manantial. The questions were formulated with the purpose of gaining more insight into specific issues addressed in the first round of interviews and to address areas that, upon initial analysis, were significant and not previously included in the interview question set. The follow-up interview participants were selected based on their individual interest in the project, participant-interviewer rapport, depth of information provided in the initial interview, and participant availability.

1. Can you describe in more detail to me how and why you use natural remedies? How do you use them preventatively? How do you use them for treatment of a specific illness? What do you routinely use and what would you use only under specific circumstances?
2. Is there anything you would visit a natural doctor for instead of a medical doctor? Is there anything you would always consult a medical doctor for? How do you make this decision?
3. What are your thoughts about combining *los remedios yuyo* and medicine from doctors? Is it safe? Have natural doctors or medical doctors ever discussed combining treatments with you?
4. Does the younger generation maintain their knowledge of natural medicine? Is it important to them? Should it be important to them? Does the knowledge of youths vary between rural and urban areas?
5. Can you discuss the health implications of the various spiders, snakes, scorpions, and other insects on health in this area? Is this a significant health issue? How would you handle bites or stings from these creatures?
6. Many people have discussed the seasonality of healthcare issues with me. In particular, they say that gastrointestinal (stomach) problems are usually worse in the summer and that colds, flus and respiratory infections are much worse in the winter. Is this true, in your experience? Why do you think these health concerns are become more or less significant according to seasons?
7. At this stage, you are quite familiar with my research and I have returned to you specifically because of your individual experiences and knowledge of community health issues, both now and in the past. Is there anything else you think I ought to know or explore in my research? Is there anything else you want to add?

## **APPENDIX B:**

### **Interviews with Healthcare Providers at Piribebuy Centro de Salud**

The following is a basic outline of the structure and content of the interviews conducted with healthcare professionals at the Piribebuy 'Centro de Salud'. Dependent upon individual interviews, circumstances, and level of rapport, different prompts were used and, in specific cases, additional questions were asked, particularly in seeking explanations of culturally-bound syndromes which had been discussed in the initial round of village interviews (specifically, *pasmadura* and *frialdad*) and their own perceptions of the value, position, and integration of *remedios yuyo* and traditional healers in the provision of healthcare services and treatment in rural Paraguay.

1. How long have you been working here?
2. Where did you train for your career here?
3. Why do you choose to work here?
4. Approximately how many patients do you see per month?
5. What are the most common health problems you encounter here?
6. Where are the majority of your patients coming from? Do many come here from smaller or isolated communities?
7. How far do some of your patients travel to access healthcare at this hospital? What are the most common health problems for the small communities that access healthcare services at your hospital?
8. Are there any health problems, chronic or acute, that you cannot treat and / or manage here? Where do your patients go for these services?
9. How has the health of the community changed in the past twenty to thirty years? Have health risks and treatment conditions improved? Worsened? Are there any new or emerging health problems now?
10. Describe the general health of the community. Are there seasonal health concerns? What is your impression of the general health of Piribebuy and the surrounding rural villages?
11. Are there any restrictions or limitations to the ability of this hospital to provide adequate or appropriate healthcare for this community and surrounding villages? What would you personally change in order to adjust or improve the level of healthcare services provided here?
12. What, if any, are the restrictions or limitations for your patients in accessing healthcare services, both here at the hospital and otherwise?
13. Is there any additional information you would like to add? Is there anything you think would help me further in this research process? Are there any issues we have not addressed in this interview that you think ought to be addressed in this research?

## **APPENDIX C:**

### **Interview Guides for Additional Stakeholders**

#### **Asunción Nursing Professor Interview Questions & Format**

The following are the interview questions posed to the nursing school professor in Asunción. Not included within this question list are the background information queries, which were followed standard procedure (name, age, marital status and familial information, et cetera). The purpose of this particular interview was to gain a deeper understanding of current health and healthcare issues in Paraguay, from the perspective of a highly experienced medical professional.

1. How would you describe health in Paraguay? The healthcare system?
2. Are health risks different in the cities as compared to remote rural areas? How? Why do you think this is?
3. Can you describe, from your experience, how people in remote rural communities access healthcare? What do you think are the main barriers that might prevent them from seeing a doctor or nurse?
4. Are there problems with shortages of medical supplies, equipment, or personnel? Are these issues especially problematic in the countryside?
5. How many of your students will go on to work in big cities, including Asunción, and how many will work in the countryside? (As a proportion).
6. How do you train your students to work in remote rural areas? Do you have courses in, for example, wilderness, traditional, or rural medicine?
7. In your opinion, what are the main health problems in Paraguay? Are they different between urban centres and rural areas?
8. How has health in Paraguay changed in the past twenty to thirty years? How has healthcare changed? How have health risks and healthcare systems changed in the countryside specifically? Why do you think this is?
9. Is there any additional information you would like to add? Is there anything you think would help me further in this research process? Are there any issues we have not addressed in this interview that you think ought to be addressed in this research?

#### **Interview with an Informal Midwife & Maternal Healthcare Provider in Lindo Manantial**

In addition to the routine interview questions listed in Appendix C, I also felt it was important to ask the following questions of this individual concerning her practices as a traditional midwife and maternal health care provider for this community (Fieldsite #1) and the surrounding remote villages.

1. How long have you been providing healthcare services, as a midwife or otherwise, to this community?
2. How did you learn these healthcare skills?
3. How do individuals know and contact you for your services?
4. On average, how many people do you think you see per month?
5. What are the most common health issues you encounter?
6. How do you manage and treat these issues? How do you care for your patients?
7. In your opinion, is the general health of the community improving? Getting worse?

- Changing? Why do you think this is?
8. Have you noticed any changes in the types of illnesses or health problems people in the community have? As compared to two to three decades ago?
  9. Are there any natural remedies that you frequently use in your treatment of others (that differ from your own routine usage of *los remedios yuyo*)?
  10. Pasmadura is a health concern that has come up regularly in my interviews and discussions with locals. Can you as a healthcare provider explain *pasmadura* to me in more detail? How would you recommend treating this prominent health issue?

**Interview with a Natural Doctor in Piribebuy**

The following were the questions posed during the interview with Ña Marisol, the *doctora naturalista* (natural doctor) in Piribebuy.

1. How long have you lived in Piribebuy for?
2. How is the general health of the community? Good? Bad? Normal?
3. How did you learn natural medicine? How long have you been practising for?
4. Approximately how many patients do you see in a week?
5. What are the most common health problems you treat here? Do the most common health problems change with the seasons?
6. Have you noticed any changes in the types of illnesses or health concerns people present with now, as opposed to twenty to thirty years ago?
7. How do you feel about combining natural and biomedical treatments? Is it safe or dangerous to use them in combination? Would you ever recommend it? Would you ever advise against it?
8. Is the younger generation losing knowledge of natural medicine? Is it important to them? Should it be important to them?
9. How would you administer or prescribe natural remedies as a form of treatment and preventatively? Do these uses and / or applications of natural medicine differ?
10. Is there anything at all you wish to add? This could be about natural medicine, your experience as a natural doctor, your perceptions of current community health, or anything else you might think is important. Is there anything I have overlooked that is important to my understanding of the practice of natural medicine and healthcare issues in Piribebuy today?

## **APPENDIX D: Summary of Participant Information & Interview Themes**

Participants in this chart are listed in the order in which I first met with them specifically for data collection purposes (for the focus group or interviews). All of the names listed are pseudonyms. The Lindo Manantial residents are listed as ‘Don’ for men and ‘Ña’ for women (the local short form of Doña), as this is the formal and respectful way of addressing and discussing these individuals within the community. Non-residents of Lindo Manantial are not typically addressed in this traditional manner, and therefore are not denoted as such.

<b>Name</b>	<b>Age</b>	<b>Interview Site</b>	<b>Personal Health Problems / Interview Themes</b>	<b>Additional Notes</b>
Ña Lupita	49	Lindo Manantial -Focus Group	-High blood pressure, nutrition (cooking with excess salt and grease), nerves and “heart attacks” -Changing nature of the community and local environment / climate	-Large household; primary caregiver for children and young grandchildren
Ña Graciana	45	Lindo Manantial -Focus Group -Individual interview	-High blood pressure -Injured by a dog while working in Asunción	-Host home matriarch -Lived in Lindo Manantial all her life; worked in Asunción for six years
Ña Pilar	72	Lindo Manantial -Focus Group -Individual interview -Traditional midwife interview	- <i>Pasmadura</i> -Changes in community health -Midwifery and local first aid provision	-Traditional local midwife
Ña Benita	63	Lindo Manantial -Focus Group -Individual interview	-Rheumatoid arthritis -High blood pressure -Glaucoma -Type II diabetes (family members) -Changes in community health, diet	-Speaks mostly in Guaraní
Sofía		Asunción, nursing school	-Comparing urban and rural healthcare, discussing issues of access -Comparing urban and rural health concerns -Discussing the healthcare systems in Paraguay -Discussing training nursing students to practice in urban vs. rural settings	-Nursing professor in Asunción for 10 years, worked as a practising nurse in Asunción prior to that.
Ña Adelina	55	Lindo Manantial -Individual interview -Return interview	-Type II diabetes -Changing community health -Diet and nutrition	
Don Aureliano	80s	Lindo Manantial -Individual interview (with Ña Matilde & Ña Renata) -Return	-Heart problems -Ageing -Changing community health concerns	-Community patriarchal figure -Former owner of the local mandioca mill (no longer running) -Farmer

		interview (with Don Arturo)		
Ña Matilde	70s	Lindo Manantial -Individual interview (with Don Aureliano & Ña Renata)	-Lumbar back pins (surgery) -Arthritis -Changing community health -Emergence of diabetes and heart disease	-Runs a small village <i>dispensa</i> out of their home, which sells predominantly food stuffs
Ña Renata	30s	Lindo Manantial -Individual interview (with Don Aureliano & Ña Matilde)	-Ageing-related health problems (about her parents) -Changing community health concerns	
Ña Eufemia	60	Lindo Manantial -Individual interview	-Female health issues - <i>Paralysis</i> -Ageing-related problems: ocular health, memory loss -Husband's issues with nerves, kidneys	
Ña Fernanda	64	Lindo Manantial -Individual interview -Return interview	-Type II diabetes -Nerves -Heart disease -Changing community health issues - <i>Pasmadura</i> -Seasonal health issues	-Travels to Ca'acupé for diabetes treatment -Moved to Lindo Manantial after marriage, raised in Piribebuy
Ña Valencia	59	Lindo Manantial -Individual interview -Return interview	-Type II diabetes -Natural remedies (wary of biomedical treatments) -Changing community health concerns, diet and nutrition	-Owns a small <i>dispensa</i> in Lindo Manantial
Ña Elodia	81	Lindo Manantial -Individual interview (with Don Arturo)	-Broken hip from fall -Cataracts -Gastrointestinal and seasonal health issues	
Don Arturo	82	Lindo Manantial -Individual interview (with Ña Elodia) -Return interview (with Don Aureliano)	-Cataracts -Heart disease -Changing community health issues -Ageing-related health issues	-Farmer
Don Claudio	57	Lindo Manantial -Individual interview (with Ña Eufemia)	-Nerves -Kidneys	-Partial interview; interrupted by campaigning politician and doctor
Ña Esperanza	65	Lindo Manantial -Individual interview	- <i>Pasmadura</i> - <i>Frialdad</i> -Natural medicines and natural doctors -Combining <i>remedios yuyo</i> and biomedical treatments	-Renowned within community for extensive plant and <i>remedios yuyo</i> knowledge -Travels to Asunción to

			-Changing community health concerns	get medications for many of the villagers, distributes them along with other items for sale (food stuffs, household items, clothing, etc.).
Don Julián	66	Lindo Manantial -Individual interview	-Prostate problems -Accidents and injuries -Cost of medical care -Changing nature of community health concerns and access to healthcare services	-Sells hand-made baskets at market
Ña Alisa	35	Lindo Manantial -Individual interview	-Son's health issues -Natural medicine -Access to healthcare, cost of healthcare	-One of the younger families in the community -Returned to Lindo Manantial to be closer to family and natural healer when her son's health problems emerged
Ña Domiga	74	Lindo Manantial -Individual interview (with Ña Alisa)	-Arthritis -High blood pressure -Ocular health concerns -Ageing –related health concerns -Changing nature of community health concerns	
Ña Imelda	64	Lindo Manantial -Individual interview	-Ocular health concerns, cataracts -Low blood pressure -Community health concerns	-Very hesitant and quiet in interview
Elena	30s	Piribebuy Centro de Salud	-Respiratory problems -Changing community health concerns -Patient socio-demographics -Needs of the hospital -Emerging health concerns: diabetes, high blood pressure -Pre- and post-natal health care services, infant vaccinations	-Nurse at Piribebuy Centro de Salud for twelve years
Alejandra	50s	Piribebuy Centro de Salud	- <i>Pasmadura</i> - <i>Frialdad</i> -Combining <i>remedios yuyo</i> and biomedical treatments -Changing community health concerns -Seasonal health issues -Reproductive and maternal health -Needs of the hospital	-Head nurse at Piribebuy Centro de Salud -Has been a nurse for 23 years, thirteen in Piribebuy -Has additional degrees in obstetrics and gynaecology
Camila	20s	Piribebuy Centro de Salud	-Needs of the hospital -Emerging community health concerns -Patient socio-demographics	-Hospital administrator at Piribebuy Centro de Salud for three years
Gabriela	20s	Piribebuy Centro de Salud	-Needs of the hospital -Changing / emerging community health concerns -Patient socio-demographics	-Nurse at Piribebuy Centro de Salud for 2.5 years -Works in the hospital Pharmacia in the mornings and as a hospital IPS consultant nurse in the afternoons

Constanza	50s	Piribebuy Centro de Salud	-Most common community health concerns -Hospital and medical testing funding issues -Healthcare infrastructure -Changing / emerging health problems	-Biochemist at the hospital for ten years, although the first five were volunteered -Works at the Piribebuy Centro de Salud two days per week
Ana	40s	Piribebuy Centro de Salud	-High blood pressure -Reproductive health concerns -Needs of the Centro de Salud	-Nurse at Piribebuy Centro de Salud for twelve years -Has additional degree in obstetrics training
Ernesta	20s	Piribebuy Farmacia	-Discussed where patients come from -Discussed most common health complaints (colds, flu, respiratory infections)	-Pharmacy employee, working there for five years
Ña Marisol	60	Piribebuy, at her home and natural medicine centre	-Most common health complaints of her patients and her recommended treatments -Changing nature of healthcare and health concerns -Combining natural and biomedical treatments	-Natural healer in Piribebuy for 45 years; learned from her grandfathers (both her mother's and father's fathers were natural healers). -Sees approximately 30 patients per day

## APPENDIX E: Natural Medicine Newspaper Clipping

The following list was taken from a newspaper clipping presented to me by Ña Graciana. The newspaper from which it was taken was not clear, as her daughter had brought the clipping home from Asunción for her mother quite some time previously. I found it significant both that a newspaper from the capital city had run a feature on *los remedios yuyo* and that it had been kept as a prized possession, stored carefully away, in a rural setting where many of these remedies are standard practice. The plants most commonly cited as natural medicines by my own research participants in the interviews are marked with an asterisk (\*).

*‘Para cada “naná”<sup>11</sup> una especie’* (“For each special plant, a type of use”)

Nombre común (Common Name)	Nombre científico (Scientific Name)
<b>REGULADORES FEMENINOS (Feminine Regulators)</b>	
Doradilla *	<i>Gymnoteris ruffa</i>
Ruda *	<i>Ruta graveolens</i>
Tatú ruguái	<i>Lycopodium alupecuroides</i>
Cangorosa *	<i>Maitenus ilifolia</i>
Vira vira	<i>Gnaphalium purpúreo</i>
Verbena *	<i>Verbena officinalis</i>
Autemisa	<i>Ambrosia elatior</i>
Calaguala	<i>Polypodium phillitidis</i>
Sen	<i>Cassia sena</i>
Molle’i	<i>Eschinus theribintifolius</i>
<b>DIURETICOS-HIPOTENSORES (Diuretics and Hypertensives)</b>	
Ñuatî pytâ *	<i>Solanum sisymbrofolium</i>
Zarzaparilla	<i>Muelenbechia saitifolia</i>
Ñangapiry	<i>Eugenia uniflora</i>
Cepa caballo *	<i>Xanthium spinosum</i>
Cola de caballo *	<i>Equisatum gigantum</i>
Ysypó milhombre *	<i>Aristolochia triangularis</i>
Para para’i*	<i>Phyllanthus lathiroides</i>
Pata de buey	<i>Acantosparum xantiodes</i>
<b>SEDANTES (Sedatives)</b>	
Capi’i catî	<i>Killingia adorata</i>
Manzanilla	<i>Matricaria chamomila</i>
Menta’i *	<i>Menta piperita</i>
Naranja *	<i>Citrus sinensis</i>
Tilo *	<i>Tilia grandofelia</i>

<sup>11</sup>Point of interest: “Naná” is a Tupí-Guaraní term meaning “excellent fruit”. The Tupí-Guaraní used this term when introducing Spanish and Portuguese explorers to the fruit, native to the area, and was then adopted into both languages as the specific term for pineapple. The old Spanish and Portuguese for pineapple is “ananás”, and French is “ananas” (Okihiro 2009:74,80-81).

<b>Nombre común (Common Name)</b>	<b>Nombre científico (Scientific Name)</b>
<b>ESTIMULANTES (Stimulants)</b>	
Catuaba	<i>Amenipuegma mirandum</i>
Clavo de olor	<i>Eugenia aromática</i>
Taropé *	<i>Fraveria contrayerba</i>
Romero *	<i>Romariunus officialis</i>
<b>LAXANTES (Laxatives)</b>	
Rosa mosqueta	<i>Rosa mosqueta</i>
Calabacita	<i>Monordica charantia</i>
<b>DIGESTIVOS (Digestives)</b>	
Eneldo	<i>Cinetum graveolens</i>
Burrito *	<i>Wendita callysine</i>
Koku *	<i>Allophillus saulis</i>
Boldo *	<i>Boldoa fragans</i>
Hinojo	<i>Foeniculum vulgare</i>
Ka'are *	<i>Chenopodium ambrosoides</i>
Salvia *	<i>Salvia officinalis</i>
Poleo	<i>Lipia</i>