

EXAMINING RURAL AND URBAN CULTURAL MODELS
OF *NERVIOS* IN HONDURAS THROUGH A
BIOCULTURAL LENS

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ABSTRACT

Biocultural medical anthropology connects health outcomes to the local ecology. Much research has examined how culture influences illness beliefs, cognitively held in cultural models which are schematic representations that are widely shared and employed in social life. Consequently, rural/urban differences in the Honduran population may produce distinct cultural models of the illness *nervios*, a syndrome which shares several similarities with generalized anxiety disorder and major depressive disorder but is not formally recognized in biomedicine. Cultural domain analysis was carried out on a total of $n=50$ participants in San Pedro Sula and Copán Ruinas to test the hypothesis that Honduran urban participants' cultural model of *nervios* corresponds more closely to biomedical diagnostic criteria for generalized anxiety disorder and major depressive disorder than that of rural ones. Urban participants were found to name fewer symptoms of *nervios* overall, but those they did name were more likely to match DSM-IV criteria. Conclusions extend the investigation of cultural syndromes to a previously unstudied region, contribute relevant scholarship regarding the cultural syndrome *nervios*, expand the investigation of the relationship between illness and culture, and add to relevant discussion in cognitive anthropology concerning how cultural models emerge.

DEDICATION

This thesis was composed in heartfelt dedication to my mother, for whom without I would never have begun my journey in search of the truth. Understand that illness is not a condition, but merely a point of view.

LIST OF ABBREVIATIONS AND SYMBOLS

APA	American Psychiatric Association
DSM-IV	Diagnostic and Statistical Manual of Mental Health Disorders, Fourth Edition
GAD	Generalized Anxiety Disorder
MDD	Major Depressive Disorder
SES	Socioeconomic Status
L	Honduran Lempira (HNL)
m	Sample Mean
M	Sample Median
n	Sample Population
sd	Standard Deviation
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation

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CHAPTER ONE

INTRODUCTION

Cultural syndromes are widely recognized, culturally-patterned experiences of illness common to specific cultures that are not formally acknowledged within biomedicine (Haque 2008; Weller et al. 2008). The investigation of cultural syndromes within medical anthropology is distinguished by a legacy of divergent perspectives concerning whether these disorders are merely universal biological processes shrouded in culturally significant layers of meaning, or the physiological manifestation of culture, etched in the body through life experience amid greater structural forces. Considering the diversity across cultural groups regarding how cultural syndromes are experienced and understood, an exhaustive pursuit of universal characteristics only diminishes their cultural value by reducing them to biomedical variants (Baer et al. 2003). Conversely, concentrating solely on their meaning within a cultural context reinforces the initial difficulty of cross-cultural research (Guarnaccia and Rogler 1999).

Biocultural medical anthropology, the theoretical perspective that “culture shapes and is shaped by human biology” (Dressler 2005:20), is a useful approach for researching cultural syndromes that circumvents this theoretical struggle. A biocultural approach connects health outcomes to the local ecology, taking into consideration the biological, psychological, social, political, economic, and environmental influences through which illness and illness beliefs are forged. Through utilization of qualitative and quantitative methods, a biocultural approach provides an effective way to explore the relationship between illness and culture. This thesis

research project adopts a biocultural lens to investigate cultural syndromes, and employs mixed methods for data collection and analysis.

Illness is heterogeneously shaped, recognized, and branded cross-culturally (Nations et al. 1988); individual beliefs and knowledge regarding cultural syndromes are socially learned ways of experiencing sickness, and dependent on a particular cultural framework. In recent decades medical anthropologists have increasingly adopted a more structured, comparative research approach to examine how cultural syndromes are configured within distinct contexts. A primary objective of this thesis research project is to compare knowledge of cultural syndromes within a rural and urban setting to evaluate how illness beliefs are shaped by culture.

Among these more systematic, comparative approaches to cultural syndromes, a developing body of research has employed a cognitive theory of culture. Within this perspective, individuals “learn and share cultural models of how any given social context is organized, understood, associated with meaning, and interpreted in relation to the individual and group” (Brooks 2007:1). Another purpose of this thesis research project is to utilize methods from cognitive anthropology to examine collective knowledge of the cultural syndrome *nervios* and test for the presence of a shared cultural model, contributing to the cognitive literature by providing insights concerning the emergence of cultural models.

Comparative approaches to cultural syndromes frequently involve understanding these culturally significant manifestations of illness through comparison to biomedical diagnostic criteria, however, medical anthropologists’ approach departs considerably from medical researchers’. Clinicians are often unsuccessful in translating reported symptoms of cultural syndromes into formal classifications, because rigid symptom categories fail to account for the meaning of a disorder within its specific context, and anthropologists argue that exact

associations are not possible (Kleinman 1988; Salgado de Snyder et al. 2000). In contrast, medical anthropologists acknowledge the importance of comparison but heavily emphasize the need to understand symptoms as a distinct cultural complex (Gaines and Farmer 1986; Guarnaccia et al. 1996).

The cultural syndrome of interest in this thesis research project is *nervios*, a widely investigated and well documented disorder in Latin America that is characterized by symptoms similar to a number of psychiatric disorders, especially anxiety and depression (Baer et al. 2003; Jenkins 1988; Liebowitz et al. 1994; Livanis and Tyron 2010; Nations et al. 1988; Salgado de Snyder 2000). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), the American Psychiatric Association's (APA) coding system for biomedically acknowledged mental health disorders, is an adequate point of comparison because its authors recognize the importance of culturally-relative research; this is exemplified by the addition and description of twenty-five cultural syndromes from around the world. Though numerous anthropologists express dissatisfaction with the APA's dismal attempt to incorporate the concept of culture into the DSM-IV (Good 1996; Hughes 1998; Kirmayer 1998; Mezzich et al. 1999), the document is appropriate for comparison because it does not assume the universal applicability of psychiatric disorders (Guarnaccia and Rogler 1999). This thesis research project utilizes symptoms listed in the DSM-IV for generalized anxiety disorder and major depressive disorder to compare to each subsamples' conceptualization of *nervios*.

The setting for this thesis research project is Honduras, where an almost even rural/urban division of the population (CIA World Factbook 2012) presents an appropriate setting to examine the differential manifestation of illness. Moreover, the country is fraught with widespread instability and unrest within its economic, political, and social sectors, and these

structural pressures were surmised to be exerted disproportionately on rural and urban populations to produce distinct cultural models of *nervios*. In 2001, Honduras was admitted to the Heavily Indebted Poor Countries (HIPC) Initiative, following which the Honduran government initiated programs to help the rural poor out of poverty, relying heavily on investments in infrastructure, agricultural and tourism (Government of Honduras 2001). These programs have largely failed, a result of which is that by 2006 nearly thirty percent of Hondurans were still unemployed (Nygren and Myatt-Hivonen 2009; PNUD 2006).

In 2009, crisis ensued over President Manuel Zelaya's attempt to amend the one-term presidency limit in the constitution, leading to his removal from office via military coup d'etat. Most recently, Honduras has been plagued by rapidly escalating drug trafficking and corruption, and according to the United Nations Office on Drugs and Crime boasts the highest homicide rate in the world, with figures in 2010 reaching 82 homicides per 100,000 residents (BBC News 2012; UNODC 2011). In addition to widespread socioeconomic pressures, the quality of mental health care in Honduras is very poor, with less than two percent of the country's national budget designated for mental health services. There are only two mental hospitals located near the metropolitan capital of Tegucigalpa, even though forty-eight percent of the population lives in rural regions by 2010 estimates. Furthermore, sixty-two percent of Hondurans live in poverty conditions, of which forty-two percent live in extreme poverty; therefore the ability to access and finance mental health care is non-existent for many Hondurans (WHO 2008).

Honduras was chosen as the research setting for a number of reasons, primarily due to the nearly equal divide between rural and urban populations. Additionally, it was expected that due to the aforementioned structural pressures, including a diminished agricultural sector in rural regions, rampant poverty, political instability, heightened levels of drug trafficking, and

pervasive inaccessibility to mental health services, illness beliefs would therefore manifest differently within these populations. A final reason for choosing Honduras as the research setting was due to the fact that no cultural syndromes have been studied in the country other than *grisi siknis* among the Miskito Indians; however, the majority of this indigenous group live on the Nicaraguan coast (Dennis 1981).

The research was a mixed-methods study conducted in two separate settings, Copán Ruinas in the department Copán and San Pedro Sula in the department of Cortés, which represent rural and urban settings respectively. Data collection lasted four weeks from June 6, 2011 – July 3, 2011, and employed open-ended interviewing, freelisting tasks, a ranking task, and an unconstrained pilesort to investigate the cultural syndrome *nervios*. Conclusions from this study address two main objectives: **(Objective I)** explore how illness beliefs for the cultural syndrome *nervios* manifest within rural and urban populations, testing the hypothesis that the urban cultural model of *nervios* corresponds more closely to biomedical diagnostic criteria for generalized anxiety disorder and major depressive disorder than does the rural; **(Objective II)** utilize theoretical and methodological contributions from cognitive anthropology to evaluate collective knowledge of illness beliefs for *nervios* and test for the presence of a shared cultural model.

This thesis research project aims to make a number of contributions to the anthropological literature, first by extending the investigation of cultural syndromes to a previously unstudied region as well as expanding relevant scholarship regarding the cultural syndrome *nervios*. Next, comparison of illness beliefs for *nervios* in rural and urban populations adds to medical anthropological investigations of the relationship between illness and culture as well as biocultural research regarding the relationship between biology and culture. Finally,

analyses of cultural models of *nervios* broaden discussion in cognitive anthropology of how cultural models emerge.

Outline

Chapter Two begins with a discussion of cultural syndromes, highlighting the nature of these phenomena and discussing over fifty years of relevant theoretical and methodological discourse on their exploration within anthropology. Also, the cultural syndrome *nervios* is described, addressing common symptoms and subtypes of the disorder as well as issues of causality and meaning. The chapter ends with an overview of a cognitive theory of culture and cultural domain analysis, emphasizing their usefulness in researching cultural syndromes.

Chapter Three provides an ethnographic glimpse into Honduras to illustrate dominant cultural practices and familiarize the research setting. Economic, political and social contexts are discussed both currently and historically, and the topics of marriage, the family, gender, religion, foodways, and ethnic composition are highlighted. The ethnography features personal experiences as well as insights shared by participants about Honduran culture.

Chapter Four outlines the mixed-methods research design utilized in the thesis research project, and provides a rationale for its sampling strategy. Methods of data collection, including the open-ended interview, are extensively discussed, as are various tasks employed to explore participants' shared knowledge and test for the presence of a cultural model of *nervios*.

Chapter Five uses quantitative methods of analysis (PASW Statistics 18.0) to analyze the differential manifestation of the cultural syndrome *nervios* in Copán Ruinas and San Pedro Sula, testing the extent to which the disorder corresponds to symptoms listed in the DSM-IV for

generalized anxiety disorder and major depressive disorder. Additionally, the cultural model of *nervios* is analyzed using AnthroPac software to examine its structure.

Chapter Six reconciles quantitative results with explanations of *nervios* elicited from participants in open-ended interviews. Findings are discussed and interpreted within the greater body of literature for cultural syndromes and cognitive anthropology, including the relationship between culture and illness, as well as the emergence of cultural models. Additionally, limitations of research are highlighted and suggestions for future research are proposed.

Chapter Seven presents a summary of the literature and discussion of the results presented heretofore. The thesis concludes with a review of objectives and relevant contributions to the anthropological literature.

CHAPTER TWO

CULTURAL SYNDROMES

Definition and Related Concepts

Cultural syndromes, often referred to by a multiplicity of terms including folk illnesses, culture-bound syndromes, culture-specific illnesses, rhetorics of complaint, and idioms of distress, are labeled health disorders common to a specific culture but not necessarily recognized cross-culturally. While these disorders typically involve a blend of psychiatric and somatic symptoms, they are not automatically regarded as mental illness by all societies. Additionally, despite being characterized by an assemblage of symptoms, pathology, treatments, preventative measures, and culturally salient meaning, they are not regarded as formal illnesses by the biomedical establishment (Dressler 2010; Haque 2008; McElroy and Townsend 2009; Oths 1999; Weller et al. 2008).

Cultural syndromes have traditionally been referred to as ‘culture-bound syndromes,’ however, in recent years this phrase has come under scrutiny, particularly for the notion of being ‘bound.’ Various researchers point out that considering something bound reinforces the view that these disorders are fixed within a particular setting, unique only to a specific culture (Low 1985; Simons and Hughes 1985), and is comparable, as Hughes (1998:417-418) explains, “to using the terms ‘culture-bound religion,’ ‘culture-bound language,’ or ‘culture-bound technology.’” *Nervios*, for example, is diversely manifested across ethnic, regional, and linguistic lines (Baer and Bustillo 1993). Cultural syndromes cannot be regarded as bound, but instead as shaped within a particular cultural milieu, and any efforts to regard them otherwise

leads, as Good (1996:129) cautions, “rapidly to cultural essentialism, stereotyping, and increased possibilities of stigmatization.”

Despite recent discontent, the phrase ‘culture-bound syndrome’ was coined by Pow Meng Yap as a departure from the even less sensitive term ‘exotic psychoses.’ As Yap (1962:163) justifies:

The term ‘exotic psychoses’ is an unfortunate one. It does not denote all psychoses found in non-Western countries, but refers only to certain atypical psychogenic psychoses in a number of non-Western populations. The development of interdisciplinary studies in psychiatry and the growing importance of the cross-cultural approach presages the demise of the term. It should be replaced, I suggest, by ‘atypical, culture-bound, psychogenic psychoses.’

Various labels have replaced Yap’s terminology, including ‘culture-specific illness’ (Davis and Guarnaccia 1989), ‘culturally-patterned illness’ (Hughes 1998), and ‘rhetorics of complaint’ (Gaines 1982). The most contemporary terminology is ‘cultural syndrome,’ suitably defined by Nichter (2010:407) as:

a widely recognized prototypical cultural ailment that encompasses a fuzzy set of associations coalescing around one or more cultural symbols...[that] may take the form of either a culturally recognized and indigenously diagnosed/divined cultural illness or types of behavior recognized by practitioners to reflect particular types of distress.

Notable dialogue has been exchanged within anthropology and related disciplines, particularly psychology, regarding a concept closely related to cultural syndromes known as ‘idioms of distress.’ Originally proposed by Nichter (1981), he defines idioms of distress as:

socially and culturally resonant means of experiencing and expressing distress in local worlds...[that] communicate experiential states that lie on a trajectory from the mildly stressful to depths of suffering that render individuals...incapable of functioning as productive members of society (Nichter 2010:405).

Essentially, idioms of distress represent the idea that somatic complaints function to communicate individuals’ distress as unconscious, embodied cues through which a sufferer

demonstrates “dissatisfaction with living conditions, legitimate difficulties in performing social roles, and...[the need for] outside help through the health care system” (Kirmayer and Sartorius 2007:835). Gaines (1982) proposed the similar concept of ‘rhetorics of complaint,’ which presumes that individuals don’t rely on physical complaints to express frustration, but ably communicate distress to the external world in their presentation of complaints.

Discourse regarding idioms of distress/rhetorics of complaint and cultural syndromes focuses on whether they are merely synonymous terms or independent concepts, and several anthropologists clarify that each may occur in the presence of the other (Hinton and Lewis-Fernández 2010). Cultural syndromes may develop as an idiom of distress, such as *ataque de nervios*, which often manifests in the presence of a significant life event such as a death or feud in the family (Guarnaccia et al. 1993), and functions to alert others to one’s suffering. Equally, an idiom of distress may be experienced as a symptom of a cultural syndrome, like the somatic complaint ‘*calor*’ among female Salvadorian political refugees, which is expressed as a symptom of *nervios* (Jenkins and Valiente 1994). Despite overlap, these are distinct concepts, and idioms of distress should be regarded as conduits for distress (de Jong and Reis 2010), as opposed to cultural syndromes, which are widely recognized, culturally-patterned experiences of illness not formally acknowledged in biomedicine.

The Nature of Cultural Syndromes

Traditional psychiatric and biomedical researchers’ early attempts to match reported symptoms of cultural syndromes with formal diagnoses were impeded by their own cultural biases; most prominently, the tendency of Western health care to separate the mind and the body (Borra 2010). The distinction, as Kleinman (1988:25) explains, “assumes that biology is

bedrock, and psychological and especially social and cultural layers of reality are held to be epiphenomenal... [and] need to be stripped away to disclose the 'real' disease underneath." In actuality the dichotomy is a Western cultural construction not typical of most ethnomedical health systems (Oths 1999). Thus cultural syndromes cannot be conceived as either mental or physical disorders, but instead as experiences of illness, rationalized by each sufferer through negotiation of individual and shared knowledge, beliefs, and expectations.

The mind/body dichotomy was originally introduced as a heuristic device by René Descartes, who intended for the distinction to "free scientific thought from subjection to theology and strict institutional supervision by the Church" (Csordas 1994:5). The mind, therefore, represents the vessel in which one's culture is contained, while the body is a mere organic template of objective, scientific analysis. The enduring influence of the concept permeates contemporary thought, such that unity of mind and body is not easily envisaged (Kliger 1994), and among professional communities, "render the physical sensational world of pangs, vapors, and twinges theoretically insignificant and largely absent" (Jenkins and Valiente 1994:163). Accordingly, researchers across several disciplines recognize that cultural syndromes are best examined within a monistic perspective that merges the mind and body (Oths 1999), and the concept of somatization appropriates such avoidance of the dualistic trap.

Somatization is generally defined as the emergence of physical symptoms or complaints that occur without the presence of observable physiological dysfunction, and often transpire in the context of individual distress and social stress (Kirmayer 1984; Kliger 1994).

Anthropological views on the concept depart from biomedicine's conceptualization of somatic complaints as psychiatric disorders, though conflicting interpretations have been suggested by medical anthropologists. A common position is that somatic complaints are physical expressions

of discontent with living conditions, social status, and ability to perform social roles that alert others to one's suffering (Kirmayer and Sartorius 2007). Still, many point to somatization as the use of the body to convey metaphorical expressions of distress (Kirmayer 1984; Kliger 1994; Pedersen et al. 2010), both physical and psychological; however, this is often criticized for excluding a compulsory degree of materiality (Oths 1999).

Another view of somatization epitomizes the unity of mind and body, such that "patients who 'ought' to complain of emotional pain, marital strife or social problems are found instead to focus on bodily symptoms and seek a physical cure" (Kirmayer 1984:159). Such a view validates why stigma commonly associated with mental illness is not always attached to cultural syndromes (McElroy and Townsend 2009), since emotional grief is also manifested and experienced physiologically. Somatic complaints are recognized globally, and far outnumber the frequency of emotional symptoms; however, they differ in their significance to particular cultures (Kirmayer 1984). Western cultures are more likely to associate somatic complaints with other physical symptoms, whereas non-Western cultures may view them as central to a disorder and often the cause of emotional problems (Tsai and Chentsova-Dutton 2002).

Research on somatization is nestled within the greater anthropological notion of the body, a concept that has gained increasing momentum throughout the development of medical anthropology and is essential to understanding the nature of cultural syndromes and illness en bloc (Guarnaccia et al. 1996). Anthropological discourse over the construct originates in criticism of the biomedical view of the body as *tabula rasa*: a fixed, biological entity separate from the mind that is shaped and molded by culture (Hinton 1999; Jenkins and Valiente 1994). In response, and as a way of reconciling the mind and body, many anthropologists rely on the concept of embodiment, or what Bourdieu (1977:1243) refers to as the 'socially informed body,'

whereupon conditions of social, political, economic, and cultural environments are expressed physiologically in the form of sickness, suffering, and death, such that the body itself is a cultural construction (Oths 1999; Worthman 1999).

Medical anthropologists who employ this perception of embodiment emphasize the idea of location; that the body exists in a certain geographic, social, cultural, and historical position (Csordas 1994). Through cultural friction inherent to one's location, specifically, subjugation to asymmetrical power relations, this tension is expressed via the body in the form of distress (Kliger 1994; Nichter 1981; Scheper-Hughes and Lock 1987). Those who embrace this perspective are likely to interpret somatic complaints as metaphorical expressions or physical manifestations of discontent with one's living conditions. However, while this perspective of embodiment wisely regards the importance of culture in shaping human physiology, it is severely weakened by its blatant dismissal of biology. "Sickness," as Oths (1999:288) cautions, "is not simply a metaphor or symbol, as many interpretivists and postmodernists would have it. This stance only serves to deflect the origin of pain and suffering back to the mind and leave one in the Cartesian trap, however inadvertently."

Biocultural notions of embodiment depart from the more common use of the term, not only by restoring the importance of material dimensions of illness (Worthman 1999), but also through acknowledgment of the synergistic and mutually influential roles of biology and culture (Hinton 1999). Biological outcomes of illness experience are molded by culture; however, the domain of health is more than an individual process (Oths 1999). Collective illness experience becomes encoded in cognitive schemas, and biological health phenomena exert force complementarily on culture, especially in how the experience is interpreted by the sufferer (McNeal 1999). Thus, meaning is contained within a physical structure (Dressler et al. 2007;

Winkleman 2009), and a biocultural approach to embodiment investigates how experience is gouged (Oths 1999) into the body “in terms of measurable physiological, psychological and even morphological outcomes” (Dressler 2005:24), all of which result from constantly fluctuating social and environmental relations. Cultural syndromes are therefore the product of a process wherein culture both shapes and is shaped by biology.

The Cultural Syndrome Nervios

Nervios is a commonly encountered and investigated cultural syndrome characterized by chronic, multiple levels of physical, emotional, and social distress, with symptoms similar to anxiety, depressive, dissociative, and psychotic disorders (Baer et al. 2003; Liebowitz et al. 1994; Livanis and Tyron 2010; Jenkins 1988; Nations et al. 1988). *Nervios* has been widely investigated across Latin America, including Puerto Rico, México, El Salvador, Costa Rica, Ecuador, and Guatemala, though is not relegated solely to this region. Similarly labeled illnesses have been researched throughout the Western hemisphere (Baer et al. 2003; Davis and Low 1989; Salgado de Snyder et al. 2000), including *nerves* in the United States (Camino 1989; Dahlberg et al. 2009; Van Shaik 1989) and Newfoundland (Davis 1989), *nerva* among Greek Canadians (Dunk 1989; Lock 1989), and *nervos* in Brazil (Scheper-Hughes 1992). Among the various manifestations, symptoms observed among sufferers are markedly consistent (Salgado de Snyder et al. 2000).

Symptoms of *nervios* include combinations of somatic and psychological complaints (Guarnaccia and Farias 1988; Livanis and Tyron 2010; Salgado de Snyder et al. 2000). Somatic symptoms include trembling, headache, stomach ache, back ache, neck ache, facial pain, chest pain, abdominal pain, loss of appetite, insomnia, fatigue, sweating, high or low blood pressure,

dizziness, vertigo, restlessness, blurred vision, breathing difficulties, fever, nausea, vomiting, diarrhea, flatulence, menstrual irregularity, nail biting, rapid talking, and rapid hand movement. Alternatively, psychological symptoms include nervousness, fear, anger, sadness, worry, depression, anxiety, crying, hopelessness, despair, anguish, irritability, loneliness, confusion, emotional sensitivity, obsessive ideation, overwhelming concern, preoccupation, racing thoughts, separation sorrow, and feelings of emptiness (Baer et al. 2003; Finerman 1989; Finkler 1989; Guarnaccia et al. 1989, 2003; Kay and Portillo 1989; Low 1981, 1985, 1989; Salgado de Snyder et al. 2000).

Despite a diversity of symptoms, any particular manifestation of *nervios* depends on how it affects the sufferer, and Guarnaccia and Farias (1988:1229) explain that the disorder can be both an illness with mental and physical symptoms as well as a sickness that arises from significant life events or conditions typically connected to family, community, or society. The latter form is described as '*ser nervioso*' (being a nervous person), can be hereditary, and often results from distressing childhood experiences that increase a sufferer's vulnerability to significant life events. Typically, this description of *nervios* is evoked when no other causes are known, and the sufferer is said '*ser nervioso de nación*' (to be nervous by birth) or '*llevarlo en la sangre*' (carry it in the blood) (Guarnaccia et al. 2003).

The illness form of *nervios* is referred to as '*padecer de los nervios*' (to suffer from nerves) or '*los nervios alterados*' (altered nerves), and usually develops during adulthood in response to significant life events, though hereditary origins have also been described (Guarnaccia et al. 2003). Hinton and Lewis-Fernández (2010) confirm that symptoms associated with suffering from nerves are similar to those in psychiatric disorders like chronic anxiety, depression, somatization, and dissociation. Guarnaccia et al. (2003) report another manifestation

of *nervios* referred to as ‘*ataque de nervios*’ (attack of nerves), which has been extensively documented in the anthropological literature (Citron et al. 2006; Guarnaccia et al. 1989, 1993, 1996, 2003; Hinton et al. 2008; Keogh et al. 2009; Lewis-Fernández et al. 2002; Lizardi et al. 2009; Lopez et al. 2010; Oquendo et al. 1992; Salmán et al. 1998; San Miguel et al. 2006). *Ataque de nervios* is a more acute form also prevalent among Latin American and Caribbean cultures, characterized by trembling, heart palpitations, a sense of heat rising in the head, numbness of the hands, shouting, swearing at and striking others, convulsive body movements, and fear of being alone (Liebowitz et al. 1994). *Ataques*, though nominally and pathologically similar to *nervios*, are treated in the literature as a distinct complex; this thesis concentrates on the more chronic form of the disorder.

The literature on *nervios* provides numerous descriptions for causality, most which stem from stressful events in the social world of the sufferer and often involve strain within the family; death, family conflict, violent relationships, abuse, and separation are all mentioned as potential triggers (Baer et al. 2003; Finkler 1994; Guarnaccia et al. 2003). Susceptibility to *nervios*, however, is not inexorably linked to a specific incident, but can also result from factors for which the sufferer has no control, such as hereditary transmittance or prenatal development. *Nervios* may also progress from disorders like anxiety, depression, *susto*, emotional problems, or physical/emotional deprivation, and is sometimes attributed to birth-related origins like pregnancy or birth-control pills (Baer et al. 2003; Guarnaccia et al. 2003; Low 1989).

The most commonly referenced cause of *nervios* involves what Finkler (1989) calls “the embodiment of generalized adversity” (Mysyk et al. 2008:384), wherein the disorder represents a conduit for anger and helplessness resulting from unequal power relations, political oppression, and instability of economic and occupational resources (Baer et al. 2003; Finkler 1994;

Guarnaccia and Farias 1988; Guarnaccia et al. 2003). Accordingly, individuals from certain demographics, such as lower social class, are more susceptible to suffering from *nervios* (Livanis and Tyron 2010; Salgado de Snyder et al. 2000). In Puerto Rico, for instance, *nervios* is reported to be more common among rural poor, as well as those who have endured the country's shift from an agrarian to industrial economy (Guarnaccia et al. 2003). A similar pattern of migration and structural pressures in Honduras was hypothesized to differentially influence how illness beliefs for *nervios* manifest in rural and urban locations.

Gender is another proposed determinant of *nervios*, and the literature presents multiple examples of women suffering at greater rates than male counterparts in Guatemala (Baer et al. 2003; Low 1989), México (Davis and Low 1989; Finkler 1991; Salgado de Snyder et al. 1995, 2000), Ecuador (Finerman 1989), and Puerto Rico (Guarnaccia et al. 2003; Lewis-Fernández 1994), as well as among immigrants from El Salvador (Guarnaccia and Farias 1988; Guarnaccia et al. 1989), México (Baer et al. 2003; Jenkins 1988), and Puerto Rico (Lewis-Fernández 1994). Some suggest the strain of a lesser social status and frequent subjection to harassment, abuse, and neglect explain the greater prevalence of *nervios* among women (Salgado de Snyder et al. 2000). Finerman (1989) proposes *nervios* to temporarily liberate women from stringent Latin American gender roles to allow physical and emotional recuperation, and restore social stability. Kay and Portillo (1989) support this in their finding that *nervios* is less common among bicultural women who are not entirely restrained by traditional gender roles (Salgado de Snyder et al. 2000).

Anthropologists have taken a number of different approaches to studying *nervios*, the majority of which are descriptive, interpretive analyses that aim to evaluate the meaning of the disorder within a particular cultural context (Davis and Low 1989; Finerman 1989; Finkler 1994;

Jenkins 1988; Kay and Portillo 1989; Low 1981, 1985, 1989; Nations et al. 1988; Scheper-Hughes 1992). However, a growing body of research in the last twenty years has utilized a more structured, comparative approach to assess *nervios*' relationship to formal psychiatric disorders (Guarnaccia et al. 1989; Salgado de Snyder et al. 2000). The most recent effort to incorporate such methods involves use of a cognitive orientation to understand how the disorder manifests in diverse cultural settings. This and various other perspectives will be discussed in the following section.

Research of Cultural Syndromes

Anthropologists' enduring fascination with the human body and its relationship to illness represent what Good (1977:25) describes as "the meaningful shaping of 'natural' reality." Within this domain, culturally-patterned mental health disorders are of particular relevance, largely due to their incongruence with biomedical and psychiatric diagnoses (Haque 2008). In early research of the folk illness *susto*, for example, Rubel (1964) expresses the hesitancy of epidemiologists in acknowledging it as a valid mental health disorder because of the difficulty in reconciling symptoms such as 'soul loss' with conventional symptom classifications. This, in addition to escalating recognition of the effects of culture change on human health, began to justify cross-cultural research of cultural syndromes.

Cultural syndromes have been investigated from numerous angles, the earliest of which were transcultural, descriptive studies requiring researchers to assume an objective, spectatorial distance to ethnographically describe and document cultural syndromes from diverse health systems (Brooks 2007; Weidman 1979). Greatly influenced by biomedicine, these studies involved extensive exploration of data to expose physiologic universals in the guise of culturally

salient meaning and explanation (Kleinman 1977; Pedersen et al. 2010). Common to this approach was the tendency to exoticize non-Western health systems, reinforcing ‘otherness’ and inferring that “beliefs of others were not grounded in scientific/observable reality” (Weller et al. 2002:450). The rising influence of critical philosophers like Foucault (1954), whose ideas expose the limitations of Cartesian dualism and reveal the culturally constructed disposition of Western medicine, necessitated a more sensitive and relativistic cross-cultural investigation of cultural syndromes (Csordas 1994). Kleinman (1977) assisted in initiating this paradigm shift with his distinction between disease and illness, a concept that has assumed a foundational role within medical anthropology and psychology (Good 1977; Winkleman 2009).

Disease is a physiological impairment or maladaptation to physical, social, and cultural environments, such as significant life events or social stress, in which the human body deviates from a state of normality (Good 1977; Kleinman et al. 1978; Mishler 1981). Conversely, illness represents the subjective experience of sickness governed by individual and collective health beliefs, and profoundly shaped by cultural constructions of meaning and societal norms. Essentially, illness “is culturally shaped in the sense that how we perceive, experience and cope with disease is based on our explanations specific to the social positions we occupy and the systems of meaning we employ” (Kleinman et al. 1978:252). The distinction rests largely upon the biomedical supposition that disease is naturally occurring, objective phenomena existing outside of culture; however, the presence of folk models independent of biomedicine and disagreement among practitioners cross-culturally suggests the concept of disease itself to be a cultural construction (Dahlberg et al. 2009; Good 1977; Inhorn 1995).

Kleinman et al. (1978) warn against regarding either disease or illness as specific entities, but suggest considering them explanatory models: explanations of cause, course, effect,

treatment, and outcome of an experience of sickness (Kleinman 1980). The explanatory model approach relies on explicit health beliefs of healers and sufferers, and was established with the intention of providing a voice to patients by reducing miscommunication and misdiagnosis in clinical settings (Winkleman 2009). While the approach is inefficient in its ability to elicit implicit health beliefs, it represents a more culturally sensitive approach to the investigation of cultural syndromes.

Kleinman's intention was to account for the impact of cultural factors and the social environment in the genesis of cultural syndromes by examining cross-cultural occurrences of disease. Anthropologists were rapidly becoming aware of the effects of post-colonial modernization on the health of non-Western cultures, including socioeconomic inequality, migration, and culture change, and adopted the model of stress to account for the social environment (Dunn and Janes 1986; Eckersley 2006; Kleinman 1988). The stress model emphasizes the impact of social and environmental stressors on physical and psychological health, to which individuals must cope amid shifting levels of social support and resources (Dressler 2004). Thus, it is the inherent stress of culture change, accompanied by social disorganization and increased pressures to adjust and learn an essentially alien culture, from which mental health disorders arise (Dressler 2005, 2010).

The stress hypothesis has garnered severe criticism from those who point to the model's inability to capture the impact of culture solely within the dimensions of stress and social support, in addition to its disregard for macro-level political, economic, social, and historical forces that shape individuals' experience of illness (Kleinman 1988). Furthermore, despite the implied notion of relativity among proponents of the stress model, cultural syndromes cannot be understood solely as universal, biological experiences of illness. As an alternative, critics called

for a more interpretive approach to understand the meaning of experiencing a cultural syndrome within a particular cultural context (Lizardi et al. 2009).

Interpretive analyses are conducted principally through descriptive, ethnographic investigations, but instead of focusing on a specific cultural syndrome and associated subtypes, they highlight the diverse meaning of illness experiences cross-culturally (Borra 2010; Lizardi et al. 2009). This meaning-centered approach requires anthropologists to disregard the notion of cultural syndromes as universally occurring, in exchange for a wholly relativistic perspective focusing on language and metaphor to understand how individuals rationalize and interpret sickness (Swagman 1989; Weller and Baer 2001). In his analysis of heart distress in Iran, for example, Good (1977) proposes the idea of a semantic illness network through which frustration with social life and values are expressed metaphorically via the physical complaint of heart distress, providing a culturally acceptable conduit for emotional aggravation.

While an interpretive approach necessitates understanding of cultural syndromes within their particular context, a strictly relativist perspective is no more useful than a universalist one. Critics highlight the need to consider both angles in an effort to “look for similarities across these syndromes while gaining a better understanding of the culture that help[s] shape the underlying disorder into an idiosyncratic presentation” (Hsia and Barlow 2001). This dilemma is reconciled by a comparative approach, wherein illness experience is contextually understood but also compared to biomedical and psychiatric diagnoses to search for universal characteristics (Salmán et al. 1998). Mental health disorders, however, are manifested and recognized differently cross-culturally, and comparative investigations are hindered by the fact that biomedical and ethnomedical classifications of illness are not directly comparable (Weller et al. 2002). Still, the

strength of traditional health cultures in identification and classification of illness cannot be neglected, and necessitate a broader comparative model (Glazer et al. 2004).

Comparative studies benefit from a more structured methodology, and a developing body of literature on the epidemiology of cultural syndromes offers a profitable means of exploring illnesses that are not directly comparable to biomedical categories (Dressler 2001; Trostle 2005; Weller et al 2002). Though few anthropologists have incorporated epidemiologic methods to investigate cultural syndromes, the approach is one of the earliest and most successful attempts to introduce quantitative rigor to medical anthropological investigations, through triangulation of tools and concepts from anthropology, epidemiology, and related disciplines (Salmán et al. 1998). Medical anthropologists who adopt this framework investigate prevalence of cultural syndromes and causal factors (Brooks 2007), as well as their distribution within structural constraints and biological manifestation of culturally-constructed suffering (Dressler 2001).

Various cultural syndromes have been studied from an epidemiological perspective, including *susto* (Rubel 1964; Rubel et al. 1984), *ataque de nervios* (Guarnaccia et al. 1989, 1993, 1996, 2003; Liebowitz et al. 1994; Salmán et al. 1998) *debilidad* (Oths 1999), and *chucaque* (Brooks 2007). The benefits of this approach cannot be understated, as it enables researchers to draw associations between cultural syndromes and psychiatric and biomedical disorders, as well as identify risks of morbidity and mortality. Rubel et al. (1984) associated the cultural syndrome *susto* with a greater risk of stress, parasitic infections, and anemia, finding a higher mortality rate among sufferers after a seven year period. Similarly, in their examination of *ataque de nervios* in the context of a Puerto Rican natural disaster, Guarnaccia et al. (1993, 1996) found *ataque* sufferers to be at twenty-five percent greater risk for panic disorder. Epidemiological studies are also appropriate for examining structural factors in addition to biological ones. Oths (1999), for

instance, determined that individuals in the Peruvian highlands living in households with an imbalanced sex ratio were at greater risk of suffering from *debilidad*, while Brooks (2007), adapting a social stress gauge to study *chucaque* in the same region, found those suffering from the disorder to report higher levels of social stress.

Epidemiological analyses of cultural syndromes are not the only effort to introduce a more structured methodological approach; various investigators have recently employed a cognitive framework to explore dimensions of health. Understanding how illness is shared and collectively defined is a major area of interest in medical anthropology (Dressler 2010), and a cognitive approach recognizes that illness beliefs and knowledge are “encoded, maintained, and transmitted” (Kirmayer and Sartorius 2007:833) through shared cultural models, which contain information regarding how an aspect of culture is organized, shared, attributed meaning, and interpreted (Brooks 2007). Cultural models of illness form prototypes, etched from collective experience, that convey salient symptoms, support systems, treatment, and outcome of a particular disorder (Kirmayer and Sartorius 2007).

Cognitive applications are especially useful in exploring the varied forms of widely distributed cultural syndromes. Baer and Bustillo (1993), for instance, analyzed cultural models of *nervios* in Texas, Connecticut, Mexico, and Guatemala, concluding that fifty-two percent of ideas regarding the disorder were shared in all four samples. Similarly, Dahlberg et al. (2009) explore cultural models of *nerves* among an elderly population in Maryland and found it to serve as a folk term bridging the individual body to the social world. A cognitive approach can also be used to examine the relationship of cultural models to biology, behavior, and social structure. Dressler et al. (2007) formulated the concept of cultural consonance, the degree to which individuals approximate cultural models in their beliefs and behaviors, to demonstrate that

residents of Ribeirão Preto, Brazil with higher cultural consonance exhibit lower psychological distress. Cognitive methodology unites cultural relativity with biological universals, subjective with objective understanding, qualitative analysis with quantitative rigor, with an operational theory of culture that provides promising new direction for the comparative investigation of cultural syndromes.

Cultural Model Theory

The concept of culture has been debated since anthropology's inception over a century ago. Most attempts to define the concept are obstructed by a number of issues concerning ontology, unit of analysis, intracultural diversity, behavior, and material and ideational matters (Ross 2004). A theory of culture must recognize the shared, collective, and patterned nature without disregarding its location within the individual, and acknowledge that culture consists of that which individuals must know to participate in their society (Goodenough 1996). A cognitive theory of culture resolves these issues by examining how ideational schemata mediate the relationship between cognitive learning and the material world, addressing how behavior is guided by these unconscious principles (de Munck 2000). Ethnoscience, connectionism, prototype theory, schema theory, and cultural model theory are various cognitive approaches to culture, from which many anthropologists have drawn.

Ethnoscience emerged in the sixties, providing a good starting point for investigating how humans impose meaning on the world. Meaning is important because humans' reactions are to something meaningful, and ultimately influence how events and circumstances are interpreted. The objective of ethnoscience was therefore to discover the meaning of terms used by participants in social settings, and drew on theory and method from linguistics to analyze

similarities and differences among them. Similar items were grouped in categories and different ones delineated through taxonomies, while distinctive features, or how terms differ, were analyzed through componential analysis and displayed in paradigms (de Munck 2000). The purpose was to conceptualize domains, or comprehensive cultural categories, from which ethnoscience sought to discover meaning by analyzing structure. Ethnoscience provided an appropriate theoretical and methodological background for understanding how experience is organized and shared by individuals (Spradley 1972).

Connectionism builds on the ethnoscience idea that culture is organized by individuals, acknowledging its ideational position and relationship to social experience. According to connectionist models, the mind is a network of neurons, and patterns become fixed schemas that are repeated through experience. These schemas are not static, but malleable, ideational blueprints altered by new experiences, and demonstrate how culture exists both ideationally and in the external, material world (Strauss and Quinn 1994). Similarly, illness beliefs are not constant, but shaped by existing knowledge and individuals' experience within a particular cultural framework.

Prototype theory demonstrates how meaning of a semantic domain is transmitted in “a bundle of qualities” called a prototype (de Munck 2000:76), and suggests that categories are built around core prototypes that always enter a domain first. For example, a penguin is technically a bird, but not the prototypical, generic image of a bird that is widely shared, such as a robin (Rosch 1975). Essentially, humans cognitively recognize patterns in the social and natural environment to which we attribute order. Prototypes therefore represent a specific instance, but while they provide insight on how individuals cognitively process information, they provide poor justification for intracultural variability (D'Andrade 1995).

Schemas, in contrast, are open, cognitive models capable of being held in memory, yet only vaguely defined. A script is an example of a schema, in that it represents a general guideline, but there is much that can be filled in based on the particular experience. Schemas are acquired through rule-based learning, in which knowledge is stated as propositions or sentences and then committed to memory, as well as practice-based or experiential learning, which can include mimicry or directed experience. Schemas are more flexible than ethnoscientific models, and the ones that are shared and employed socially are referred to as cultural models (de Munck 2000).

Cultural models are prototypical knowledge schemas cognitively held by a significant number of people in a society, and depend on the idea that culture is shared and distributed. A good genesis for comprehending this idea begins with Searle's (2006) distinction between observer-independent and observer-dependent phenomena. Observer-independent phenomena exist whether or not humans perceive them, such as a mountain range or tree, whereas observer-dependent phenomena depend for their existence on someone conceiving the idea and having the intention to use it for a purpose. Currency and a professional football team are observer-dependent phenomena because they rely on shared ideas within a social group. Observer-dependent phenomena are built from constitutive rules: the idea that x counts as an example of y under a certain condition (de Munck 2000). These constitutive rules are shared socially, and even though their existence also requires someone conceiving a particular idea, they assume an objective reality, and are regarded as basic units through which culture is constructed.

Cultural models often combine several schemas, and individual representations are composed of both cultural and personal models. The concept is quite pertinent to anthropology because researchers can accurately and methodically extract cultural models from a sample of

individual representations to explore shared meaning in everyday life (de Munck 2000).

Contemporary research methods in cognitive anthropology employ cultural domain analysis and cultural consensus analysis to elicit cultural models and determine the degree to which they are shared by participants. This thesis research projects adopts cognitive methods to test for the presence of a cultural model of *nervios* and explore how knowledge of the syndrome manifests in divergent contexts.

Cultural Domain Analysis

Cultural domain analysis permits an objective, quantitative, and methodological orientation while still maintaining an emic, qualitative, and ethnographic approach. Salient elements in a domain are first isolated through freelisting, a simple and efficient means of generating a common core of terms that people talk about. Freelisting exercises are not meant to elicit an exhaustive collection of elements, but to identify the common core of items that appear with greater frequency and a higher rank of recall (Ross 2004). Therefore, freelisting is the beginning of a domain's exploration, and the next step in cultural domain analysis is to explore its structure.

Pile sorts are employed to examine similarities and differences among salient terms by having participants use their cultural knowledge to organize terms into groups. The main purpose of eliciting these ideas is to determine distinctive features of a domain, with each pilesort representing individuals' representation, or combination of cultural and personal models. Aggregate results are analyzed with multidimensional scaling, which enables complex, shared patterns to be visualized in a reduced dimensional space to depict how a cultural model is collectively organized. Hierarchical cluster analysis is then applied to calculate associations

among terms based on their relatedness, to identify the distinctive features from which shared knowledge is constructed.

Cultural consensus analysis (Romney et al. 1986) is the most critical step in cultural domain analysis. Cultural consensus is the degree to which a cultural model is shared, and its analysis ascertains individuals' relative knowledge by calculating a consensus set of responses, weighted by pattern of knowledge and sharing. Once the salient terms of a domain are elicited through freelisting exercises and open-ended interviews, participants are queried as to the relevance of each term in relation to the domain, often through rating, ranking, or triad sorts. Consensus is derived by calculating agreement among collective responses, while individual results are expressed as competence scores; specifically, how competent one is in articulating the shared, cultural model. The cultural consensus model is useful in making explicit how knowledge of a particular domain is shared and distributed within a given population.

Cognitive research methods are rigorous in structure, though still successfully maintain an emic perspective by eliciting culturally salient knowledge. They represent a shift in anthropology from trying to understand humans' relationship to culture as an entity to more ontological understandings of how knowledge is shared and distributed within a given population. Therefore, adoption of a cognitive orientation for the study of *nervios* in Honduras permits efficient comparison of the disorder to manifestations of it elsewhere as well as to several biomedically-defined mental illnesses.

CHAPTER THREE

ETHNOGRAPHIC PROFILE OF HONDURAS

Overview

Honduras has a history of poverty and economic inequality that are endemic to the region, with sixty-six percent living in poverty, of which forty-five percent endure extreme poverty. Additionally, Honduras boasts the highest level of income disparity in Central America with a Gini Index of 0.55. The impact of these structural forces has impeded Hondurans' ability to improve their standard of living (Ronderos 2011), especially amid rising unemployment, political instability, and escalating violence from drug trafficking. Honduras has the highest homicide rate of any country: 82 murders per 100,000 people (UNODC 2011). Political, economic, and social conditions in Honduras notwithstanding, Hondurans are a people rich in cultural tradition, national pride, ethnic diversity, and a unique history that distinguishes the nation from other Central and Latin American countries, carving out a unique identity in the local, regional, and global arena.

Historical Context

Prior to European discovery Honduras was inhabited by a number of complex indigenous societies including the *Maya*, who thrived in the westernmost city of Copán during the classical period (250-900A.D.). Following the decline of *Mayan* influence in the ninth century, the *Lenca* ascended to prominence as the dominant indigenous group, however *Mayan* descendants known as the *Ch'orti'* still maintained a notable presence. Cultural groups were sparsely scattered

across the rugged and mountainous terrain of central Honduras (**Figure 3.1**), a geographical feature that archaeologists regard a major factor in shaping pre-Colombian populations. Traditional scholarship maintains that *Mayan* culture diffused to other indigenous groups; however, contemporary archaeologists argue that *Mayan* inhabitants in western Honduras represent the southernmost extent of the empire. New evidence suggests that indigenous populations east of Copán, while certainly in contact with *Mayans*, were notably non-*Maya*, and exhibited greater similarities with lower Central American cultural groups (Cuddy 2007:7).

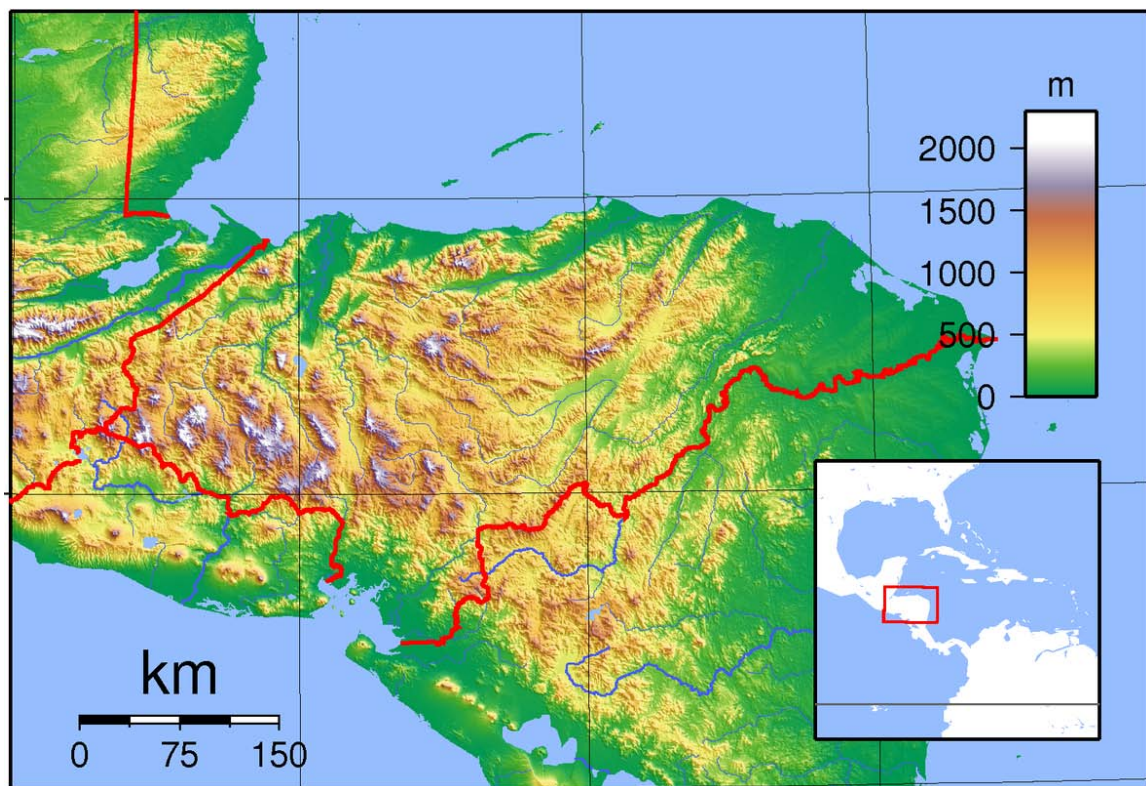


Figure 3.1 Topographical map of Honduras with current borders shown.

European discovery of Honduras took place on July 30, 1502 by Christopher Columbus, who gave the region its name after observing the ocean depths off the northern coast. Honduras

was originally part of the Captaincy General of Guatemala, the Spanish colony in Central America encompassing modern day Chiapas (México), Guatemala, El Salvador, Honduras, Nicaragua, and Costa Rica. Spanish colonization was distinguished by widespread repression of indigenous populations, brutally reduced (depending on altitude and climate) by a number of factors including poor treatment, overworking, and diseases like smallpox, measles, typhus, plague, yellow fever, and malaria (Newson 1986; Pine 2008). Indigenous groups' plight was not without resistance and struggle; the *Lenca* chief Lempira, a national hero for whom Honduran currency is named, recruited over two-hundred tribes to counter expansion of colonial Spanish territory, though unsuccessfully (Congressional Digest 2009).

Spanish colonization is also characterized by a legacy of slavery, beginning with an initial cargo of approximately 1,000 to 5,000 African slaves brought to the region of Olancho in the 1540s to mine gold and silver. Unlike other countries in Latin America, Honduras is unique with respect to slavery because the extreme terrain impeded monoculture endeavors like sugar production; therefore most slaves were forced to work in mines (Chambers 2010). After more than three hundred years of Spanish domination Honduras proclaimed independence in 1821. Following a short-lived annexation to México, the newly independent nation was absorbed into the United Provinces of Central America Federation in 1823, strongly advocated by Honduran national hero Francisco Morazán (**Figure 3.2**), but which ultimately collapsed in 1838 (Pine 2008).

Honduran independence represented the cessation of Spanish political control, but marked the beginning of economic colonization by the United States and European countries. U.S. agricultural and mining companies quickly exploited natural resources like sugar, palm oil, shrimp, gold, and silver from the vulnerable nation. No resource, however, was as lucrative or



Figure 3.2 Monument in Copán to Honduran national hero Francisco Morazán.

significant to Honduran history than the banana, once referred to as *oro verde* (green gold), and earned Honduras the appropriate nickname ‘Banana Republic.’ *Cuyumel Fruit Company*, *United Fruit Company*, (both now *Chiquita*), *Vaccaro Brothers Company* (now *Dole*), and *Del Monte* were four major banana exporters in an industry controlled exclusively by U.S. businessmen who also held considerable clout in the Honduran government, as did non-agricultural companies like the *Rosario Mining Company*. The effects of US-owned banana plantations and other agricultural exploits have far outlasted the dominance of the banana industry, continuing the legacy of Spanish subjugation of peasant and indigenous groups to levels of extreme poverty that persist today (World Trade Press 2010). However, the days of the ‘Banana Republic’ are also characterized by landmark legislation such as public education and the growth of major cities like San Pedro Sula (Chambers 2010; Pine 2008)

The economic supremacy of US-owned companies in the early twentieth century intensified political instability in Honduras, resulting in constant power shifts between authoritarian military and democratic civilian rule. These struggles were characterized by

multiple coups, widespread political corruption, and war with neighboring Central American countries. However, this period did ultimately produce many of the country's most progressive policies such as land reform, expanding of infrastructure, and increased telecommunications, spurring economic growth through exports and commercial lending.

By the latter half of the century the once powerful fruit companies were in rapid decline, giving way to the *maquiladora* industry in 1976 when Puerto Cortés was declared a free trade zone. Within three years a number of other cities were declared free trade zones, including San Pedro Sula, which Hondurans proudly refer to as 'the Industrial Capital of Honduras.' Pine (2008:136) draws various comparisons between the *maquiladora* and banana industries: US businessmen make up the greatest proportion of *maquila* investors, as they did in the banana industry, and "live in places inaccessible to the poor except servants, as did banana plantation owners in the United Fruit days."

A major effect of the banana and *maquiladora* industries is mass migration of peasants from rural to urban regions, more so in the latter. Population increases, widespread setbacks in the agricultural sector, imbalanced land distribution, environmental destruction, and the desire for government-provided education and healthcare all contributed to this rural to urban trend. Though these changes have been accompanied by improved infrastructure such as roads, cable, and internet, many first generation migrants are confined to shantytowns on the outskirts of large cities like San Pedro Sula, with limited access to basic needs like drinking water and electricity (Sanabria 2007).

By the 1980s, control of Honduras was peacefully transferred from military rule to democratic civilian control, though increasing costs of living and government corruption continued to plague the country. Progress was severely set back on October 25, 1998 when

Hurricane Mitch devastated the nation, resulting in three billion dollars damage, one and a half million people displaced, nearly fifteen thousand killed or missing, and thirty percent of health-related investments destroyed. The country's infrastructure was left in shambles, exposing inexpensive design, shoddy construction, and "highlighting endemic institutional weaknesses" (World Bank 2003:4). Additionally, over eighty percent of the population could not access potable water, leading to an increased incidence of intestinal diseases, cholera, malaria, and dengue (Congressional Digest 2009; John et al. 2005). The aftermath of the hurricane also left an amiable atmosphere for political opportunism and corruption: the government quickly implemented neoliberal doctrines establishing the entire nation as a free-trade zone, significantly expanding the *maquila* industry's financial potential, and contributing to the present economic environment in Honduras (Pine 2008).

Economic Context

Honduras has a gross domestic product of \$15.35 billion and per capita GDP of \$4200 by 2010 estimates. Agriculture (coffee, bananas, shrimp, lobster, tilapia, corn, fruits, cereals, African palms, and livestock) and industry (textiles, sugar processing, cement, wood products, cigars, and foodstuff) collectively comprise thirty-nine percent of the GDP while the remainder is accounted for by services. Exports comprise over one-third of the GDP and include a number of processed and agricultural goods like apparel, coffee, shrimp, wire harnesses, bananas, palm oil, gold, zinc/lead concentrates, soap, melons, lobster, pineapple, lumber, sugar, and tobacco products. Nearly double is spent on imports (\$8.878 billion), which are largely industrial goods like machinery, transport equipment, industrial raw materials, chemical products, and fuels. While Honduras' main trading partners are mostly other Central American nations, the United

States is both the largest export (~\$2.405 billion) and import (~\$3 billion) partner (CIA World Factbook 2012).

Despite the rise of the *maquila* industry, agriculture is still a significant source of income in rural areas, especially subsistence farming, though individuals living in these areas increasingly depend on off-farm employment to supplement income (López and Romano 2000). Despite economic shifts in the last fifty years, the banana- and *maquila*-dependent Honduras are united in their level of exploitability, especially by the United States, which is “the principal buyer of Honduran exports, the main supplier of Honduran imports, and the biggest creditor for Honduran external debt” (Jackson 2005:5).

The United States’ current and historic influence over Honduras extends well beyond the economic sphere, meshing into Honduran culture and identity through its symbolic association with notions of power. Many storefronts are painted with symbols of U.S. patriotism or have Anglicized names or apostrophes in their titles. Additionally, “the importance of modern corporate symbols...underscores the strength of consumerism in the country, despite most Hondurans’ lack of buying power” (Pine 2008:5), such that brand-name products and corporate logos become commonplace: shops are littered with counterfeit goods with mock product names like Naik (*Nike*) and Geuss (*Guess*) (Pine 2008).

The rise of the *maquiladora* industry in Honduras parallels the nation’s significant efforts to ‘modernize’ and diversify its economy. Despite steady economic growth and increased levels of foreign investment throughout the 1990s and 2000s, the percentage of citizens living under the poverty level has decreased only minimally, and many investments in infrastructure such as roads, airports, construction, electricity, cell phone service, and cable/internet providers have been made by private companies, who also reap the majority of profits (World Bank 2003).

Honduras was considerably affected by the 2008 global financial crisis, leading to an economic contraction of two percent in 2009, though these losses were regained the following year as worldwide recovery efforts began to take effect (Fasquele 2011). Considering the country's dependency and ties to the United States, continued recovery depends on the economic wellbeing of the latter nation (Honduras Country Monitor 2012).

Political Context

Honduras has been a democratic constitutional republic since military dictator Paz García relinquished control of the country to civilian rule in 1981, accompanied by a new constitution and general elections “to reinforce the notion that the country adheres to liberal-democratic norms” (Fasquele 2011:17). The left-wing Liberal Party and right-wing National Party are the two major political factions in Honduras; while the Christian Democratic Party, the Innovation and National Union Party, and the Democratic Unification Party have a noticeable presence in congress, control of the country has shifted between the two main parties.

Honduras' legacy of political instability did not vanish with the new constitution and transfer to civilian rule. Though each political party aims to reform and modernize the government and economy, they rely on different means of accomplishing the task. Liberal Party administrations focus on social and economic development, human rights issues, alleviation of poverty, and combating drug cartels, while National Party administrations are geared more toward global issues, adopting neoliberal free-trade policies to increase investment and fiscal wellbeing, as well as participating in Bush's War on Terror (Honduras Country Monitor 2012) and implementing zero-tolerance policies for drug and gang members (González 2002).

On June 28, 2009, the Honduran military staged a coup in the capital city of Tegucigalpa, removing Liberal Party President Manuel Zelaya (pronounced *Seh-lie-ah*) from office at gunpoint and exiling him to Costa Rica (Fasquele 2011). Widely regarded for his political platform of ‘citizen power’ (Congressional Digest 2009), Zelaya sought to introduce a number of social reforms that include raising minimum wage, eliminating primary education fees, literacy programs, free electricity for rural and urban poor, support for small business, a ban on clear-cutting and open-pit mining, formal acknowledgement of a secular state, equal rights and employment for women, sexual and reproductive health benefits, sex education in schools, and a guaranteed right to a violence-free standard of living (Ronderos 2011).

The successive government’s explanation for Zelaya’s removal was the president’s alleged attempt to amend the constitution, highlighting his intentions to increase the executive term limit. However, according to Fasquele (2011:16), “the ouster of President Manuel Zelaya fits within a larger historical pattern; typical of right-wing coups, it took place with the support of traditional political sectors that control the institutions of state, the business elite, and their foreign allies.”

Nevertheless, there are several interpretations of the coup that divide Hondurans. Zelaya considers himself a man of the people, evidenced by the farm workers’ hat he is rarely seen without, and his emphasis on social reform and power of the people threaten those who consider foreign relations and a globalized economy to weigh more heavily in importance. Various individuals I spoke with regarding the topic expressed looks of disgust or disappointment at the mention of the deposed president’s name, who they regard as reckless and ignorant of the larger international picture. One participant reacted angrily upon learning that Zelaya would be allowed to return to Honduras nearly two years after being banished:

What they doing with this guy, letting him in and giving him all, you know like, I don't know he did a lot of damage to the country! Why bring him back to do more damage!? Cause the only thing that man looking for is revenge. Because he did a lot of damage to these, to a lot of people, and I believe he not gonna last long if he come to Honduras, because Hondurans like revenge. They will get it and they don't care how long it takes em. And all those people that he ruined, you really think they gonna forgive him? I do believe this president is communist also. Because, how come he so with that Chavez? That's why they throw him out, cause he wanna bring in the communists. And people so dumb down here they think that's something good. They really think it's something good! Cause I hear and they talking, "Oh we don't have to work!" I don't know where they got that idea from, that they don't have to work. They gotta work hard! If they got an education you can work in an office but if you don't have an education you can work in the fields. That's how the communist does it.

In contrast to his critics, Zelaya engenders a cult of personality among his supporters, culminating in a peaceful resistance group called the 'National Front of Popular Resistance', whose graffiti can be seen painted across the walls of San Pedro Sula. Some inscribe the resistance group's acronym, F.N.R.P., while others direct criticism to post-Zelaya administrations, offering remarks like '*Michaleti Fascista.*' Despite Zelaya's urging for passive resistance, the current government has not hesitated to suppress the movement, and military brigades often barrage protestors with tear-gas, as well as assassinate political activists and journalists who publish articles criticizing the current government (Frank 2011).

Social Context

The onset of political instability and economic inequality has exacerbated other social issues like escalating violence from increased drug trafficking. Aggressive pressure from the United States toward drug cartels in México and Colombia forced the traffic to find other routes, and Honduras provides a perfect detour, to the extent that American authorities report eighty-four percent of drug traffic to pass through Central America (Archibold and Cave 2011). Consequently, violence is out of control in Honduras, which has the highest homicide rate in the

world at 82 murders per 100,000 people (UNODC 2011). Many I spoke with commented that I should never walk on the streets of San Pedro Sula with too much money, but similarly, never walk the streets with too little money: “Always have at least L100 on you so in case you are mugged, they do not kill you out of frustration.” My own experiences on the streets of San Pedro Sula, however, involved none of these potential threats.

Another major social issue in Honduras is the availability of healthcare. The poor have limited access, especially in rural areas where physicians and clinics are few and far between, and the ones that do exist lack adequate staffing and equipment. One participant described Hondurans’ aggravation in seeking formal, biomedical healthcare:

Public hospitals are state provided, so people can go for a major operation and not spend a single lempira. The biggest problem is that it’s difficult to see a doctor since they are in high demand, and it is not uncommon for people to have to wait a whole month for an appointment for something minor. But public hospitals don’t have enough beds, and if someone is recovering with a broken leg, they’ll be moved to the floor and replaced by someone suffering from something worse. Clinics are also state provided and more common than public hospitals. These are also very busy and don’t offer the range of services or experienced doctors. The alternative is the private hospital, which offers all the benefits that public hospitals do not, including a reasonable waiting time, ease of making appointments, a sufficient number of beds, and a diversity of services and specializations. Of course, the biggest restriction is that they cost money, making it an unrealistic option for many Hondurans.

The weak condition of the health sector only exacerbates numerous health-related issues. Gastrointestinal diseases spread through unsanitary food and contaminated drinking water, especially among the poor, who are also plagued by nutritional deficiencies. Respiratory infections are frequent and involve complaints like allergies, asthma, the common cold, pharyngitis, pneumonia, and ear infections, for example. Other infections include skin diseases and conjunctivitis (pink eye), although sexually transmitted diseases like gonorrhea, syphilis, and especially AIDS make up a majority of health concerns. Honduras has the highest prevalence of HIV/AIDS in Latin America, largely a result of “extreme poverty and lack of basic

education...[that] serves as a conduit for higher rates of risky behaviors and increased HIV transmission” (Heudo-Medina (2010:1238). Economic adversity also contributes to a heightened incidence of mental health disorders like depression, anxiety, stress, and several types of phobias. Furthermore, many Hondurans are becoming increasingly vulnerable to health issues typically affecting developed nations, like diabetes and cancer, with forms of the latter including breast and leukemia.

Though Honduras is distinguished by deplorable economic, political, and social conditions, the experience imparted on me an overall sense of function in the daily lives of each person I had the opportunity to meet. Despite the obstacles that the country will spend years to overcome, Hondurans wield no less personal agency than people in other countries, successfully navigating structural forces and managing to make ends meet daily. However, the stress of this experience can nonetheless become gouged into individuals’ physiology and entrenched in cultural understanding. Therefore, examining the cultural syndrome *nervios* may provide insight into the differential effects of structural forces on inhabitants in both rural and urban locations.

Marriage and the Family

The institution of the family forms the foundation of life in Honduras, characterized by fervent allegiance to both nuclear and extended family members, who often live in a single domicile (World Trade Press 2010). Echeverri-Gent (1995) confirms that “Family loyalty is an ingrained and unquestioned virtue; from early childhood, individuals learn that relatives are to be trusted and relied on, whereas those outside the family are, implicitly at least, suspect.” Honduras fits within the greater Latin American archetype of male domination: women manage the domicile and bear children while men head the household. Similarly, female children are

raised with greater social restrictions than male counterparts, though both genders typically live at home until marriage (World Trade Press 2010).

There are three forms of marriage in Honduras: civil, religious, and free unions. Religious unions are traditional, especially among middle- and upper-class citizens, though are declining in frequency due to the stigma of divorce in the Catholic Church. Conversely, civil unions are gaining popularity since the lack of religious foundation makes divorce a more attainable option. Free unions are not generally accepted as formal marriages, however, many younger Hondurans will establish a free union as a type of ‘trial marriage,’ wherein couples have a chance to evaluate how compatible they are together and establish economic stability (Echeverri-Gent 1995).

Gender

Gender inequalities exist to varying degrees in all cultures; however, Honduran women are exposed to greater levels than those from other countries, with a gender inequality index of 0.68 (Ronderos 2011). Honduras and Latin America in general present the “highest gender inequalities and the highest double standard, as well as being the group in which the males wield more power in the relationship” (Bermúdez et al. 2010:172-173). Gender roles in Latin America are directly related to dominant cultural values imposed by the institutions of *machismo* and *marianismo* (Valencia-Garcia et al. 2008). The former refers to the roles of Latin men, who are expected to be providers, protectors, strong, virile, and courageous, while also dominant and assertive over females, enjoying many sexual and social freedoms that women are not allowed. The latter is characterized by a woman being a faithful wife and devoted mother, maintaining the

cultural ideals of *familismo* (family connections), *personalismo* (partiality), *respeto* (respect), and *simpatía* (pleasantness).

Despite a cultural tradition of female oppression, there are growing opportunities for Honduran women, who are overcoming traditional roles as homemakers to participate in social, economic, and political sectors, especially in urban areas (World Trade Press 2010). Over the past fifty years women have gained voting rights, new job opportunities, equal pay, and even a small yet noticeable number of seats in congress. Outside the household, rural women find work in agriculture, animal husbandry, street vending, and factories, while educated urban women are entering diverse occupations across business, political, and industrial spheres.

Growing opportunities for women have numerous implications for traditional gender roles, especially in the *maquila* industry, where the proportion of women employed is greater than men. Pine (2008:33) clarifies that “The inability of young men to fulfill their duties as men has important effects on masculinity and on women’s and men’s roles in the family.” Honduran males often join gangs to supplement income and counter perceived emasculation, quickly meeting death and subsequently abandoning their families, leaving women to assume the role of both homemaker and breadwinner.

I could personally sense a contrast between traditional and contemporary gender roles in Honduras. Many women I met in San Pedro Sula attended a university, and work in diverse occupations like mobile phone salesperson, teacher, college professor, bank manager, store clerk, and physician, as examples. Conversely, there was a noticeable difference in demeanor among Copán women, who appear to maintain stronger ties to the cultural ideal of *marianismo*; they present a more solemn, contained disposition and usually wear long dresses or blue jeans to

cover the majority of their bodies. I fear that if not for my research assistant Stephanie's presence, several female participants may not have agreed to be included in the research.

Religion

The majority of Honduras' population is Christian, the remainder practicing either syncretic religions that fuse Christian and indigenous beliefs or other major religions like Islam, Judaism, and Buddhism. Catholicism is the dominant Christian denomination, though Hondurans are largely non-religious, and there exists high tolerance of all faiths. Next to Catholicism, Protestant sects, especially Methodist, Church of God, Seventh Day Adventist, and Assemblies of God, have experienced significant increases in membership over the past thirty years (Stoll 1990). They are especially popular among lower classes (Echeverri-Gent 1995), as the Protestant work ethic closely associates religion and labor. As Pine (2008:167) elaborates:

Evangelical Christianity...provides workers...with a sense that the discipline they live with is of their own choosing. Facing an utter lack of control over their working conditions, many find solace in the control of their own bodies and souls. Thus Evangelical Christianity, while popular throughout Honduras, is especially popular among maquiladora workers...[by providing] necessary counterpoints to what is most 'natural' in Hondurans: laziness, violence, and in general, the colonized mind-set.

Foodways

Honduran subsistence patterns are consistent with other regions of Latin America while still maintaining unique dishes and beverages that are crucial to Honduran identity. Breakfast is a large meal that usually includes scrambled eggs, flour tortillas, refried beans, avocado, *chorizo* (spicy sausage), *mantequilla*, *queso Olancho*, Honduran-grown coffee, and orange juice.

Mantequilla and *Olancho cheese* are economic cornerstones of the department of Olancho, the former being a salty-tasting sour cream with a somewhat liquid consistency. The cheese is

firmer than feta and far less crumbly, with a sharp and salty taste that complements the refried beans and eggs well.

The streets of San Pedro Sula abound with traditional Honduran foods sold by street vendors, in open-air markets, and in small local restaurants, one of the most popular being the *baleada*. A basic *baleada* consists of refried beans, *mantequilla*, and shredded cheese in a large flour tortilla folded in half, though scrambled eggs, meat, avocado, plantains and other foods are sometimes added. *Baleadas* are so popular there is even a local fast food chain called *Baleada Express* that makes fresh tortillas and serves custom *baleadas* with an assortment of fresh-squeezed juices. Another popular street food is *tamalitos de elote*, recognizable across greater Latin America as *tamales*, and served with *mantequilla*. Perhaps the most valued dish in Honduras is the *carneada*, a national dish so representative of Honduran identity it is affectionately referred to as *el plato típico* (the typical plate) in restaurants. It consists of a thin, grilled cut of beef marinated in orange juice and spices, served with *salsa chimol* (Honduran version of *pico de gallo*), *plátanos*, *chorizo*, *queso Olancho*, flour tortillas, guacamole, and refried beans.

There are also a variety of beverages in Honduras like the traditional Spanish and Latin American drink *horchata*, made from ground *jicaro* seeds, rice, spices, milk, and sugar. Regional variations of this drink exist, each with specific ingredients and names: the beverage is called *semilla de jicaro* in Honduras, though was referred to on restaurant menus by the general name *horchata*. Fruit juices are also popular and sold in every venue from street vendors and open-air markets to restaurants and supermarkets. Most are fresh-squeezed from tropical fruits that thrive in the warm, humid Honduran climate, like mangoes, nance, tamarind, melons, citrus fruits, papaya, and pineapple.

One such experience worth mentioning was a street vendor selling *jugo de naranja* (orange juice) at a permanent location outside a small, wooden parking lot booth with two others. The three worked in tandem, the first slicing large, green-skinned oranges in half, usually about twenty at a time, and vigorously juicing each one by hand into a large steel bucket. The next individual poured the contents of the bucket through a strainer into a large, blue cooler filled with ice. The vendor packaged the juice in a sandwich bag tied at the top around a plastic straw, and sold it for fifteen lempira (approximately \$0.79) to patrons waiting patiently in their automobiles or forming a line outside the parking lot booth.

The experience may have ruined my love of orange juice, for I have yet to find any brand in the United States, organic or not, that comes even close to replicating its remarkable taste. I can still vividly recall the smooth, rich flavor of the drink, which was so dense with sugar that it made the beverage incredibly filling. Most mornings I spent in San Pedro Sula began with a short, fifteen minute stroll to this very vendor to enjoy a “liquid breakfast.” I imagine the freshness of the oranges and juice, as well as never having been pasteurized or frozen, contribute to its unbelievable taste; however, an additional factor could be that these fruits grow more successfully in tropical Central America than in Florida or California.

Corporate fast-food and sit-down restaurants are numerous in Honduras (especially San Pedro Sula), such as Applebees, TGI Fridays, TCBY, Burger King, McDonalds, Wendy’s, Kentucky Fried Chicken, Little Caesar’s Pizza, Church’s Chicken, Pizza Hut, Ruby Tuesday, Subway, Popeye’s Chicken, a number of regional chains like *Baleada Express* or *Pollo Campero*, as well as various Asian-inspired restaurants serving Chinese food and sushi. According to one of my participants, “Hondurans love sushi, but Honduran sushi because it’s made with local spices not used in traditional Japanese cuisine.” Unlike food sold by street

vendors, in open-air markets, or in local restaurants, which are reasonably priced, corporate restaurants charge the same as in the United States. For example, a one-topping pizza from Little Caesar's costs L100, or roughly \$5.25. Therefore I initially assumed these establishments were frequented by individuals of greater economic means, however, Schorman (2010:319) elucidates that "Despite the rising cost of living and the obvious escalation in food prices...a large proportion of people...[frequent] US and Central American fast food chains in San Pedro Sula."

Despite the growing popularity of corporate-owned restaurants (Schortman 2010) and high frequency of street vendors, open-air markets, and locally-owned restaurants, Hondurans rely mostly on store-bought goods for home cooked meals. These goods are available from a number of places including *mercados*, *pulperías*, and *supermercados*. *Mercados* are similar to farmer's markets, and sell a number of staple items like fruits, vegetables, dairy, cereals, meats, and eggs. Sometimes there are a few processed items like Coca Cola, candy, and *salsa de tomate* (tomato ketchup), though the majority of goods sold in *mercados* are locally-grown/raised products.

Pulperías (literally mom and pop shops) are the most common marketplace in Honduras, selling a wide variety of processed goods similar to a convenience store. They are so common that even small villages may have a number of them. In San Pedro Sula, *pulperías* are plentiful in both *colonias* and *barrios*, with proprietors often converting sections of their homes into shops to sell items in small quantities, though usually at higher prices than *mercados*. The most expensive and greatest variety of goods are available in *supermercados*, or supermarkets, which are numerous in San Pedro Sula; *Comisariato Los Andes*, *Colonial Supermarket*, *PriceSmart*, *Junior Supermarket*, *Hiperpaiz*, and *La Economica Supermarket* are all popular establishments in the city. *Supermercados* are even gaining popularity in rural towns, such as *Manzanitas*

Supermarket in Copán, though these are typically restricted to patrons of higher purchasing power.

Ethnic Composition and Group Identification

Ethnic divisions are powerful determinants of each Hondurans' location within the cultural milieu. Specifically, socioeconomic, political, and environmental pressures are unevenly distributed across socially-meaningful ethnic groups, contributing to high levels of inequality and poverty, and shaping how these groups form identities. Ethnic composition in Honduras is rooted in historical processes stemming from colonization and slavery. Consistent with other Latin American countries, Honduras is “a heterogeneous, multiracial, and multicultural society;” it is the product of admixture between indigenous natives, European colonizers, and African slaves (Chambers 2010:3).

Inter-group sexual encounters resulted in the conception of new types; *mestizo* and *mulatto* are two classifications created to understand phenotypic intermediaries between the initial groups (Sanabria 2007). Over ninety percent of Hondurans identify as *mestizo*, tracing their heritage to European and indigenous ancestry. Those identifying as *mulatto* are the descendents of Africans and indigenous groups, though they comprise a far smaller proportion of the Honduran population (Echeverri-Gent 1995).

Identification with either of these groups has had legal and social significance throughout Honduras' history. Indigenous populations were not forced into unpaid labor like African slaves, though were still subject to established duties and obligations. Similarly, intermediate groups were assigned specific rights or responsibilities. *Mestizos* were relieved of tributary obligations

forced on indigenous natives, while *mulattos* were regarded no higher in social status than their African and indigenous parent populations (Sanabria 2007).

The broad ethnic categories of *mestizo* and *mulatto* parallel ethnic classifications of *ladino* and *non-ladino*. *Mestizos* are *Ladino* because they embrace Spanish cultural traditions, not limited to language and religion (Echeverri-Gent 1995). The days of the Banana Republic firmly established among *mestizaje* a type of nationalist *Ladino* pride that “excludes blacks, served banana companies well...[and] helped to prevent workers from organizing across boundaries of racial identification” (Pine 2008:11). Individuals of African ancestry (roughly two percent of the population) are alienated from this *Ladino* culture, both culturally and geographically, and generally relegated to the northern and eastern coasts of the country.

The *Garífuna* are the most prominent ethnic group of African ancestry in Honduras. The descendents of African slaves and *Carib* Indians, the *Garífuna* have lived in villages along the northern coast of Honduras for over two hundred years, and are often referred to more generally as the *Black Carib* (Johnson 2007). The *Garífuna* speak a *Carib* creole, and many of their cultural practices such as folklore, religion, and music draw heavily from their African heritage (Echeverri-Gent 1995). Chambers (2010:2) explains that *Garífuna* “maintain the monopoly on black identity in Honduran cultural discourse, due largely to the fact that they represent the majority of the population of Afro descent in the country;” however, they are not the only group of African ancestry.

The *Miskito* Indians on the eastern coast of Honduras also share African and indigenous lineages, though unlike the *Garífuna*, the emphasis on African cultural heritage is limited among the *Miskito*, who speak an English creole. Nonetheless, the *Garífuna* and *Miskito* are equally alienated from the greater *Ladino* culture, and have traditionally relied on small-scale

horticulture and fishing to remain self-sufficient. More recently, however, males are forced to leave their families for extended periods to supplement income in other departments. In fact, twenty-six percent of individuals of African descent live on less than one dollar daily (Ronderos 2011:216), greatly marginalized from the ruling class and their *mestizo* counterparts.

Indigenous groups are also culturally and economically estranged from *mestizos*, though they make up the second most populous ethnic group in Honduras (7 percent). The largest of these (approximately 50,000) is the *Lenca*, who live in the western and southwestern regions of the country. Despite retaining aspects of their traditional culture, they are not universally accepted as indigenous groups because Spanish has replaced their mostly defunct native language, and they share many cultural traditions with the *Ladino* ethnic group. Several smaller indigenous populations exist throughout Honduras, including the *Ch'orti* and various *Mayan* dialects in west Honduras around Copán (Cuddy 2007), the *Chorotega* in the department of Choluteca, less than one thousand *Pipil* on the isolated northeast coast, and scattered populations of *Tol* and *Hicaque* in the rain forests (Echeverri-Gent 1995).

There are small populations of other ethnic groups like the thriving Arab community. The twentieth century saw an influx of Palestinian (*árabes*) and Jewish (*júdios*) immigrants, both of whom assimilated into Honduran society, perhaps to a greater extent among Arabs, who are mostly Christian with only a small minority practicing Islam. Additionally, these ethnic groups are economically successful overall, participating in public and private sectors. Former Honduran presidents Carlos Flores Facussé and Ricardo Maduro Joest, as well as presidential candidate Jaime Rosenthal, are powerful political figures of Jewish and Palestinian descent, and many others from these ethnic groups are active in commerce, manufacturing, and education (González 1992; Pine 2008). Unsurprisingly, these minorities' membership in the middle- and

upper-classes is extensive enough to attract racism and contempt, such as graffiti I saw spray-painted on a wall bordering a *colonia* that read: “FUERA DE HONDURAS JUDIOS, PALESTINOS Y ARABES” (*Get out of Honduras Jews, Palestinians and Arabs*). Even one of my participants made evident the merciless suspicion with which these groups are regarded:

We’ve got many nationalities. So much, I don’t know why we don’t go berserk! I got French, I got this...oh God! Indian, Negro, you name it. Ah! We might even have Chinese, who knows!? One I would like to know why, that’s Arab; I don’t like those people at all, from what they did that in New York. Uh uh. I thought they was better people than that. I just dislike them. I don’t hate em, I just dislike em. Cause, you know, to think of something like that where they do that to the Twin Towers? Only the devil from hell can do something like that; kill all those innocent people like that. Can’t stand em. I don’t know why the United States lets em in the country. You can’t trust em! Can’t trust them people. Cause see, they study up there and all that, and then turn around and do evil to the country that gave em an education and all that! That’s not right...

Hondurans of European descent are another ethnic group that constitute only one percent of the population, yet despite their small numbers, the group is saturated with historic symbolism of power and oppression. Honduras has been at the political and economic mercy of the United States since independence in 1821, such that Caucasians symbolically represent the ethnically marked ruling class, and further reaffirm ‘what it means’ to be *mestizo*, *mulatto*, African, or indigenous peoples. “Hondurans form their ideas of themselves largely in opposition to what they are not – their Other” (Pine 2008:4). Nonetheless, not all Hondurans of European descent are constituents of the ruling class, and one participant explained that these individuals are treated no differently than their fellow countrymen.

Still, Hondurans can spot ‘*the Other*’ when they see it, as was my experience. Despite my best efforts to not bring attention to myself, I clearly stood out as someone ‘from the United States,’ often being addressed by adults and children as *gringo*, which translates to ‘Yankee’ in Honduras. *Gringo* is sometimes used derogatorily throughout Latin America, but is a mostly

neutral term in Honduras meaning *American*, so I was not intimidated by the label. However, I was taken aback when while walking in downtown San Pedro Sula with my research assistant Stephanie and her sister, four men in a passing car shouted “*Gringo gay*” to me.

“Gringo gay? What does that mean?” I asked Stephanie.

“They called you a gay gringo” she replied rolling her eyes and chuckling.

“Aw, that’s not nice. Why did they say that?” I retorted.

“They’re just jealous of you because you’re American and they’re not. Don’t worry about it” she reaffirmed. My appearance never caused me any difficulties; I was treated equally with a facade of courtesy shown to tourists, the warmth and the hospitality of a welcome guest, and the suspicion of meddling outsider. In fact, it may have worked in my favor: I elicited gasps of horror when describing to Stephanie and her friends the places I had walked alone before meeting them.

“It’s because you’re a gringo. They don’t touch Americans around here, because those who do suffer consequences” they explained to me. The following passage details one afternoon in San Pedro Sula, and highlights, in my opinion, various social issues like poverty and income inequality, as experienced through the subjective lens of a naïve and optimistic graduate student from ‘*los estados*.’

A warm, humid gust of wind blew through the open windows of my research assistant Stephanie’s 2000 Hyundai Elantra, on a sweltering, sunny day in San Pedro Sula. We were on our way to meet a group of her friends at a café near the City Mall, a beautifully designed three-story building with a bi-level parking garage, food court with panoramic glass windows overlooking the surrounding Sula Valley, a multi-theater cinema, and what seemed like any store imaginable, selling everything from the most contemporary fashion to the latest electronics.

As the automobile idled at a red light, a young boy, perhaps nine or ten years of age, meandered into the traffic clutching a dirty, plastic water bottle and a long stick with a smoldering flame on the end. Taking a hasty quaff from the bottle, the boy raised the torch and spewed the liquid, which was gasoline, into

the flame to produce an impressive fireball. As is customary, people in the surrounding cars stretched out their hands holding one or two crumpled Lempira, as the boy hurriedly collected his earnings, managing a quick “*adiós*” to each donor as the light turned green and traffic resumed.

Roughly a mile past the stoplight as the mall entered our view, a police officer, heavily clad in black cargo pants, a bullet-proof vest, a round helmet, and armed with an automatic machine gun, stepped in front of the automobile, motioning for my research assistant to pull the car over. Slowly approaching the driver-side window, he requested Stephanie’s license, carefully observing the information while another officer peered sternly from the passenger-side window.

“Who is he?” the officer demanded, gazing at me with ever-growing suspicion hidden behind dark aviator glasses.

“He’s my friend from the states. He’s just visiting for a few weeks this summer. Do you want to see his passport?” Stephanie offered. The officer contemplated, momentarily locking eyes with his partner before handing back the license and motioning us to continue.

Arriving at the mall, we parked on the first floor of the garage and made our way to the entrance, passing a line of poorly dressed men and women scattered across the sidewalk with hands stretched out, staring blindly at each passerby in hopes of a contribution. As we neared the mall entrance an older woman with long dreadlocks, a worn old shirt, and a trash bag tied around her lower body approached us.

“Gringo! You dollar me!” she demanded in English, loudly hissing like a cat.

“Don’t pay attention to her. She is always getting arrested for bothering people” Stephanie urged. Unhappy with being ignored, the woman hissed louder and continued to request my attention as we walked inside the building.

“Gringo! Gringo! Gringo!”

The mall provided imagery with which I was well familiar: children grinning happily on mechanical rides, families enjoying a meal at Burger King or Applebees, professionally-dressed store clerks eagerly assisting shoppers, and a long line of teenage boys and girls, patiently waiting to purchase movie tickets. Stephanie’s friends excitedly greeted us at the café wearing jubilant smiles and exchanging kisses on both cheeks. Over numerous cups of dark, robust Honduran coffee, they chatted and discussed various topics: how difficult a professor is, who is dating who, what events are going on downtown this weekend. Suddenly I felt the light tap of a hand on my shoulder, and turned around to find a young boy, dirty though not poorly dressed, staring me in the face with dark, sunken eyes.

“Gringo, I so hungry. Please give me money” he pleaded while rubbing his hand over his stomach.

“Don’t give him any money. He’s not going to use it for food” Stephanie’s friends warned. The situation put me in an awkward position, torn between meeting the child’s request and knowing that the money may be used for alcohol or drugs.

“Please gringo? I have pain in my stomach” he begged one more time, as I was again warned not to meet his appeal.

“You are hungry?” I asked the young boy.

“¡Sí Gringo! ¡Tengo much hambre!” Pressed to help the boy without disregarding the caution of my research assistant and her friends, I offered him a proposition.

“I will buy you food from any restaurant in here. Whatever you want, tell me and I’ll buy it for you.”

“No!” he replied. “You give me money gringo!” I shook my head, disappointed at his refusal to compromise, and reiterating my offer once more.

“I don’t want any food. I want money!” the boy retorted. Before he walked away, he stared at me while pointing to the skin on his forearm, and in a gloomily-toned voice remarked: “I’m a gringo too, you know.”

CHAPTER FOUR

METHODS

Overview

The mixed-methods study was conducted in two separate subsamples: one rural from Copán Ruinas in the department of Copán and one urban from San Pedro Sula in the department of Cortés. Cultural domain analysis was carried out in two stages, the first of which involved a 60-minute, semi-structured interview schedule (Appendix A) that included open-ended questions and informal freelistings tasks to elicit symptoms associated with a number of health disorders, both biomedical and ethnomedical, which are often regarded as mental illnesses. The second stage of data collection focused on the cultural syndrome *nervios*, the health disorder for which participants in the first stage provided the greatest number of terms. It involved a 15-20 minute semi-structured interview schedule (Appendix C) with open-ended questions, a formal freelisting task, an unconstrained pilesort, and a ranking task to determine the degree of sharing among respondents. Data collection took four weeks to complete and lasted from June 6, 2011 – July 3, 2011; 1.5 weeks were dedicated to the first phase of research and 2.5 to the second. The objective of research was two-fold: **(Objective I)** investigate how illness beliefs for the cultural syndrome *nervios* manifest among rural and urban populations, testing the hypothesis that Honduran urban participants' cultural model of *nervios* corresponds more closely to biomedical diagnostic criteria for generalized anxiety disorder and major depressive disorder than that of rural ones; **(Objective II)** using cognitive anthropological techniques, test for the presence of shared knowledge and understanding of the cultural syndrome *nervios*, and identify factors that

shape this knowledge. The work aims to contribute to the cultural syndrome literature, the biocultural literature, as well as cognitive literature, by providing a salient example of how cultural models emerge.

Sampling

The first phase of research involved an opportunistic sample of $n=5$ participants in both San Pedro Sula and Copán Ruinas, and included the perspectives of three health specialists (biomedical and ethnomedical) and two lay participants, for a total of $n=10$ participants older than 19 years of age. In the urban sample, health specialists were selected from private hospitals and lay perspectives from *Colonia Smith* and *Barrio El Benque*. Health specialists from the rural sample were chosen from private practices and lay perspectives from *Barrio El Centro*. *Barrio* is the Spanish word for ‘neighborhood,’ though in urban areas *colonias* consist of middle to upper class residents and *barrios* of urban poor, and were chosen to represent different socioeconomic levels.

The second phase of research involved a quota by cluster sampling strategy of $n=25$ in the urban sample, and a quota sampling strategy of $n=25$ in the rural, for a total of $n=50$ participants older than 19 years of age. In an effort to include an equal number of participants with regard to gender, age, and socioeconomic status, participants from San Pedro Sula were chosen from *Colonia Smith*, *Colonia Jardines*, *Barrio El Benque*, and *Barrio Barandillas*. Participants from the rural sample were selected from *Barrio El Centro* and *Barrio Buena Vista*. In both samples and for each stage of research, interviews took place immediately following consent in either public areas or respondents’ place of work, since the nature of the questions

being asked were related to knowledge only, and did not require privacy to inquire about participants' personal experience with *nervios*.

Human Subjects

Ensuring the protection of human subjects was the highest priority of research, and all respondents were first invited before their participation was assumed. Upon agreeing to be included in the study and prior to collection of data, a statement of informed consent was read to all participants explaining the topic of the research, nature of the questions being asked, approximate duration of the interview, and compensation offered. Additionally, potential risks associated with participating in the study were made explicit, and respondents informed of their right to withdraw from the study at any time, as well as refuse to respond to questions they did not wish to answer. Once individuals clearly understood the research procedures, their verbal agreement to be included in the study was accepted as evidence of informed consent.

Participants' names were not recorded on the data collection forms and are untraceable to any particular respondent. Only a Case ID number for identification purposes, the date, and each individual response were recorded on the interview schedules. All completed data forms were secured in a locked office where only the investigator and his advisor could access them. The short duration of each interview and on-the-spot invitation process ensured absolute participant anonymity. The risks involved were not greater than those encountered in the activities of everyday life, and posed no potential risk to physical, political, economic, or social wellbeing. The sole purpose of the questions was to elicit knowledge of various health disorders without inquiring about personal experience, and therefore posed no potential risk of psychological distress.

Data Collection

Cultural domain analysis is a process involving three stages of analysis that includes eliciting terms salient to a domain, exploring the structure of a domain, and determining the degree to which participants agree with a shared cultural model, a procedure known as cultural consensus analysis (Borgatti 1994). Therefore, data collection was performed in two separate phases of research, each with its own interview schedule and respective tasks. For Interview Schedule I, three health specialists (biomedical and ethnomedical) and two lay perspectives from each sample were presented ten introductory questions to collect demographic information and nine open-ended questions to examine the domain of mental health disorders. This data provided the terms with which the 29-item unconstrained pilesort and consensus analysis were designed. Demographic information included date of birth, gender, civil status (single, in a relationship, engaged, married, widowed, divorced), number of children including age and gender of each, number of individuals living in household and their relationship to each, occupation, highest level of education completed, religion, frequency of religious activities (never, once a week, 2-4 times a week, every day), and monthly household income in Honduran lempira.

Open-ended questions were initiated by first asking participants, quite generally, “What are the common illnesses that make people sick?” The broad nature of this question was so as not to bias responses by indicating a specific interest in mental disorders, as many cultural syndromes are understood within a unity of mind and body (Kleinman 1988). The two subsequent questions gradually probed deeper into the domain of mental disorders, asking respondents “Are there any types of illness that cause people to think, behave, or feel differently than they would normally?” and “Are you familiar with the term mental illnesses? What mental illnesses are you familiar with or have heard of?” For each referenced illness, participants were

asked to freelist associated symptoms, explain causality, and identify at-risk populations, appropriate treatment, and typical outcomes. The following six questions queried participants' knowledge of specific disorders, including depression, *ataques de nervios*, *nervios*, *susto*, *grisi siknis*, and *mal de ojo*, and also required respondents to freelist associated symptoms, explain causality, identify at risk populations, and suggest appropriate treatments and typical outcomes for each.

Ataque de nervios (attack of nerves) is an acute form of *nervios* often compared to panic attacks and dissociative disorders, with symptoms including trembling, heart palpitations, *calor*, numbness, shouting, swearing, causing harm to others, convulsive movement, and fear of being alone (Liebowitz et al. 1994). *Susto* (fright) is the belief that a frightful incident may cause one's soul to become dislodged from the body, with symptoms like agitation, apathy, loss of appetite, decreased attention toward appearance and hygiene, physical weakness, depression, and nervousness (Rubel 1964). Common among children and small infants, the origins of *mal de ojo* (evil eye) are traceable to Mediterranean cultures, and the illness represents a sometimes intentional draining of a victim's soul by gazing at them, which causes uncontrollable crying, restlessness, diarrhea, vomiting, and fever (O'Neil 2006). *Grisi siknis* (not Spanish, literally 'greasy sickness') affects female Miskito Indians who are believed to have been assaulted or raped by devils, producing symptoms that include loss of consciousness and violent behavior towards self and others (Dennis 1981).

Participants in the urban sample included a neuropsychologist, pediatrician, pathologist, a male from *Colonia Smith*, and a female from *Barrio El Benque*, while the rural sample included a general practitioner, an herbal healer, an alternative medicine physician, and a male and female respondent from *Barrio El Centro*. Freelisted symptoms from all ten interviews were collated

for each illness, and the one with the greatest number of symptoms, *nervios*, was adapted for Interview Schedule II.

The second stage of research included a total of 50 new participants from both samples; however, in contrast to the prior phase only lay perspectives were sought. The only criterion involved respondents' familiarity with the cultural syndrome *nervios*, confirmed during the initial invitation to participate as the question: "¿Ha escuchado sobre los *nervios*?" (Are you familiar with *nervios*?). For Interview Schedule II, participants were asked the same ten demographic questions included in Interview Schedule I. Next, they were asked to freelist all symptoms associated with the disorder. Each individual was read back their freelisted symptoms and asked if they could remember any more, in an effort to exhaust as many terms as possible. In addition to eventual analyses, one purpose of this second freelisting task was to confirm the validity of freelisted symptoms from Interview Schedule I, as they were included in subsequent pilesort and ranking tasks.

For the unconstrained pilesort, participants were presented with twenty-nine cards, each containing a freelisted symptom of *nervios*, and given the following instructions:

Each of these twenty-nine cards contains a symptom that people have named for the illness *nervios*. Using all of your knowledge, organize these symptoms into groups based on their similarity. There is no right or wrong way to group the symptoms and this is not a test of intelligence. The only rule is that there has to be more than one group, and less than twenty-nine, but otherwise I am interested in your opinion of which symptoms are related to each other.

Participants' dynamic of categorization was closely monitored to ensure that they not only understood the instructions, but were literate. In the latter instance, participants were read two initial terms and asked if they belong together or in separate groups. The researcher then read each additional term and asked if it belonged in any of the existing groups or in a group of its own, often rereading the terms in the existing groups. Participants were then reread the terms in

each group to ensure their satisfaction with their final decision. Upon completion of the unconstrained pilesort task, groups were recorded by a reference number on the reverse of each card (initially out of view to the participant), and respondents queried as to their justification for creating each group.

The informal method of consensus analysis was carried out with the ranking task, in which the twenty-nine symptom cards were shuffled and presented one at a time to participants, who were asked for each whether the symptom is “in your opinion, always, sometimes, or never associated with *nervios*?” The purpose of this task was to gauge the degree to which respondents agree on a potential shared cultural model of *nervios*. Responses were recorded, and upon completion participants’ ranking of each symptom was repeated in the form of a statement to confirm their judgment. For example, if one responded that anxiety is always a symptom of *nervios*, they were asked: “You responded that anxiety is always a symptom of *nervios*. Are you satisfied with your answer?”

Data Analysis

Data analysis proceeded in three stages, and the hypothesis analyzed in several ways. Demographic data from Interview Schedule II, including site, date of birth, gender, civil status, number of children, number of individuals living in household, occupation, highest level of education completed, religion, frequency of religious activities, and monthly household income, were entered into PASW Statistics 18.0 software. Several variables were recoded into new ones for purposes of running statistical tests. Date of birth was recoded into the continuous variable age and a dichotomous variable divided at the mean. Occupation was collapsed from thirty-two responses into six categories, including unemployed, student/retired, unskilled, skilled,

intermediate, and professional (DHSS 1980). Similarly, highest level of education was collapsed into none, primary school, middle school, high school, some university/2 year degree, and university and beyond. Religion was recoded into two separate variables, the first with the categories Roman Catholic, Protestant, and Other/No Religion, and the second a dichotomous variable consisting of Religion Identified and No Religion Identified. Monthly household income was converted to US dollars and calculated as annual household income (\$). Lastly, income percentiles, weighted occupation, and weighted education were combined to calculate a measure of socioeconomic status on a ten-point scale, with 1 being the lowest and 10 being the highest. Independent sample t-tests and nonparametric independent sample tests were used to compare age, SES, yearly household income, residents in household, and number of children, between rural and urban subsamples. A Pearson Chi-Square Goodness of Fit test between sites was possible for gender of participant and religion (3 categories). Due to the small sample size, in all tests, statistical significance was indicated by $p \leq 0.10$.

For analysis of **Objective (I)**, freelist responses from Interview Schedule II were analyzed through the creation of five continuous variables, the first of which includes the total number of symptoms freelisted by each participant for *nervios*. The next two variables include the total number of freelisted symptoms for *nervios* also listed in the DSM-IV as symptoms for GAD and MDD, respectively. These three variables were utilized in calculating the last two, which represent the proportion of symptoms recognized in the DSM-IV to the total number of symptoms freelisted, with each expressed as a percentage. For all five variables, results were expressed for the total sample and rural and urban subsamples, and compared across and within the subsamples, gender, age (dichotomous), SES, and religion (dichotomous), using independent sample t-tests and nonparametric independent sample tests. Additionally, the percentage of

freelisted symptoms also recognized for GAD and MDD were respectively analyzed using regression analysis, controlling for gender, age, SES, religion (dichotomous), and highest level of education. Statistical significance in all tests was indicated by $p \leq 10$. Lastly, the salience of DSM-IV terms for GAD and MDD are descriptively compared.

For analysis of **Objective (II)**, the ranking task from Interview Schedule II was analyzed using cultural consensus analysis in AnthroPac software to test for agreement regarding a cultural model of *nervios* and generate ‘culturally correct responses’ for each symptoms within the total sample and subsamples. Individual competence scores and residuals from the consensus output were analyzed in PASW Statistics 18.0 software using regression analysis, controlling for gender, age, SES, religion (dichotomous), and highest level of education, to identify factors shaping the model. Unconstrained pilesort data was entered into AnthroPac software (Borgatti 1996) and analyzed, via an aggregate proximity matrix, with non-metric multidimensional scaling to visually represent in a reduced dimensional space the collective organization of the cultural model of *nervios*. Hierarchical cluster analysis was utilized to identify similarities among terms and reveal clusters of associated symptoms. In addition to performing multidimensional scaling and hierarchical cluster analysis on pilesorts from the total sample, results were also compared by subsample, gender, and age.

CHAPTER FIVE

RESULTS

Descriptive Characteristics

A total of 50 participants over the age of 19 responded to ten questions gathering demographic information on age, gender, civil status, number of children, number of people in household, occupation, religion, frequency of religious activities, annual household income in US dollars, and education (first part of Interview Schedule II, **Appendix C**). An equal number of participants ($n=25$) were sampled from Copán Ruinas in the department of Copán (rural sample) and San Pedro Sula in the department of Cortés (urban sample). These basic demographic characteristics are reported in **Table 5.1** and **Table 5.2**, and were analyzed for the total sample in addition to rural and urban subsamples.

Table 5.1. Descriptive characteristics. *Mean ± standard deviation* shown for age (yrs), SES, residents in household, and number of children. *Median* shown for yearly income (\$).

Demographic Variables	Total ($n=50$)	Copán ($n=25$)	San Pedro Sula ($n=25$)	<i>p</i>
Age (yrs)	40.52 ± 17.84	39.04 ± 16.37	42.00 ± 19.42	.563 ^a
Socioeconomic Status (SES)†	5.78 ± 2.26	4.76 ± 1.73	6.80 ± 2.29	.002 ^b
Yearly Income in US Dollars	\$4,421.05	\$2,842.11	\$12,731.58	.000 ^b
Residents in Household	4.72 ± 2.60	5.08 ± 2.93	4.36 ± 2.22	.332 ^c
Number of Children	1.74 ± 2.25	2.04 ± 2.73	1.44 ± 1.64	.735 ^b

†Recoded from a combination of income percentiles, weighted occupation, and weighted education to rank on a 1-10 ladder (1=lowest; 10=highest).

^a From independent samples t-test assuming equal variance between Copán and San Pedro Sula participants.

^b From nonparametric independent samples test between Copán and San Pedro Sula participants.

^c From independent samples t-test not assuming equal variance between Copán and San Pedro Sula participants.

The average age of the total sample is 40.5 (sd=17.8). Participants from San Pedro Sula are slightly older on average (42.0 ± 19.4) than those from Copán (39.0 ± 16.4), however the difference is not significant ($t = -.583, p = .563$). SES ranked on a ten-point scale with 1 being lowest and 10 being highest reveals a significant difference ($z = -3.148, p = .002$) between rural (4.8 ± 1.7) and urban (6.8 ± 2.3) participants. Similarly, median annual household income for urban participants (\$12,731.58) is also significantly higher than rural counterparts (\$2,842.11; $z = -4.227, p = .000$). The number of residents in household and number of children in household are both higher in the rural population ($5.1 \pm 2.9; 2.0 \pm 2.7$) than the urban ($4.4 \pm 2.2; 1.4 \pm 1.6$), however neither difference is significant ($t=.980, p=.332; z=-.338, p=.735$).

As a result of the quota sampling strategy, there are equal numbers ($n=25$) of females and males in the total sample. This distribution is also relatively equal within subsamples, with forty-eight percent ($n=12$) females from Copán and fifty-two percent ($n=13$) females from San Pedro Sula. For relationship status, the largest proportion of respondents reported being single (44%) in the total sample ($n=22$), as well as in rural ($n=11$) and urban ($n=11$) subsamples. Similarly, roughly a quarter (26%) of all participants reported being married ($n=13$), with a slightly higher proportion (28%) among rural respondents ($n=7$) than urban ones ($n=6$).

There are major occupational differences between the subsamples. Ninety-two percent of Copán participants ($n=23$) work skilled- or unskilled-level jobs while the remaining rural respondents report intermediate- and professional-level jobs. Intermediate-level jobs include professions requiring a university degree, such as school teacher or a position in upper management, but do not necessitate an advanced degree as do professional-level jobs.

Table 5.2. Descriptive characteristics (cont). Frequency and percentages shown for gender, civil status, occupation, highest level of education, religion and frequency of religious activity.

Demographic Variables	Total	Copán	San Pedro Sula
	(n=50)	(n=25)	(n=25)
Gender			
Female	25 (50%)	12 (48%)	13 (52%)
Male	25 (50%)	13 (52%)	12 (48%)
Relationship Status			
Single	22 (44%)	11 (44%)	11 (44%)
In a relationship	7 (14%)	4 (16%)	3 (12%)
Married	13 (26%)	7 (28%)	6 (24%)
Widowed	5 (10%)	2 (8%)	3 (12%)
Divorced	3 (6%)	1 (4%)	2 (8%)
Occupation			
Unemployed	2 (4%)	0 (0%)	2 (8%)
Student/Retired	8 (16%)	0 (0%)	8 (32%)
Unskilled	18 (36%)	15 (60%)	3 (12%)
Skilled	10 (20%)	8 (32%)	2 (8%)
Intermediate	9 (18%)	1 (4%)	8 (32%)
Professional	3 (6%)	1 (4%)	2 (8%)
Highest Level of Education			
None	2 (4%)	2 (8%)	0 (0%)
Primary School	15 (30%)	11 (44%)	4 (16%)
Middle School	3 (6%)	1 (4%)	2 (8%)
High School	7 (14%)	2 (8%)	5 (20%)
Some University/2yr Degree	7 (14%)	7 (28%)	0 (0%)
University and Beyond	16 (32%)	2 (8%)	14 (56%)
Religion			
Roman Catholic	21 (42%)	11 (44%)	10 (40%)
Protestant	11 (22%)	6 (24%)	5 (20%)
Other/No Religion	18 (36%)	8 (32%)	10 (40%)
Frequency of Religious Activities			
Never	12 (24%)	4 (16%)	8 (32%)
One time a week	7 (14%)	4 (16%)	3 (12%)
2-4 times a week	14 (28%)	9 (36%)	5 (20%)
Most days of the week	5 (10%)	5 (20%)	0 (0%)
Everyday	12 (24%)	3 (12%)	9 (36%)

Conversely, occupation is widely distributed in the urban sample: intermediate-level jobs ($n=8$) and student/retired ($n=8$) each represent thirty-two percent of the sample, twelve percent work unskilled-level jobs ($n=3$), and eight percent are in each of the remaining occupational levels ($n=2$). The largest proportion of participants (32%) reported attaining a university education or beyond, the majority of whom (~88%) are from San Pedro Sula. Most (44%, $n=11$) in Copán reported primary school as the highest level of education, making it the second greatest proportion (30%, $n=15$) in the total sample. However, twenty-eight percent in Copán reported attending some university or earning a 2 year degree ($n=7$).

Nearly half (42%, $n=21$) reported their religion as Roman Catholic, while twenty-two percent identified some Protestant denomination ($n=11$) and the remainder (36%, $n=18$) reported other or no religion. Overall, a comparatively equal number of participants in the total sample practice religious activities either never, 2-4 times a week, or every day. There is a higher frequency of San Pedro Sula participants at either extreme, with thirty-six percent engaging in daily religious activities ($n=9$) and thirty-two percent never engaging in religious activities ($n=8$), while the greatest proportion of rural participants (36%) report religious activities 2-4 times a week. No significant differences exist for the descriptive characteristics in **Table 5.2**.

Comparison of Subsamples to DSM-IV Diagnostic Criteria

Symptoms of *nervios* listed by participants were compared to DSM-IV diagnostic criteria for GAD and MDD (listed in **Table 5.3**). The total number of symptoms freelisted are reported in **Table 5.4** for the total sample as well as Copán and San Pedro Sula subsamples, and is also compared between gender, age, SES, and religion.

Table 5.3. DSM-IV diagnostic criteria for generalized anxiety disorder and major depressive disorder.

Generalized Anxiety Disorder	Major Depressive Disorder
Anxiety or excessive worry	Depressed Mood
Difficulty controlling worry	Loss of interest or pleasure
Restlessness	Change in appetite
Being easily fatigued	Insomnia or hypersomnia
Difficulty concentrating	Psychomotor agitation or retardation
Irritability	Fatigue
Muscle Tension	Feelings of worthlessness or guilt
Sleep Disturbance	Indecisiveness
	Thoughts of death or suicide

Table 5.4. Total number of symptoms freelisted for *nervios*. Mean \pm standard deviation shown.

	Total	Copán	San Pedro Sula	<i>p</i>
	(n=50)	(n=25)	(n=25)	
Total Number of Symptoms Listed for Nervios	5.06 \pm 2.58	5.68 \pm 3.29	4.44 \pm 1.42	.332 ^a
Female (n=25)	5.72 \pm 2.56	6.42 \pm 3.29	5.08 \pm 1.50	.576 ^a
Male (n=25)	4.40 \pm 2.48	5.00 \pm 3.27	3.75 \pm 0.97	.208 ^c
<i>p</i>	.010^a	.142 ^a	.016^b	
Age < m (n=27)	5.04 \pm 1.65	5.36 \pm 2.13	4.69 \pm 0.86	.297 ^c
Age \geq m (n=23)	5.09 \pm 3.41	6.09 \pm 4.44	4.17 \pm 1.85	.204 ^c
<i>p</i>	.288 ^a	.642 ^b	.365 ^b	
SES < M (n=26)	4.86 \pm 3.08	5.40 \pm 3.55	3.67 \pm 1.00	.263 ^a
SES \geq M (n=24)	5.33 \pm 1.71	6.80 \pm 1.79	4.88 \pm 1.46	.041^a
<i>p</i>	.071^a	.128 ^a	.046^b	
Religion (n=32)	5.13 \pm 2.76	5.65 \pm 3.55	4.53 \pm 1.30	.701 ^a
No Religion (n=18)	4.94 \pm 2.31	5.75 \pm 2.87	4.30 \pm 1.64	.237 ^a
<i>p</i>	.837 ^a	.656 ^a	.627	

^a From nonparametric independent samples test.

^b From independent samples t-test assuming equal variance.

^c From independent samples t-test not assuming equal variance.

On average, the number of symptoms listed for the total sample is 5.1 (sd=2.6); San Pedro Sula participants freelisted a lower number of symptoms (4.4 ± 1.4) than their rural counterparts (5.7 ± 3.3), however the difference was not significant ($z = -.979, p = .332$). A similar trend is repeated throughout the additional comparisons between gender, age, SES, and religion, with Copán providing more symptoms than San Pedro Sula in all categories, yet most of the differences are not significant. The only subgroup with a significant difference ($z = -2.047, p = .041$) is high SES, with rural participants listing 6.8 (sd=1.8) symptoms compared to 4.9 (sd=1.5) among urban ones. Comparisons between gender were significant for the total sample ($z = -2.562, p = .01$) and urban subsample ($z = -2.466, p = .016$), with females freelisting more symptoms of *nervios* than men. Similarly, significant differences were found again in the total sample ($z = -1.806, p = .071$) and urban subsample ($t = -2.11, p = .046$) for comparisons between low SES and high SES.

Freelisted symptoms recognized in the DSM-IV are reported in **Table 5.5** for the total and subsamples as well as for gender, age, SES, and religion. There is a significant difference ($z = -2.023, p = .043$) in symptoms for GAD between Copán (1.7 ± 1.3) and San Pedro Sula (2.4 ± 1.3). This trend is consistent across comparisons between gender, age, SES, and religion, with urban participants on average providing a greater number of symptoms recognized for GAD than rural participants. However, the only significant differences were between Copán and San Pedro Sula in general and among younger participants ($z = -3.025, p = .002$), with more symptoms recognized for both in the urban subsample. Additionally, all comparisons between subgroups for GAD reveal a higher frequency of freelisted symptoms in the urban subsample. The only significant difference between subgroups was for SES ($z = -2.00, p = .046$), with participants of

Table 5.5. Freelisted symptoms recognized in DSM-IV. *Mean ± standard deviation* shown for generalized anxiety disorder and major depressive disorder.

	Total	Copán	San Pedro Sula	<i>p</i>
	(<i>n</i> =50)	(<i>n</i> =25)	(<i>n</i> =25)	
Generalized Anxiety Disorder	2.02 ± 1.33	1.68 ± 1.31	2.36 ± 1.29	.043^a
Female (<i>n</i> =25)	2.12 ± 1.54	1.67 ± 1.50	2.54 ± 1.51	.161 ^b
Male (<i>n</i> =25)	1.92 ± 1.12	1.69 ± 1.18	2.17 ± 1.03	.188 ^a
<i>p</i>	.601 ^b	.887 ^a	.556 ^a	
Age < m (<i>n</i> =27)	1.89 ± 0.97	1.36 ± 0.84	2.46 ± 0.78	.002^a
Age ≥ m (<i>n</i> =23)	2.17 ± 1.67	2.09 ± 1.70	2.25 ± 1.71	.821 ^a
<i>p</i>	.476 ^b	.457 ^a	.433 ^a	
SES < M (<i>n</i> =26)	1.72 ± 1.25	1.70 ± 1.38	1.78 ± 0.97	.505 ^a
SES ≥ M (<i>n</i> =24)	2.43 ± 1.36	1.60 ± 1.14	2.69 ± 1.35	.122 ^b
<i>p</i>	.046^a	.666 ^a	.867 ^b	
Religion (<i>n</i> =32)	2.06 ± 1.34	1.76 ± 1.15	2.40 ± 1.50	.196 ^a
No Religion (<i>n</i> =18)	1.94 ± 1.35	1.50 ± 1.70	2.30 ± 0.95	.117 ^a
<i>p</i>	.767 ^b	.447 ^a	.977 ^a	
Major Depressive Disorder	0.96 ± 1.16	1.12 ± 1.17	0.80 ± 1.16	.163 ^a
Female (<i>n</i> =25)	1.32 ± 1.31	1.50 ± 1.31	1.15 ± 1.35	.393 ^a
Male (<i>n</i> =25)	0.60 ± 0.87	0.77 ± 0.93	0.42 ± 0.79	.227 ^a
<i>p</i>	.024^a	.075^a	.123 ^a	
Age < m (<i>n</i> =27)	0.78 ± 0.93	0.86 ± 0.77	0.69 ± 1.11	.281 ^a
Age ≥ m (<i>n</i> =23)	1.17 ± 1.37	1.45 ± 1.51	0.92 ± 1.24	.301 ^a
<i>p</i>	.356 ^a	.324 ^a	.537 ^a	
SES < M (<i>n</i> =26)	0.86 ± 1.093	1.00 ± 1.21	0.56 ± 0.73	.328 ^a
SES ≥ M (<i>n</i> =24)	1.10 ± 1.261	1.60 ± 0.89	0.94 ± 1.34	.146 ^a
<i>p</i>	.756 ^a	.110 ^a	.540 ^c	
Religion (<i>n</i> =32)	0.97 ± 1.23	1.00 ± 1.23	0.93 ± 1.28	.642 ^a
No Religion (<i>n</i> =18)	0.94 ± 1.06	1.38 ± 1.06	0.60 ± 0.97	.081^a
<i>p</i>	.906 ^a	.279 ^a	.488 ^a	

^a From nonparametric independent samples test.

^b From independent samples t-test assuming equal variance.

^c From independent samples t-test not assuming equal variance.

high SES freelisting more symptoms recognized for GAD (2.4 ± 1.4) than those of low SES (1.7 ± 1.3).

Conversely, San Pedro Sula participants provided a lower number of symptoms recognized for MDD than those in Copán, and this trend is consistent throughout subgroups. That is, rural participants all around listed a greater number of symptoms recognized for MDD, though the only significant difference ($z=-1.745, p=.081$) is among those reporting no religion, with Copán participants listing 1.4 ($sd=1.1$) symptoms, noticeably higher than urban respondents (0.6 ± 1.0). There were also significant differences found in comparisons by gender in the total sample ($z = -2.26, p = .024$) and rural subsample ($z = -1.783, p = .075$).

The percentage of symptoms recognized in the DSM-IV are listed in **Table 5.6**. The average percentage of DSM-IV symptoms for GAD in the total sample is 44.4% ($sd=27.9$), with a highly significant difference ($t = -2.75, p = .008$) between Copán ($34.2\% \pm 26.3$) and San Pedro Sula ($54.6\% \pm 26.1$). Female participants in Copán ($25.6\% \pm 22.6$) freelisted a significantly higher percentage of symptoms for high SES ($54.7\% \pm 21.9; t=-3.025, p=.007$) and no reported religion ($55.9\% \pm 21.2; t=-3.343, p=.004$) than in the rural subsample ($22.5\% \pm 15.8; 22.7\% \pm 20.6$). There were no significant differences in comparisons among subgroups.

The percentage of freelisted symptoms recognized for MDD was greater among urban participants in all subgroups except between those of high SES and reporting no religion. There are only slight differences between subsamples and subgroups, in comparison to those freelisted for GAD, and none of the differences for MDD were significant. However, there was a significant difference in the total sample ($z = -1.954, p = .051$) for comparisons between females ($21.8\% \pm 17.8$) and males ($12.4\% \pm 18.3$).

Table 5.6. Percentage of freelisted symptoms recognized in DSM-IV. *Mean ± standard deviation* shown for generalized anxiety disorder and major depressive disorder.

	Total (<i>n</i> =50)	Copán (<i>n</i> =25)	San Pedro Sula (<i>n</i> =25)	<i>P</i>
Percentage of Symptoms recognized for Generalized Anxiety Disorder	44.40% ± 27.89	34.21% ± 26.25	54.59% ± 26.14	.008^b
Female (<i>n</i> =25)	39.39% ± 29.23	25.70% ± 22.62	52.02% ± 29.66	.021^b
Male (<i>n</i> =25)	49.41% ± 26.10	42.07% ± 27.74	57.36% ± 22.68	.147 ^b
<i>p</i>	.207 ^b	.121 ^b	.620 ^b	
Age < m (<i>n</i> =27)	41.55% ± 24.57	29.89% ± 24.30	54.10% ± 18.40	.014^a
Age ≥ m (<i>n</i> =23)	47.75% ± 31.58	39.72% ± 28.75	55.11% ± 33.46	.251 ^a
<i>p</i>	.688 ^a	.408 ^a	.913 ^a	
SES < M (<i>n</i> =26)	42.51% ± 30.33	37.14% ± 27.79	54.44% ± 33.96	.159 ^b
SES ≥ M (<i>n</i> =24)	47.01% ± 24.60	22.52% ± 15.84	54.67% ± 21.86	.007^b
<i>p</i>	.519 ^b	.439 ^b	.792 ^a	
Religion (<i>n</i> =32)	46.24% ± 28.92	39.63% ± 27.41	53.72% ± 29.67	.173 ^b
No Religion (<i>n</i> =18)	41.14% ± 26.45	22.71% ± 20.57	55.88% ± 21.19	.004^b
<i>p</i>	.583 ^a	.134 ^a	.933 ^a	
Percentage of Symptoms recognized for Major Depressive Disorder	17.09% ± 18.49	16.77% ± 11.96	17.40% ± 23.55	.906 ^a
Female (<i>n</i> =25)	21.79% ± 17.82	21.65% ± 9.75	21.92% ± 23.41	.868 ^a
Male (<i>n</i> =25)	12.38% ± 18.28	12.27% ± 12.39	12.50% ± 23.70	.460 ^a
<i>p</i>	.051^a	.124 ^a	.243 ^a	
Age < m (<i>n</i> =27)	16.21% ± 20.00	15.78% ± 11.95	16.67% ± 26.67	.381 ^a
Age ≥ m (<i>n</i> =23)	18.12% ± 16.94	18.04% ± 12.44	18.19% ± 20.81	.873 ^a
<i>p</i>	.462 ^a	.447 ^a	.689 ^a	
SES < M (<i>n</i> =26)	15.53% ± 15.98	15.27% ± 12.36	16.11% ± 23.03	.655 ^a
SES ≥ M (<i>n</i> =24)	19.24% ± 21.72	22.80% ± 8.73	18.13% ± 24.55	.381 ^a
<i>p</i>	.613 ^c	.413 ^a	.919 ^b	
Religion (<i>n</i> =32)	16.26% ± 17.64	14.23% ± 12.05	18.56% ± 22.63	.874 ^a
No Religion (<i>n</i> =18)	18.56% ± 20.36	22.19% ± 10.47	15.67% ± 26.01	.242 ^a
<i>p</i>	.676 ^b	.150 ^a	.638 ^a	

^a From nonparametric independent samples test between Copán and San Pedro Sula participants.

^b From independent samples t-test assuming equal variance.

^c From independent samples t-test not assuming equal variance.

Partial correlation coefficients for percentage of symptoms recognized for GAD and MDD controlling for covariates site, gender, age, SES, religion, and highest level of education are reported in **Table 5.7**. Site is the only significant variable for GAD ($r = .436$; $p < 0.05$), indicating a greater percentage of freelisted symptoms in San Pedro Sula. The only significant difference found for MDD was gender in the rural sample ($r = -.466$; $p < 0.10$), with rural males listing fewer.

Table 5.7. Partial correlations for percentage of freelisted symptoms recognized for generalized anxiety disorder and major depressive disorder controlling for covariates site, gender, age, SES, religion, and highest level of education, shown for total, Copán, and San Pedro Sula samples.

Covariate	Partial Corr.	
	GAD	MDD
Site	.392**	.004
Gender	.175	-.219
Copán	.091	-.394*
San Pedro Sula	.112	-.145
Age	-.181	-.056
Copán	-.149	.094
San Pedro Sula	-.201	-.092
SES	.099	.063
Copán	.065	.183
San Pedro Sula	.057	.008
Religion	.142	-.028
Copán	.272	-.199
San Pedro Sula	.003	.048
Education	-.165	-.065
Copán	-.192	-.319
San Pedro Sula	-.093	.058

* $p < 0.10$ level

** $p < 0.01$ level

The salience of freelisted symptoms that match DSM-IV diagnostic criteria are reported in **Table 5.8** and **Table 5.9** respectively. Salience refers to a measurement for each freelisted

symptom that is calculated using its frequency, average rank, and the percentage of respondents who mentioned the term. For GAD, seven of eight symptoms were freelisted in Copán compared to six of eight symptoms in San Pedro Sula. Unease and muscle pain were only named by rural participants whereas worrying was listed only by urban ones. Two symptoms, anger and tiredness, had higher salience in the rural sample, while three symptoms, anxiety, insomnia, and aggravation, had higher salience in San Pedro Sula.

Table 5.8. Salience of DSM-IV terms for generalized anxiety disorder.

Symptom	Copán	San Pedro Sula
Anger	0.178	0.053
Anxiety	0.037	0.179
Unease	0.071	-
Tired	0.052	0.020
Insomnia	0.019	0.040
Muscle Pain	0.051	-
Worrying	-	0.053
Aggravation	0.007	0.008

Table 5.9. Salience of DSM-IV terms for major depressive disorder.

Symptom	Copán	San Pedro Sula
Depression	0.082	0.107
Tired	0.052	0.020
Insomnia	0.019	0.040
Sadness	0.025	0.020
Loss of Appetite	0.024	0.016
Indecisiveness	0.032	-
Loss of interest	-	0.015

For MDD, seven of eight symptoms were freelisted in both Copán and San Pedro Sula. Indecisiveness was only named by rural participants whereas loss of interest in usual activities was only listed by urban ones. Additionally, three symptoms, tiredness, sadness, and loss of

appetite, had higher salience among rural participants, in contrast to depression and insomnia, which had higher salience among urban participants.

Assessment of Cultural Model of Nervios

The twenty-nine symptoms of *nervios* freelisted by participants in Interview Schedule I (Table 5.10) were incorporated into a ranking task and unconstrained pilesort, for which responses were entered into AnthroPac software to perform cultural consensus analysis, multidimensional scaling, and hierarchical cluster analysis. Additionally, individual competence

Table 5.10. Symptoms of *nervios* named in initial free-list

Symptom	Label
Anxiety	ANXIETY
Insomnia	INSOMNIA
Trembling	TREMBLE
Stress	STRESS
Nervousness	NERVOUS
Depression	DEPRESS
Crying	CRYING
Hypertension	HYPTENS
Worrying	WORRYING
Panic Attack	PANICATT
Unease	UNEASE
Anger	ANGER
Madness	INSANITY
Aggravation	AGGRVATE
Loss of Sensations	LOSSENSE
Chills	CHILLS
Imagining Things	IMAGINE
Fear	FEAR
Strong Blood	STRNGBLD
Headache	HEADACHE
Neck Ache	NECKACHE
Facial Pain	FACEPAIN
Nervous Ticks	TICKS
Loss of Appetite	LOSSAPP
Desire to be Alone	BEALONE
Causing Hurt to Others	HRTOTHR
Anxious Reactions	ANXREACT
Bad Premonitions	PREMONIT
No Interest in Activities	NOACTVTS

scores and residuals were analyzed in PASW Statistics 18.0 software using regression analysis to identify factors shaping the model including gender, age, SES, religion (dichotomous), and highest level of education. The results are presented in **Tables 5.11-5.15** and **Figures 5.1-5.8**. Major differences were observed in the cultural model of *nervios* in the total sample, Copán and San Pedro Sula.

A weak cultural model was observed for the total sample (**Table 5.11**), with an eigenvalue ratio of 2.25 (3 or greater is recommended) and average cultural competence coefficient of $0.4 \pm \text{SD } 0.3$. Nervousness, worrying, stress, unease, and anxiety are the highest ranked (“agree”) symptoms listed for *nervios*. Responses in Copán (**Table 5.12**) produced an eigenvalue ratio of approximately 1.84, an average cultural competence coefficient of $0.4 \pm \text{SD } 0.2$, and the symptoms ranked highest include nervousness, worrying, insomnia, anger, and hypertension. In San Pedro Sula (**Table 5.13**), the eigenvalue ratio was roughly 2.73, and the average cultural competence coefficient was $0.5 \pm \text{SD } 0.3$. Stress, nervousness, worrying, unease, and anxiety were ranked highest by participants.

In addition to comparing the salience of symptoms between rural and urban participants, another purpose of the freelist from Interview Schedule II was to cross-check the validity of symptoms freelisted for Interview Schedule I (**Table 5.10**) since the sample size ($n=10$) was not large. The ten most salient terms freelisted by the total sample and subsamples are listed in **Table 5.14**. Two of the ten symptoms, sweating and laughter, were named in both samples yet were not present in the initial freelist for *nervios*. These same items were also among the ten most salient symptoms listed by participants in Copán, while each of the ten most salient symptoms named by San Pedro Sula respondents were mentioned in the initial freelist.

Table 5.11. Cultural model of *neuvios* for total sample.

Item	Culturally Correct Response (n=50)
Nervousness	1.00
Worrying	2.00
Stress	3.00
Unease	4.00
Anxiety	5.00
Insomnia	6.00
Anxious Reactions	7.00
Fear	8.00
Hypertension	9.00
Depression	10.00
Bad Premonitions	11.00
Trembling	12.00
Headache	13.00
Chills	14.00
Crying	15.00
Anger	16.00
Aggravation	17.00
Neck Ache	18.00
Desire to be Alone	19.00
Nervous Ticks	20.00
Loss of Appetite	21.00
Imagining Things	22.00
No Interest in Activities	23.00
Facial Pain	24.00
Panic Attack	25.00
Causing Hurt to Others	26.00
Strong Blood	27.00
Madness	28.00
Loss of Sensations	29.00

Eigenvalue ratio: 11.125/4.937
Average ± std deviation: 0.391 ± 0.275

Table 5.12. Cultural model of *neuvios* for rural sample.

Item	Culturally Correct Response (n=25)
Nervousness	1.00
Worrying	2.00
Insomnia	3.00
Anger	4.00
Hypertension	5.00
Depression	6.00
Headache	7.00
Stress	8.00
Chills	9.00
Desire to be Alone	10.00
Unease	11.00
Bad Premonitions	12.00
Crying	13.00
Trembling	14.00
Imagining Things	15.00
Fear	16.00
Aggravation	17.00
Anxious Reactions	18.00
Anxiety	19.00
Facial Pain	20.00
Nervous Ticks	21.00
Loss of Appetite	22.00
Neck Ache	23.00
No Interest in Activities	24.00
Strong Blood	25.00
Causing Hurt to Others	26.00
Panic Attack	27.00
Madness	28.00
Loss of Sensations	29.00

Eigenvalue ratio: 5.236/2.852
Average ± std deviation: 0.406 ± 0.229

Table 5.13. Cultural model of *neuvios* for urban sample.

Item	Culturally Correct Response (n=25)
Stress	1.00
Nervousness	2.00
Worrying	3.00
Unease	4.00
Anxiety	5.00
Anxious Reactions	6.00
Fear	7.00
Trembling	8.00
Bad Premonitions	9.00
Neck Ache	10.00
Insomnia	11.00
Hypertension	12.00
Chills	13.00
Headache	14.00
Crying	15.00
Depression	16.00
Nervous Ticks	17.00
Loss of Appetite	18.00
Aggravation	19.00
Panic Attack	20.00
Desire to be Alone	21.00
No Interest in Activities	22.00
Imagining Things	23.00
Anger	24.00
Facial Pain	25.00
Loss of Sensations	26.00
Causing Hurt to Others	27.00
Strong Blood	28.00
Madness	29.00

Eigenvalue ratio: 7.509/2.752
Average ± std deviation: 0.462 ± 0.310

MOST LIKELY TO BE NAMED AS A SYMPTOM OF NEUVIOS



LEAST LIKELY TO BE NAMED A SYMPTOM OF NEUVIOS

Table 5.14. Ten most salient symptoms freelisted by participants.

Total Sample	Copán	San Pedro Sula
Trembling	Trembling	Trembling
Headache	Headache	Anxiety
Fear	Anger	Sweating
<i>Sweating</i>	Fear	Nervousness
Anger	Dismay	Fear
Crying	<i>Laughter</i>	Hypertension
Anxiety	Crying	Depression
Depression	<i>Sweating</i>	Stress
Nervousness	Stomach Ache	Crying
<i>Laughter</i>	Depression	Body Aches

* Italicized symptoms not mentioned in initial freelisting exercise.

** Bolded symptoms free-listed only within respective sample.

Additionally, one symptom from each sample, dismay for the rural freelist and hypertension for the urban freelist, were mentioned only within their respective sample.

Individual competence scores and residuals are compared in **Figure 5.1**, which depicts the weak consensus among the total sample; while agreement within subsamples does exist, the graph indicates that certain illness beliefs for *nervios* exist only within subsamples. These competence scores and residuals were regressed on the covariates site, gender, age, SES, religion, and highest level of education for the total sample (**Table 5.15**), and reveal a weak correlation for cultural competence (R squared = .145), with religion being the only significant moderator ($r = .296, p < 0.05$). Conversely, there was a moderate degree of variance explained for residual agreement (R squared = .364), with site ($r = -.381, p < 0.01$), gender ($r = .283, p < 0.05$), and age ($r = .418, p < 0.01$) found to significantly influence the model.

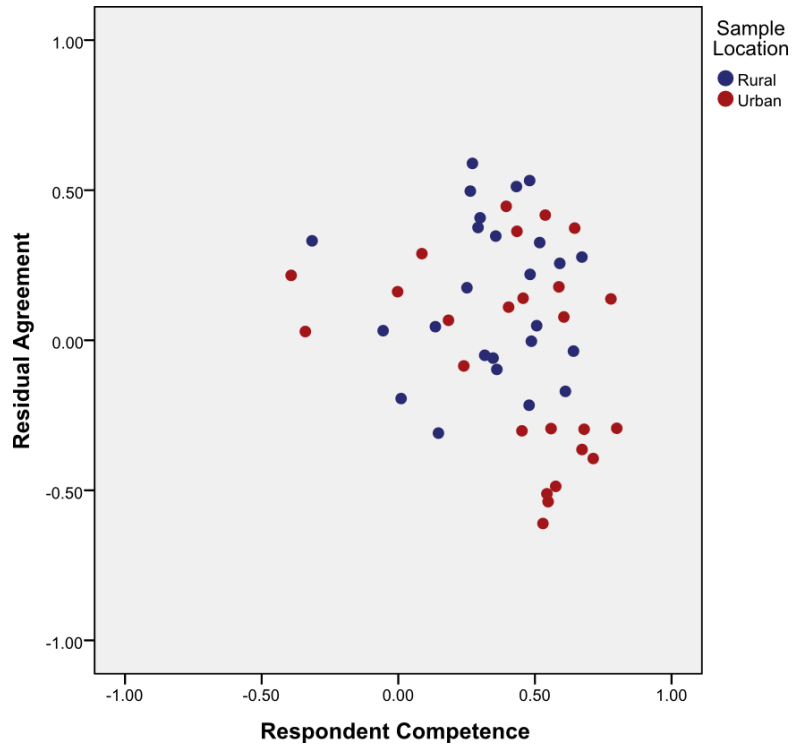


Figure 5.1. Cultural consensus among the total sample with subsamples shown.

Table 5.15. Multiple linear regression of cultural competence and residual agreement versus covariates sample, gender, age, SES, religion and highest level of education shown for total sample.

Dependent	Covariate	<i>r</i>	<i>p</i>
R squared = .145			
Cultural Competence	Site	.237	.156
	Gender	-.130	.417
	Age	-.180	.229
	SES	-.172	.533
	Religion	.296	.046*
	Education	.076	.772
R squared = .364			
Residual Agreement	Site	-.381	.010**
	Gender	.283	.044*
	Age	.418	.002**
	SES	-.188	.430
	Religion	-.010	.937
	Education	.287	.210

* *p* < 0.05 level

** *p* < 0.01 level

Responses from the unconstrained pilesort in Interview Schedule II were analyzed in AnthroPac software using multidimensional scaling and hierarchical cluster analysis to examine the structure of the domain. It should be noted that identified clusters are not rigid but merely depict similarities in participants' organization of symptoms, suggesting structural characteristics of a particular domain. Analysis of the unconstrained pilesort within the total sample (**Figure 5.2**) reveals the presence of two distinct clusters.

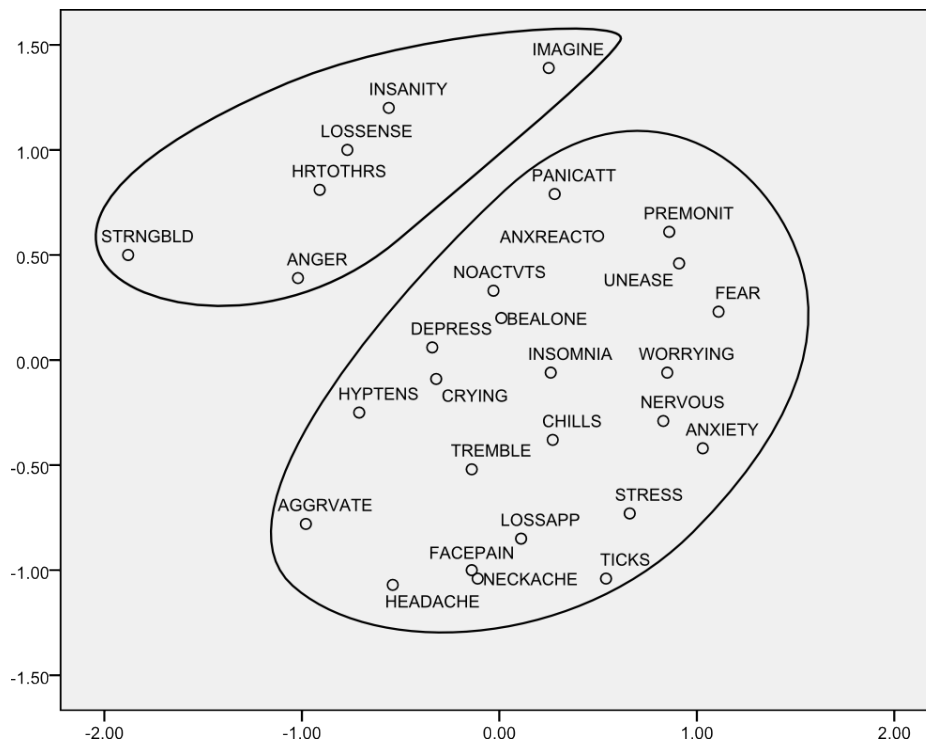


Figure 5.2. Multidimensional scaling for unconstrained pilesort of total sample.

The smaller cluster contains the symptoms strong blood, anger, causing hurt to others, loss of sensations, madness, and imagining things, while the larger cluster of symptoms includes all remaining symptoms. The smaller group clearly stood out in the cluster analysis, perhaps representing ethnomedical symptoms, while the larger group does not appear to be organized in any discernable way.

Further analysis of unconstrained pilesort results within subsamples was carried out. Results of the unconstrained pilesort for Copán participants (**Figure 5.3**) does not provide much more insight into the structure of the model, as no groups were identified in cluster analysis.

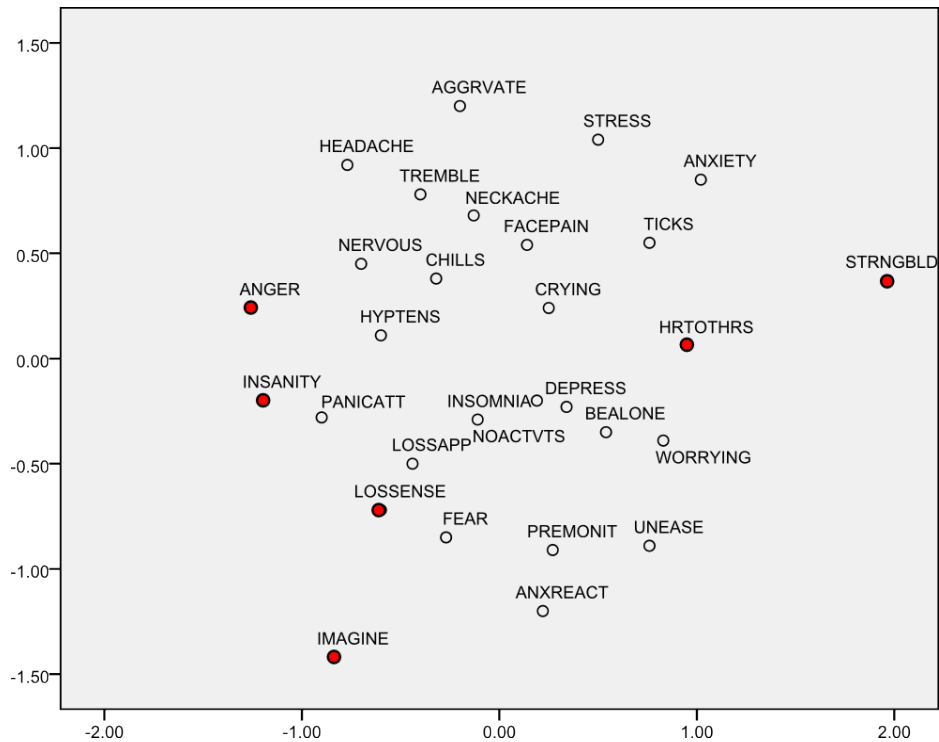


Figure 5.3. Multidimensional scaling for unconstrained pilesort of rural sample.

The cluster of potentially ethnomedical symptoms from **Figure 5.2** is no longer present; however, the terms from this group (highlighted in red) border the larger collection of symptoms, indicating that they may have been skewed by rural participants' unfamiliarity with terms from the larger group, as they include many biomedical symptoms.

The unconstrained pilesort from San Pedro Sula (**Figure 5.4**) presents a completely different situation, with three distinct groups identified in cluster analysis, one of which includes the ethnomedical symptoms from **Figure 5.2**: imagining things, madness, loss of sensations,

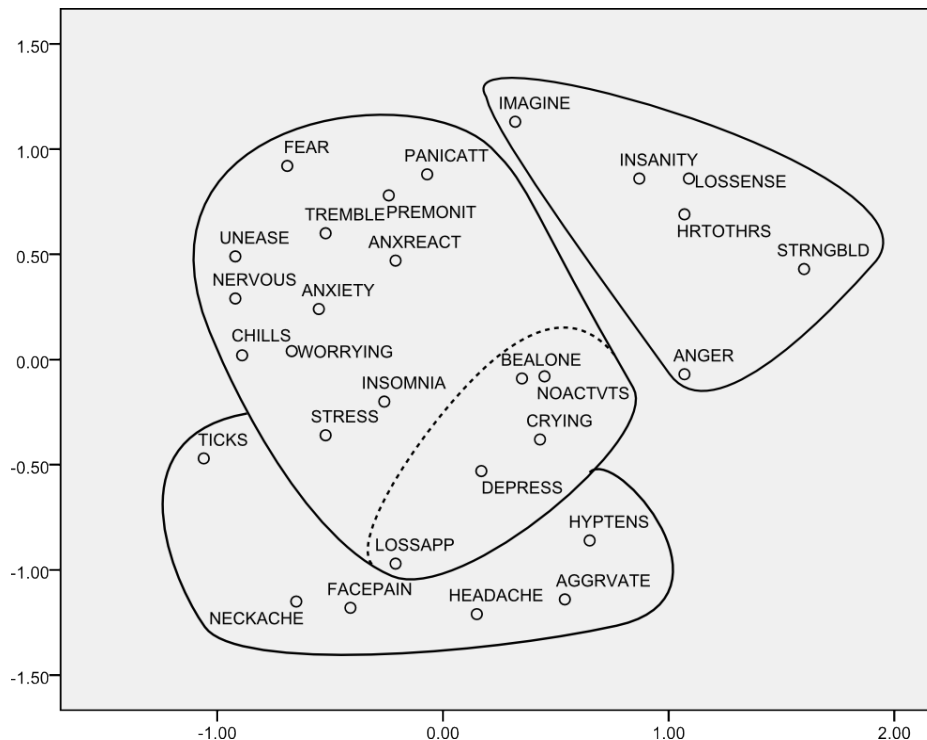


Figure 5.4. Multidimensional scaling for unconstrained pilesort of urban sample.

causing hurt to others, strong blood, and anger. The next group, which contains the symptoms nervous ticks, neck ache, facial pain, headache, aggravation, and hypertension, could all be considered somatic complaints. The remaining symptoms are grouped together, and appear to be psychological symptoms. Within this group there is also a separation among symptoms (represented within the dotted circle) that did not appear in the cluster analysis, but are similar to depressive symptoms, while the remainder more closely represent symptoms of anxiety. Urban participants' organization of symptoms may imply the coexistence of two distinct models, a biomedical and an ethnomedical one. The overlap of somatic and psychological symptom groups indicate cognitive organization of physical and mental symptoms, which is characteristic of Western biomedicine, whereas the potential ethnomedical model clearly stands independent of the other clusters.

Analysis of the unconstrained pilesort by gender of participant provides similar results. Cluster analysis identified no major groups among males (**Figure 5.5**), however, the symptoms are organized similar (represented by dotted lines) to those in **Figure 5.4**, with somatic symptoms, psychological symptoms, and the ethnomedical model compacted. Conversely, these groups are clearly identified for female respondents (**Figure 5.6**), however less so among somatic and psychological symptoms, while organization of ethnomedical ones is consistent with other pilesorts, and again includes loss of sensations, strong blood, causing hurt to others, anger, madness, and imagining things. If **Figure 5.4** indicates the permeation of a biomedical model amid an already existing ethnomedical one, **Figure 5.5** and **Figure 5.6** may imply that female participants are more rapidly adopting this model than male counterparts.

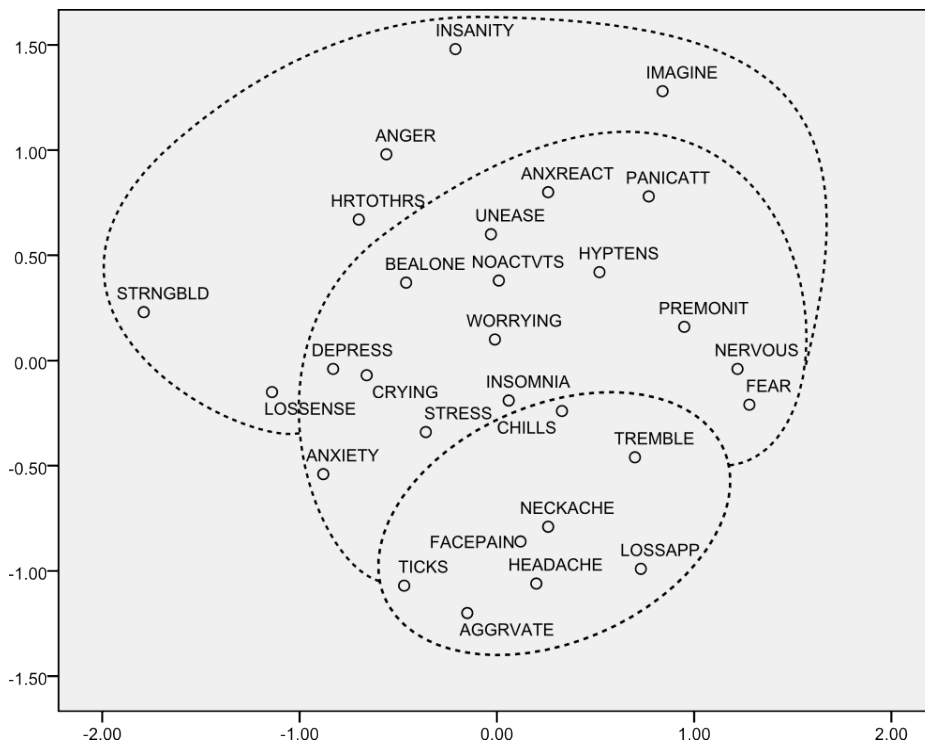


Figure 5.5. Multidimensional scaling for unconstrained pilesort of male participants.

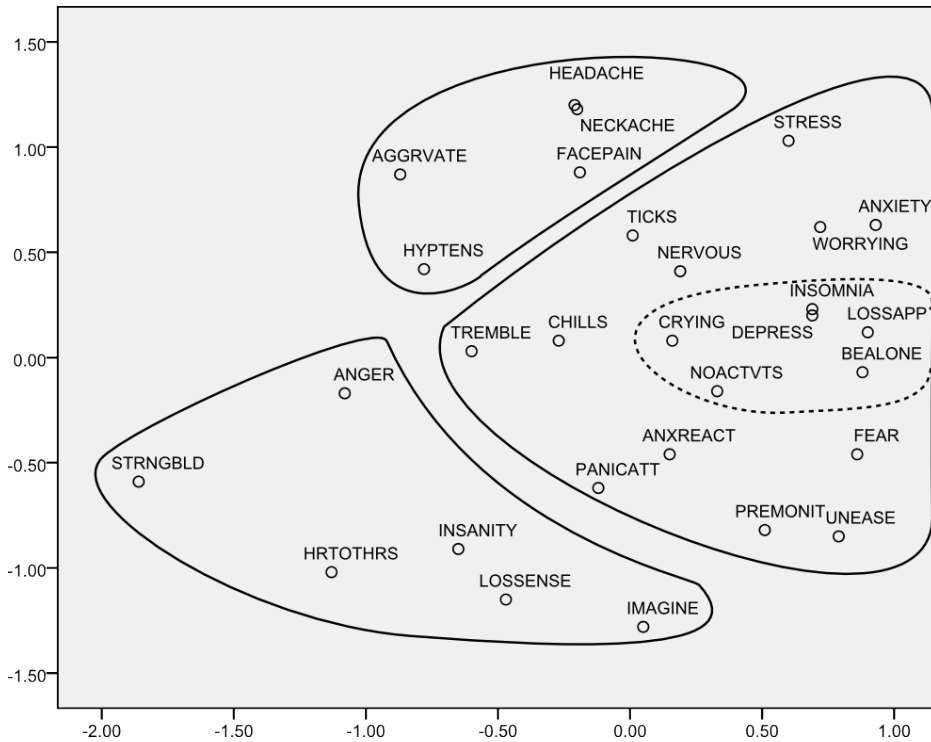


Figure 5.6. Multidimensional scaling for unconstrained pilesort of female participants.

The results of the unconstrained pilesort for males and females are similarly replicated for younger (**Figure 5.7**) and older (**Figure 5.8**) populations. Cluster analysis failed to identify any groups among younger participants (**Table 5.7**); however, there was indication of organization similar to males in **Figure 5.5**. The ethnomedical symptoms are visible, as are somatic and psychological symptoms, which resemble symptoms of generalized anxiety disorder and major depressive disorder, respectively. Conversely, older participants (**Table 5.8**) reveal a far less clear organization of symptoms. While the majority of the ethnomedical model does seem to be concentrated together, there is overlap between the two groups identified in cluster analysis. Symptoms from the ethnomedical model are distributed within both identified clusters, and are not consistent with results from other pilesorts. Similarly, the organization of symptoms within the larger group does not seem to be comparable to other results except the rural pilesort (**Figure 5.3**).

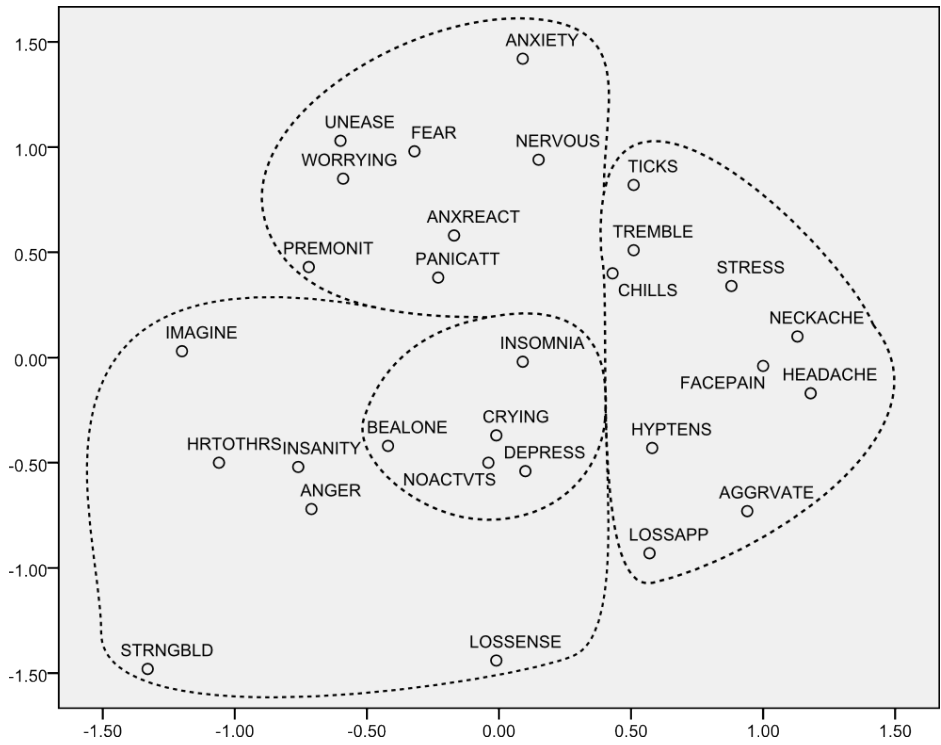


Figure 5.7. Multidimensional scaling for unconstrained pilesort of younger sample.

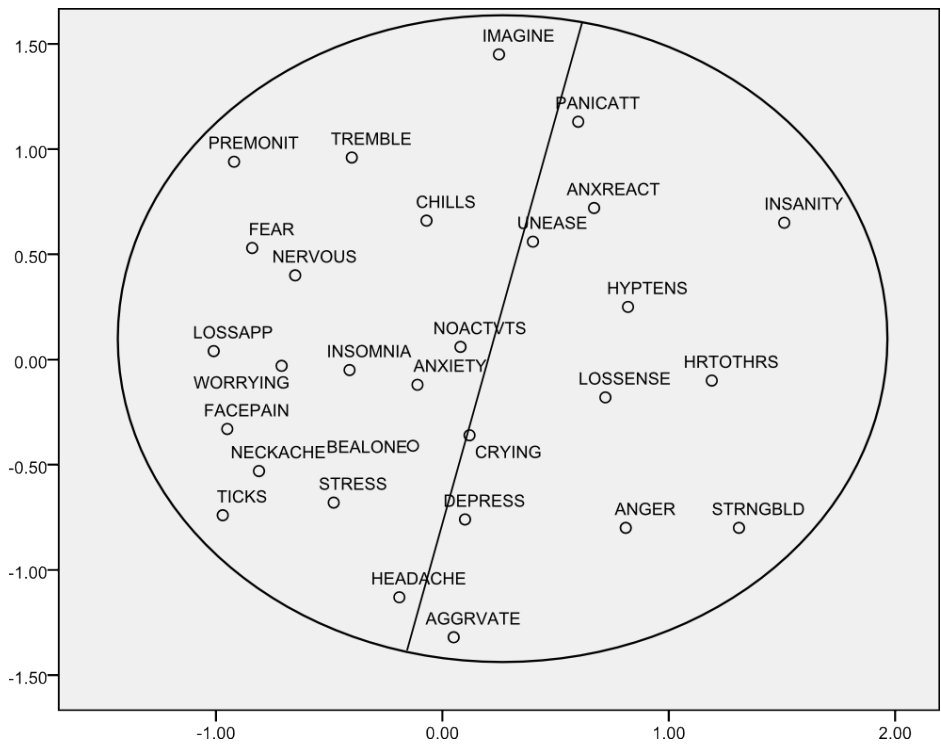


Figure 5.8. Multidimensional scaling for unconstrained pilesort of older sample.

CHAPTER SIX

DISCUSSION

This thesis research project sought to **(Objective I)** explore how illness beliefs of the cultural syndrome *nervios* manifest among rural and urban populations, and **(Objective II)** probe for the existence of a shared cultural model. Using a mixed methods approach that included open-ended interviewing, freelist tasks, a ranking task, and an unconstrained pilesort, correspondence of the syndrome to DSM-IV criteria for generalized anxiety disorder and major depressive disorder was determined. It was hypothesized that urban participants' cultural model of *nervios* would correspond more closely to biomedical diagnostic criteria for GAD and MDD than that of rural ones. Additionally, I predicted collective knowledge of *nervios* characterized by the existence of competing models. The results promise to expand medical anthropological literature by examining the relationship between illness and culture, as well as contribute to scholarship in cognitive anthropology regarding how cultural models emerge.

Descriptive Characteristics

Participants from Copán Ruinas and San Pedro Sula were recruited to represent illness beliefs of the cultural syndrome *nervios* in a rural and urban context, respectively. A quota sampling strategy ensured equal distribution with regard to gender, age, and social status. SES was significantly lower in Copán than San Pedro Sula, and various other measurements substantiate differential socioeconomic pressure between the samples. Median yearly income was four times greater in San Pedro Sula, and occupation may also contribute to this income

imbalance. Over ninety percent of rural participants work unskilled- or skilled-level jobs, in comparison to a higher frequency of intermediate- and professional-level jobs in the urban subsample. This may also be influenced by education, as the majority of participants from Copán reported a primary school education as opposed to university or beyond in San Pedro Sula. Number of children and residents in household was also greater in the rural subsample, suggesting that minimal economic resources are spread more thinly in Copán. Interestingly, there is a high frequency of Protestants in the sample. While Honduras and Latin America are widely regarded as Roman Catholic, this finding is consistent with a body of literature regarding the growing influence of Protestant denominations (Stoll 1990).

Comparison of subsamples to DSM-IV Diagnostic Criteria

Overall, more symptoms of *nervios* were freelisted in Copán. San Pedro Sula respondents freelisted more symptoms also listed in the DSM-IV for GAD, but rural participants provided a greater number for MDD. The proportion of *nervios* symptoms named for GAD in the total sample is over two times greater than those that correspond to MDD, perhaps suggesting that *nervios* more closely approximates anxiety than depression. Even though the rural subsample freelisted more symptoms also recognized for MDD than GAD, the proportion of symptoms is noticeably less than San Pedro Sula, which also has a higher percentage consistent with GAD. In fact, over half the symptoms listed by urban respondents correspond to DSM-IV criteria for GAD, in comparison to approximately one third in Copán. Significant differences were also present among urban females, younger participants, participants of high SES, and those who did not identify a religious preference. Though this trend was repeated for MDD, differences between sites were minor. Regression analysis further revealed that a significantly

greater percentage of symptoms of *nervios* listed in the DSM-IV for GAD are present in San Pedro Sula, though the same is not true for MDD. Similar results were present for gender, with a higher proportion of GAD-type symptoms listed by females than males in Copán.

A number of inferences can be drawn from these data; first that *nervios* is more closely related to the biomedical construction of anxiety than of depression, as symptoms of the former are more frequent in all analyses. This finding is consistent with precautions in the literature that any attempts to compare cultural syndromes to biomedical diagnostic criteria will never produce exact correlations (Kleinman 1988; Salgado de Snyder 2000). Nonetheless, there are various similarities between *nervios* and these disorders, as interviews with participants support. Some detailed *nervios*' similarity to anxiety, depression, and stress, while others acknowledged the existence of multiple forms of the disorder, characterized by symptoms *similar* though not equivalent to anxiety and depression. Therefore, the relatedness of *nervios* to these psychiatric disorders supports the notion that while illness beliefs manifest in different ways cross-culturally, they are united by similarities.

Second, at least one participant mentioned that individuals' experience of *nervios* is dependent upon one's location, and these findings suggest a heightened influence of biomedicine within urban populations, and provide evidence in support of the hypothesis that urban participants' cultural model of *nervios* will correspond more closely to biomedical diagnostic criteria for GAD and MDD than that of rural ones. This is further sustained by a significant difference between subsamples by gender; female participants from San Pedro Sula listed a considerably greater proportion of symptoms for generalized anxiety disorder than those in Copán. Additionally, among the ten most salient symptoms within each subsample, dismay was listed only by rural participants while hypertension was mentioned only by urban ones.

Turning to the literature, this may be supported by a common finding that illness beliefs are more developed among women (Chavez et al. 1995; Young and Garro 1994). Not to conclude that men cannot have an equal or greater role within the domain of health, but as Oths (1999:290) elaborates, “Descriptions of these [cultural syndromes] tend to concentrate on women because they make up the majority of sufferers and because many of the illnesses are associated, primarily or tangentially, with reproduction.” Accordingly, an older female informant identified life changes such as menopause as a potential cause of *nervios*, explaining that “Some think it’s [menopause] the end of the world or a loss of womanhood, and sometimes they get so worried it makes them want to kill their husband!” This finding is also consistent with the *nervios* literature (Finerman 1989; Salgado de Snyder et al. 2000), and since analyses reveal urban conceptions of the illness to be more influenced by biomedicine, may indicate that urban females have a major role in shaping the cultural model.

Significant differences in the proportion of symptoms listed for GAD were further identified among younger participants, participants of high SES, and participants who identified no religious preference in San Pedro Sula. With regard to age, some researchers argue that younger individuals exercise greater self-efficacy than older ones when it comes to health-related control and health information (Woodward and Wallston 1987). Therefore, younger participants from San Pedro Sula may share more contemporary biomedical knowledge than older participants, possibly accounting for the greater percentage of GAD symptoms. Additionally, most informants in Copán explained that while *nervios* affects all age groups, it is most common among adults over fifty years old, therefore conceptualizations of the disorder among older participants may reflect a decreased influence of biomedicine.

Similarly, the impact of biomedicine among urban participants of high SES could be due to a greater ability to afford the cost of hospitals as opposed to less expensive alternatives. Because the measure of SES included education, this may suggest greater exposure to biomedicine through formal education. Furthermore, specific health beliefs are often contained within religious models, and a difference in belief for those who reported no religion may indicate these participants' decreased reliance on faith-influenced models of illness.

Overall, the comparison of subsamples' freelisted symptoms of *nervios* to GAD and MDD produced somewhat mixed, albeit unambiguous results. Even though the rural subsample listed more symptoms overall, as well as more also recognized for MDD, the proportion of symptoms for both GAD and MDD was clearly greater in the urban subsample (though not significantly for major depressive disorder). That is, urban participants named fewer symptoms overall, but those they did name were more likely to match the DSM-IV criteria. This is further supported in the regression analysis for GAD. These results become clearer when recalling the distinction in medical anthropology between disease and illness.

Disease is a deviation from biological normality while illness represents the subjective feeling of sickness, as well as the personal, social, and cultural responses to the disorder (McElroy and Townsend 2009). The distinction is essential to the study of cultural syndromes because complete reliance on the biomedical definition of disease removes any impact of culture on health, which the definition of illness so aptly captures. Particularly, culture shapes how humans perceive, experience, label, explain, and manage sickness, and these illness beliefs are inherent to one's position within the social environment. For example, the finding that education may account for the greater influence of biomedicine in San Pedro Sula demonstrates how experience is dependent upon one's social position, or more generally, one's culture.

Furthermore, individuals' experiences are assembled into collective illness beliefs, such that interpretations of illness become transmitted as culturally-approved ways of being sick.

Therefore, inasmuch as culture influence illness, illness exerts an equally powerful force upon culture (Kleinman et al. 1978).

Despite some mixed results, the findings of this thesis research project provide sufficient evidence in support of the hypothesis that urban participants' cultural model of *nervios* would correspond more closely to biomedical diagnostic criteria for generalized anxiety disorder and major depressive disorder than would rural participants.

Assessment of Cultural Model of Nervios

The cultural model of *nervios* was examined to test for the presence of shared knowledge of the disorder and potentially competing models, as well as contribute evidence regarding the emergence of cultural models. The results of cultural consensus analysis reveal weak consensus in total sample and both subsamples, each with an eigenvalue ratio below the recommended value of 3. Consensus among participants from Copán (1.84) is far lower than those from San Pedro Sula (2.73). Among the ten highest-ranked symptoms in the total sample, five of these are listed in the DSM-IV for either GAD or MDD, including worrying, unease, anxiety, insomnia, and depression. These results are consistent with previously discussed findings, as well as the literature, providing further support that *nervios* contains symptoms similar to anxiety and depression (Nations et al. 1998; Salgado de Snyder et al. 2000).

Interestingly, among the five top-ranked symptoms in each subsample only nervousness and worrying appear in both Copán and San Pedro Sula. Conversely, four of the five lowest-ranked symptoms are present in each subsample, including madness, strong blood, causing hurt

to others, and loss of sensations. These results may suggest the presence of competing models of the cultural syndrome *nervios*, perhaps biomedical and ethnomedical, and also provide insight into the weak consensus among subsamples.

Based on results of consensus analysis, high competence may be inferred to represent the influence of a biomedical model, and an analysis of cultural competence scores reveal highest competence among older rural participants, younger urban participants, rural participants of low SES, and individuals who did not report a religious preference. With regard to younger urban participants, these finds are consistent with results for GAD in that these respondents may be more influenced by a biomedical model. However, a high level of agreement in Copán was also found in older participants and those of low SES, and reveals the risks involved with classifying symptoms in rigid models like biomedical and ethnomedical. Albeit some symptoms of highest agreement are also symptoms of GAD and MDD, this does not mean these symptoms' relationship to *nervios* originates solely from a biomedical model, but may also be elemental to, and predate an ethnomedical model of *nervios*. Likewise, the ethnomedical model is not solely composed of the six clustered terms, though these symptoms may be ones that do not correspond to biomedical diagnostic categories.

Regression analysis of residuals provides further insight into factors contributing to tension between potentially competing models. Results confirm significant disagreement by site as well as gender and age in the total sample. Similarly, there is greater disagreement among female than male respondents in Copán. These findings are consistent with previous analyses comparing the proportion of symptoms of *nervios* also listed in the DSM-IV for GAD between the subsamples, and since illness beliefs are well developed among women, this might confirm the presence of a cultural model of *nervios* largely characterized by competition between an

ethnomedical model held by older women in Copán and a biomedically-influenced model among younger women in San Pedro Sula.

Analysis of the unconstrained pilesort between site, gender, and age provides greater clarification as to these factors' impact on the structural organization of the cultural model of *nervios*. The unconstrained pilesort for the total sample is consistent with the consensus analysis, in that symptoms representative of an ethnomedical model (strong blood, anger, causing hurt to others, loss of sensation, madness, and imagining things) are clearly distinguished from other symptoms. Again, this should not imply that the ethnomedical model is composed solely of these symptoms, however, it can be inferred that these particular symptoms of *nervios* are wholly unique to such a model. This particular grouping of ethnomedical symptoms is supported by an account of *nervios* in the literature that explains "If untreated...chronic *nervios* is feared to lead to *locura* (madness), thought to be a violent and potentially incurable form of insanity characterized by delirium, indiscriminate violence and self-harm" (Hinton and Lewis-Fernández 2012:212).

In examining the unconstrained pilesort for rural participants, no clusters were identified and symptoms do not seem to be organized in any particular way. Additionally, symptoms representing the ethnomedical model appear as outliers. Two inferences can be made from this: first, that an ethnomedical model contains various symptoms also recognized in the biomedical model for GAD and MDD, which may explain why they are not collated as in other models. Second, given the independent grouping of these symptoms, rural participants may have been confused by many of the biomedical symptoms not shared with the ethnomedical model, thus likely grouping them without distinction and contributing to the lumped nature of this model.

The unconstrained pilesort for urban participants illustrates a completely different situation. Symptoms of the ethnomedical model are clearly distinguished from other symptoms, demonstrating the influence of biomedicine, not necessarily because they are grouped together, but because psychological and somatic symptoms are arranged in distinct subclusters that epitomize the divergence of mind and body common to Western medicine (Borra 2010; Kleinman 1988; Oths 1999). This influence is also apparent in the organization of psychological terms. Though cluster analysis did not identify these groups, a separation is evident between symptoms resembling depression (within the dotted line) and anxiety, and is further supported by the fact that insomnia, regarded in the DSM-IV as a symptom of both GAD and MDD, lies between these respective groups.

Analyses indicated that illness beliefs, whether biomedical or ethnomedical, are held to a greater degree among women. In comparing models of male and female participants, organization of females' symptoms is similar to that of the urban subsample (though not as explicitly, since analyses suggest older women in Copán support an ethnomedical model). However, the male model is not far behind, and it almost seems as if competing models are being pulled apart, with the ethnomedical symptoms diverging from the biomedical ones, as well as somatic symptoms being chiseled away from the psychological ones. While it is unclear whether the model is being pulled apart or pulled together, observation of the models for the urban subsample and female participants may suggest the models' respective separation.

The younger subsample is similar to the male one, as the competing models also appear to be pulling apart, with respective groupings of anxiety and depressive symptoms already becoming distinct. The unconstrained pilesort for the older sample is the least differentiated, but nonetheless consistent with findings that older participants are more influenced by the

ethnomedical model. Similar to the rural subsample, the distinct grouping of ethnomedical symptoms is not replicated. A possible reason for this may be that these symptoms are not sole components of the model, and overlap indicates that various symptoms are common to both an ethnomedical and biomedically-influenced model.

These pilesorts provide compelling evidence of how cultural models might emerge; site, gender, and age may be considered agents of this process, or what Strauss and Quinn (1994:285) refer to as "...the centrifugal...processes at work in culture." Within the rural subsample, the introduction of biomedical symptoms only skews the structure of the ethnomedical model since many participants may have been unfamiliar with them. However in observing the urban subsample, the influence of a biomedical model of illness is evident, especially with regard to the organization of psychological and somatic symptoms in the urban, male, female, and younger subsamples.

Any particular 'culture' may be characterized by a great number of possibilities in terms of constructing cognitive models, but its members unconsciously select certain ones based on their experiences. Therefore cultural models do not simply emerge, but may be the product of multiple experiences from which individuals collect adaptive knowledge in an aggregate repository and integrate it into existing models, ultimately resulting in shared consensus. Such is captured in the findings of this thesis research project, which suggest the integration of a biomedical model into an already existing ethnomedical one. There are no fine lines separating either model because culture is fluid in form (Kirmayer and Sartorius 2007), therefore these results illuminate how individuals' illness knowledge may be built up of multiple beliefs.

Limitations and Future Research

The limitations of the research are largely related to research design and availability of resources. Particularly, given that the duration of research was four weeks, a quota by sampling strategy was employed to ensure that an even distribution of participants were selected to represent the variables age, gender, and socioeconomic status. Had a greater length of time in the field been possible, this research would have benefited from a random sampling strategy to capture a better representation of Honduran demographics in both San Pedro Sula and Copán Ruinas. This would also have permitted a larger sample size; although Romney et al. (1986) confirm the appropriateness of cultural consensus analysis for small samples, the opportunity to include more participants would have been desirable.

Another limitation of the research design is the selection of two sites to represent respective rural and urban settings. These two categories are notably arbitrary in definition and there exists no convention as to what constitutes either, because both 'rural' and 'urban' exist along a continuum, and are governed by a number of factors not limited to population size. Future research should include more than two research sites, representative of a number of positions along this continuum that do not force the researcher to designate either as rural or urban.

A final suggestion for future research involves the types of variables measured. This thesis research project utilized methods from cognitive anthropology to assess illness beliefs of *nervios*. However, a cognitive approach can also be used to connect cultural models to biology, behavior, and social structure through capture of biological measurements and the concept of cultural consonance. Adoption of these more advanced methods will allow for health status of

the sample population to be gauged, as well as provide further insight to the relationship between culture and biology.

CHAPTER SEVEN

CONCLUSION

Cultural syndromes are culturally-patterned, prototypical manifestations of illness familiar to certain cultures but not recognized within biomedicine. Biocultural medical anthropology, the perspective that “culture shapes and is shaped by human biology” (Dressler 2005:20), presents an appropriate lens for examining these disorders. This approach views health outcomes as linked to the local ecology, including biological, psychological, social, political, economic, and environmental influences from which illness and illness beliefs develop. One purpose of this thesis research project was to examine how illness beliefs for the cultural syndrome *nervios* are shaped by culture, through comparison of rural and urban samples in Honduras.

Nervios is an extensively researched cultural syndrome in Latin America characterized by symptoms similar to anxiety and depression. Most investigations have employed a descriptive, interpretive analysis to examine the disorder’s meaning within a specific cultural context, though a growing number of anthropologists are adopting more structured, comparative methodologies to assess *nervios*’ relationship to formal psychiatric disorders and explore its culturally relative meaning. A cognitive orientation presents one such approach, wherein cultural models of illness beliefs are cognitively maintained and shared by individuals; these cultural models can be extracted and evaluated using methods like cultural domain analysis and cultural consensus analysis. Another purpose of this thesis research project was to adopt a cognitive theory of

culture to compare *nervios* to DSM-IV diagnostic criteria for generalized anxiety disorder and major depressive disorder, as well as test for the existence of a shared cultural model.

The setting of research was the Central American country of Honduras, which was chosen for a various reasons. First, there is an almost even divide between rural and urban populations, presenting a useful opportunity to examine how illness beliefs for *nervios* manifest in different contexts. Additionally, Honduras is plagued by a number of structural pressures, including a diminished agricultural sector in rural regions, widespread poverty, political instability, increasing drug traffic, and extensive inaccessibility to mental health services, which were surmised to differently shape illness beliefs within sample populations. Finally, Honduras was selected as the research setting to extend the investigation of cultural syndromes to a previously unstudied region.

Research utilized mixed-methods in two separate contexts: rural Copán Ruinas in the department of Copán and urban San Pedro Sula in the department of Cortés. Data collection lasted four weeks from June 6, 2011 – July 3, 2011, and employed open-ended interviewing, freelisting tasks, a ranking task, and an unconstrained pilesort to investigate the cultural syndrome *nervios*. In assessing the relationship between the disorder and DSM-IV criteria for generalized anxiety disorder and major depressive disorder, as well as testing for shared knowledge and the presence of a cultural model of the disorder, analyses expand discourse surrounding the relationship between illness and culture, extend the study of cultural syndromes to a previously unstudied region, and contribute to a body of literature in cognitive anthropology regarding how cultural models emerge. Analyses confirm that *nervios* is a distinct manifestation of illness that shares various symptoms with generalized anxiety disorder and major depressive disorder; however, these symptoms assume a greater presence in the San Pedro Sula than Copán

Ruinas. They also lend support to the notion that *nervios* is composed of multiple models, consisting of varying degrees of ethnomedical and biomedical knowledge, that dually shape individual beliefs of the illness.

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APPENDIX A

INTERVIEW SCHEDULE I

I. PARTICIPANT BACKGROUND

1. **What is your date of birth?** Sex: female male

2. **What is your marital status?**
 - a. Single
 - b. In a relationship
 - c. Engaged
 - d. Married
 - e. Widowed
 - f. Divorced

3. **How many children do you have? What are their ages and sex?**

4. **How many people live in your household? What is their relationship to you?**

5. **Please describe your job.**

6. **What is the highest level of education you have completed?**

7. **What is your religion?**

8. **How many times in one week do you engage in religious activities such as going to church or praying?**
 - a. Never
 - b. Once a week
 - c. 2-4 times a week
 - d. Most days in the week
 - e. Every day

9. **What is the total monthly income of all the members of your household?**

II. ASSESSMENT OF CULTURAL DOMAIN OF MENTAL HEALTH DISORDERS

10. **What are the common illnesses that make people sick?**

11. **Are there any types of illness that cause people to think, behave, or feel differently than they would normally? For each reported illness:**
 - a. **Please tell me all the symptoms you can think of.**
 - b. **Why does it happen?**

APPENDIX A

INTERVIEW SCHEDULE I

- c. Who or what causes it?
 - d. Whom does it affect?
 - e. Can it be cured, and if so, how?
 - f. Who can cure it?
 - g. What are common forms of treatment?
12. Are you familiar with the term mental illnesses? What mental illnesses you are familiar with or have heard of, and:
 - a. Please tell me all the symptoms you can think of.
 - b. Why does it happen?
 - c. Who or what causes it?
 - d. Whom does it affect?
 - e. Can it be cured, and if so, how?
 - f. Who can cure it?
 - g. What are common forms of treatment?
13. Have you ever heard of depression?
 - a. Please tell me all the symptoms you can think of.
 - b. Why does it happen?
 - c. Who or what causes it?
 - d. Whom does it affect?
 - e. Can it be cured, and if so, how?
 - f. Who can cure it?
 - g. What are common forms of treatment?
14. Have you ever heard of *nervios*?
 - a. Please tell me all the symptoms you can think of.
 - b. Why does it happen?
 - c. Who or what causes it?
 - d. Whom does it affect?
 - e. Can it be cured, and if so, how?
 - f. Who can cure it?
 - g. What are common forms of treatment?
15. Have you ever heard of *ataque de nervios*?
 - a. Please tell me all the symptoms you can think of.
 - b. Why does it happen?
 - c. Who or what causes it?
 - d. Whom does it affect?
 - e. Can it be cured, and if so, how?

APPENDIX A

INTERVIEW SCHEDULE I

- f. **Who can cure it?**
 - g. **What are common forms of treatment?**
16. **Have you ever heard of *susto*?**
- a. **Please tell me all the symptoms you can think of.**
 - b. **Why does it happen?**
 - c. **Who or what causes it?**
 - d. **Whom does it affect?**
 - e. **Can it be cured, and if so, how?**
 - f. **Who can cure it?**
 - g. **What are common forms of treatment?**
17. **Have you ever heard of *grisi siknis*?**
- a. **Please tell me all the symptoms you can think of.**
 - b. **Why does it happen?**
 - c. **Who or what causes it?**
 - d. **Whom does it affect?**
 - e. **Can it be cured, and if so, how?**
 - f. **Who can cure it?**
 - g. **What are common forms of treatment?**
18. **Have you ever heard of *mal de ojo*?**
- a. **Please tell me all the symptoms you can think of.**
 - b. **Why does it happen?**
 - c. **Who or what causes it?**
 - d. **Whom does it affect?**
 - e. **Can it be cured, and if so, how?**
 - f. **Who can cure it?**
 - g. **What are common forms of treatment?**

APPENDIX B

SPANISH INTERVIEW SCHEDULE I

I. HISTORIAL DEL PARTICIPANTE

1. **¿Cuál es su fecha de nacimiento?** **Sexo:** Mujer Hombre
2. **¿Cuál es su estado civil?**
 - a. Soltero/a
 - b. En una relación
 - c. Comprometido/a
 - d. Casado/a
 - e. Viudo/a
 - f. Divorciado/a
3. **¿Cuántos hijos tiene? ¿Cuáles son sus edades y sexos?**
4. **¿Cuántas personas viven en su casa? ¿Cuál es la relación que tienen con usted?**
5. **Por favor describa su trabajo.**
6. **¿Cuál es el nivel más alto de educación que ha completado?**
7. **¿Cuál es su religión?**
8. **¿Cuántas veces a la semana realice usted actividades religiosas, como ir a la iglesia u orar?**
 - a. Nunca
 - b. Una vez a la semana
 - c. 2-4 veces a la semana
 - d. La mayoría de los días de la semana
 - e. Todos los días
9. **¿Cuáles son los ingresos mensuales totales en su hogar?**

II. EVALUACIÓN DEL DOMINIO CULTURAL DE DESÓRDENES MENTALES

10. **¿Cuáles son las enfermedades mas comunes que enferman a la gente?**
11. **¿Cree usted que hay algunos tipos de enfermedades que hacen que las personas piensen, se sienten o se comporten de un modo diferente a como lo harían normalmente? Por cada una de las enfermedades reportadas:**
 - a. **¿Por favor dime todos los síntomas asociados?**
 - b. **¿Por qué ocurren?**

APPENDIX B

SPANISH INTERVIEW SCHEDULE I

- c. ¿Quién o qué causa esta enfermedad?
 - d. ¿A quién afecta?
 - e. ¿Puede curarse? En caso de ser así, cómo puede curarse?
 - f. ¿Quién puede curar esta enfermedad?
 - g. ¿Cuáles son las formas comunes de tratamiento?
12. Está usted familiarizado con el término enfermedad mental?. Con cuáles enfermedades mentales está usted familiarizado o sobre cuáles enfermedades mentales tiene información?
- a. ¿Por favor dime todos los síntomas asociados?
 - b. ¿Por qué ocurren?
 - c. ¿Quién o qué causa esta enfermedad?
 - d. ¿A quién afecta?
 - e. ¿Puede curarse? En caso de ser así, cómo puede curarse?
 - f. ¿Quién puede curar esta enfermedad?
 - g. ¿Cuáles son las formas comunes de tratamiento?
13. Ha escuchado sobre la depresión?
- a. ¿Por favor dime todos los síntomas asociados?
 - b. ¿Por qué ocurren?
 - c. ¿Quién o qué causa esta enfermedad?
 - d. ¿A quién afecta?
 - e. ¿Puede curarse? En caso de ser así, cómo puede curarse?
 - f. ¿Quién puede curar esta enfermedad?
 - g. ¿Cuáles son las formas comunes de tratamiento?
14. Ha escuchado sobre los *nervios*?
- a. ¿Por favor dime todos los síntomas asociados?
 - b. ¿Por qué ocurren?
 - c. ¿Quién o qué causa esta enfermedad?
 - d. ¿A quién afecta?
 - e. ¿Puede curarse? En caso de ser así, cómo puede curarse?
 - f. ¿Quién puede curar esta enfermedad?
 - g. ¿Cuáles son las formas comunes de tratamiento?
15. Ha escuchado sobre el *ataque de nervios*?
- a. ¿Por favor dime todos los síntomas asociados?
 - b. ¿Por qué ocurren?
 - c. ¿Quién o qué causa esta enfermedad?
 - d. ¿A quién afecta?
 - e. ¿Puede curarse? En caso de ser así, cómo puede curarse?

APPENDIX B

SPANISH INTERVIEW SCHEDULE I

- f. ¿Quién puede curar esta enfermedad?
 - g. ¿Cuáles son las formas comunes de tratamiento?
16. Ha escuchado sobre el *susto*?
- a. ¿Por favor dime todos los síntomas asociados?
 - b. ¿Por qué ocurren?
 - c. ¿Quién o qué causa esta enfermedad?
 - d. ¿A quién afecta?
 - e. ¿Puede curarse? En caso de ser así, cómo puede curarse?
 - f. ¿Quién puede curar esta enfermedad?
 - g. ¿Cuáles son las formas comunes de tratamiento?
17. Ha escuchado sobre *grisi siknis*?
- a. ¿Por favor dime todos los síntomas asociados?
 - b. ¿Por qué ocurren?
 - c. ¿Quién o qué causa esta enfermedad?
 - d. ¿A quién afecta?
 - e. ¿Puede curarse? En caso de ser así, cómo puede curarse?
 - f. ¿Quién puede curar esta enfermedad?
 - g. ¿Cuáles son las formas comunes de tratamiento?
18. Ha escuchado sobre el *mal de ojo*?
- a. ¿Por favor dime todos los síntomas asociados?
 - b. ¿Por qué ocurren?
 - c. ¿Quién o qué causa esta enfermedad?
 - d. ¿A quién afecta?
 - e. ¿Puede curarse? En caso de ser así, cómo puede curarse?
 - f. ¿Quién puede curar esta enfermedad?
 - g. ¿Cuáles son las formas comunes de tratamiento?

APPENDIX C

INTERVIEW SCHEDULE II

I. PARTICIPANT BACKGROUND

1. **What is your date of birth?** **Sex:** female male

2. **What is your marital status?**
 - a. Single
 - b. In a relationship
 - c. Engaged
 - d. Married
 - e. Widowed
 - f. Divorced

3. **How many children do you have? What are their ages and sex?**

4. **How many people live in your household? What is their relationship to you?**

5. **Please describe your job.**

6. **What is the highest level of education you have completed?**

7. **What is your religion?**

8. **How many times in one week do you engage in religious activities such as going to church or praying?**
 - a. Never
 - b. Once a week
 - c. 2-4 times a week
 - d. Most days in the week
 - e. Every day

9. **What is the total monthly income of all the members of your household?**

II. FREE LISTING

10. **Have you ever heard of *nervios*?**
 - a. Please tell me all the symptoms you can think of.
 - b. Why does it happen?
 - c. Who or what causes it?
 - d. Whom does it affect?
 - e. Can it be cured, and if so, how?
 - f. Who can cure it?

APPENDIX C

INTERVIEW SCHEDULE II

g. What are common forms of treatment?

III. PILE SORT

11. Each index card has a symptom of *nervios*. Please organize them how you feel they should go together.

12. For each symptom, please explain in which of three groups it belongs: symptoms always associated with the illness, symptoms sometimes associated with the illness, and symptoms rarely associated with the illness.

APPENDIX D

SPANISH INTERVIEW SCHEDULE II

I. HISTORIAL DEL PARTICIPANTE

1. **¿Cuál es su fecha de nacimiento?** **Sexo:** Mujer Hombre

2. **¿Cuál es su estado civil?**
 - a. Soltero/a
 - b. En una relación
 - c. Comprometido/a
 - d. Casado/a
 - e. Viudo/a
 - f. Divorciado/a

3. **¿Cuántos hijos tiene? ¿Cuáles son sus edades y sexos?**

4. **¿Cuántas personas viven en su casa? ¿Cuál es la relación que tienen con usted?**

5. **Por favor describa su trabajo.**

6. **¿Cuál es el nivel más alto de educación que ha completado?**

7. **¿Cuál es su religión?**

8. **¿Cuántas veces a la semana realice usted actividades religiosas, como ir a la iglesia u orar?**
 - a. Nunca
 - b. Una vez a la semana
 - c. 2-4 veces a la semana
 - d. La mayoría de los días de la semana
 - e. Todos los días

9. **¿Cuáles son los ingresos mensuales totales en su hogar?**

II. LISTA LIBRE

1. **¿Ha escuchado sobre *nervios*?**
 - a. **¿Por favor dime todos los síntomas asociados?**
 - b. **¿Por qué ocurren?**
 - c. **¿Quién o qué causa esta enfermedad?**
 - d. **¿A quién afecta?**
 - e. **¿Puede curarse? En caso de ser así, cómo puede curarse?**
 - f. **¿Quién puede curar esta enfermedad?**

APPENDIX D

SPANISH INTERVIEW SCHEDULE II

g. ¿Cuáles son las formas comunes de tratamiento?

III. AGRUPAMIENTO LIBRE

10. Cada tarjeta de vocabulario tiene un síntoma de un trastorno de salud mental. Por favor las organice como quiere.

11. Por cada síntoma, por favor explica en cuál de tres grupos la pertenece: los síntomas que siempre están asociados con la enfermedad, los síntomas que a veces se relacionan con la enfermedad y los síntomas que rara vez se asocian con la enfermedad.

I.

APPENDIX E

SPANISH GLOSSARY

adiós: goodbye

ataque de nervios: ‘attack of nerves’; widely investigated cultural syndrome in Latin America, especially in Puerto Rico; related to *nervios*

baleada: a uniquely Honduran dish consisting of refried beans, *mantequilla*, and shredded cheese in a large flour tortilla folded in half; scrambled eggs, meat, avocado, plantains and other foods are sometimes added

barrio: neighborhood

calor: somatic complaint characterized by a sense of heat rising in the head; often experienced as a symptom of *nervios*

carneada: see *plato típico*

Carib: pre-Columbian population indigenous to the Caribbean

colonia: upscale urban neighborhood

Copán Ruinas: rural sample; located in western Honduras in the department of Copán

chorizo: spicy Honduran sausage

chucaque: cultural syndrome investigated in the Peruvian Andes

debilidad: weakness; cultural syndrome investigated in the Peruvian Andes

familismo: family connections; see *marianisma*

Frente Nacional de Resistencia Popular (F.N.R.P.): National Front of Popular Resistance, whose pro-Zelaya graffiti is often seen on buildings

Garífuna: Hondurans of African and indigenous Caribbean ancestry living on the northern coast of the country; also known as *Black Caribs*

APPENDIX E

SPANISH GLOSSARY

gringo: often derogatory term describing a white person from an English-speaking country; not meant derogatorily in Honduras but literally means *Yankee* or *American*

gringo gay: derogatory form of *gringo* used in Honduras meaning *gay American*

grisi siknis: ‘greasy sickness’; cultural syndrome found among Miskito Indians of Nicaragua and parts of eastern Honduras

¿Ha escuchado los nervios?: “Have you heard of *nervios*?”

horchata: traditional Spanish and Latin American drink for which there many regional variations; see *semilla de jicaro*

jugo de naranja: orange juice

Ladino: ethnic group that embraces Spanish cultural traditions; often associated with *mestizo* racial category

llevarlo en la sangre: ‘carry it in the blood’

locura: madness, insanity

los estados: ‘the states’; common reference in Honduras to the United States

los nervios alterados: ‘altered nerves’

machismo: refers to the roles of Latin men, who are expected to be providers, protectors, strong, virile, and courageous, while also dominant and assertive over females, enjoying many sexual and social freedoms that women are not allowed

mal de ojo: ‘evil eye’; conjunctivitis, but also a cultural syndrome common to Mediterranean cultures

mantequilla: literally butter; in Honduras a salty-tasting sour cream of liquid consistency

Manuel Zelaya: former far-left president of Honduras ousted during June 2009 coup

maquila: manufacturing industry

APPENDIX E

SPANISH GLOSSARY

maquiladora: assembly plant

marianisma: refers to the roles of Latin women, who are expected to be faithful wives and devoted mothers, maintaining the cultural ideals of *familismo* (family connections), *personalismo* (partiality), *respeto* (respect), and *simpatía* (pleasantness).

mercado: marketplace

mestizaje: literally *crossbreeds*; in reference to *mestizo* racial category

mestizo: literally *racially mixed*; racial category used to label individuals with European and indigenous ancestry

Micheletti Facista: “Fascist Micheletti”; graffiti written by the F.N.R.P directed toward Roberto Micheletti, the de facto president of Honduras following the ousting of Manuel Zelaya during the 2009 coup

Miskito: Hondurans of African and indigenous Caribbean ancestry living on the eastern coast of the country

mulatto: racial category often used to label individuals of African and indigenous ancestry

nervios: nerves; widely investigated cultural syndrome in Latin America

oro verde: ‘green gold’; refers to the economic importance of the banana following Honduran independence throughout the second half of the twentieth century

personalismo: partiality; *see* marianisma

plátanos: fried banana slices

pulpería: convenience store

el plato típico: ‘the typical plate’; national dish of Honduras also referred to as *carneada*, that consists of grilled cuts of beef marinated in orange juice and spices, served with *salsa chimol*, *plátanos*, *chorizo*, *queso Olancho*, flour tortillas, guacamole, and refried beans.

APPENDIX E

SPANISH GLOSSARY

queso Olancho: a firm, salty-tasting cheese from the department of Olancho

respeto: respect; *see* marianisma

salsa chimol: Honduran version of *pico de gallo*

salsa de tomate: tomato ketchup

San Pedro Sula: urban sample; located in northwestern Honduras in department of Cortés

semilla de jicaro: Honduran version of *horchata* made from ground *jicaro* seeds, rice, spices, milk, and sugar

ser nervioso: ‘being a nervous person’

ser nervioso de nación: ‘to be nervous by constitution/race/birth’

sí: yes

simpátia: pleasantness; *see* marianisma

supermercado: supermarket

susto: fright; widely investigated cultural syndrome in Latin America

tamales: shredded pork or chicken and cornmeal encased in a corn husk and steamed

tamalitos de elote: smaller versions of tamales served with mantequilla and sold by street vendors in Honduras

Tengo mucho hambre: ‘I’m very hungry’

APPENDIX F

FL

FREELIST

AA

Sensitivity level: OFF
 Max respondents: 50
 Max items: 500
 Input dataset: C:\ANTHRO~1\FL.TXT

SORTED BY SMITHS

ITEM	FREQUENCY	RESP PCT	AVG RANK	Smith's S	
1	TREMBLE	22	44	2.591	0.296
2	HEADACHE	10	20	1.800	0.161
3	FEAR	13	26	2.769	0.159
4	SWEATING	13	26	3.231	0.146
5	ANGER	10	20	3.700	0.116
6	CRYING	9	18	3.111	0.116
7	ANXIETY	6	12	1.667	0.108
8	DEPRESS	6	12	2.167	0.094
9	NERVOUS	6	12	1.833	0.091
10	LAUGHTER	5	10	2.400	0.084
11	HYPTENS	5	10	1.800	0.078
12	DISMAY	8	16	6.000	0.074
13	STRESS	5	10	3.200	0.066
14	BODYACHE	4	8	2.500	0.064
15	SHOUTING	4	8	5.000	0.051
16	STOMACHE	4	8	3.000	0.050
17	CHANGES	3	6	1.667	0.050
18	BREATHE	3	6	2.000	0.047
19	PANICATT	4	8	3.750	0.044
20	BEALONE	4	8	5.750	0.039
21	TICKS	4	8	4.000	0.036
22	TIRED	3	6	4.333	0.036
23	UNEASE	3	6	4.333	0.036
24	DESPRATN	3	6	5.333	0.033
25	ILL	3	6	4.000	0.032
26	ANGUISH	2	4	2.500	0.032
27	SCRATCH	2	4	3.000	0.030
28	INSOMNIA	2	4	5.000	0.029
29	PASSOUT	3	6	3.667	0.029
30	WORRYING	2	4	2.000	0.027
31	MUSCPAIN	2	4	3.500	0.025
32	FASTBEAT	3	6	3.667	0.025
33	PARALYZE	3	6	3.667	0.025
34	BLIND	2	4	5.500	0.023
35	SADNESS	2	4	4.500	0.023
36	RUNNING	2	4	3.500	0.022
37	WEAKNESS	1	2	1.000	0.020
38	CONFUSE	1	2	1.000	0.020
39	STINGING	1	2	1.000	0.020
40	LOSSAPP	2	4	5.500	0.020
41	VIOLENCE	1	2	1.000	0.020
42	HYPOTENS	2	4	3.000	0.018
43	HRTOTHR	1	2	3.000	0.017
44	ALLERGY	1	2	2.000	0.016
45	BLUSHING	1	2	2.000	0.016
46	DECIDE	1	2	4.000	0.016
47	HAIRLOSS	1	2	3.000	0.016
48	TAILPAIN	1	2	2.000	0.015
49	INCONVEN	1	2	2.000	0.015
50	CANCER	1	2	2.000	0.015

APPENDIX F

			FL		
51	CHILLS	2	4	4.500	0.015
52	BOREDOM	1	2	5.000	0.015
53	BUTTRFLY	2	4	7.500	0.015
54	STUTTER	2	4	4.000	0.013
55	DIZZY	1	2	3.000	0.013
56	SENSBLTY	1	2	4.000	0.013
57	FEVER	1	2	6.000	0.012
58	TWISTING	1	2	4.000	0.011
59	INSANITY	2	4	7.000	0.011
60	NECKACHE	1	2	4.000	0.010
61	VIOLENT	1	2	3.000	0.010
62	BLINKING	1	2	3.000	0.010
63	EYEACHE	1	2	5.000	0.010
64	CURSING	1	2	3.000	0.010
65	DISCHARG	2	4	5.500	0.010
66	HAPPINSS	1	2	5.000	0.010
67	MENTALILL	2	4	8.500	0.009
68	FIGHT	1	2	10.000	0.008
69	THRACHE	1	2	9.000	0.008
70	NOACTVTS	1	2	6.000	0.007
71	IMAGINE	2	4	5.500	0.007
72	AGGRVATE	2	4	5.500	0.007
73	DIABETES	1	2	3.000	0.007
74	HEARTACH	1	2	10.000	0.006
75	HIGH	1	2	4.000	0.005
76	LOSEVOIC	1	2	7.000	0.005
77	IGNORANT	1	2	4.000	0.005
78	HEAT	1	2	7.000	0.005
79	WEAKBODY	1	2	5.000	0.004
80	VOMIT	1	2	7.000	0.003
81	DREAMS	1	2	14.000	0.003
82	TEETHACH	1	2	8.000	0.002
83	SINGING	1	2	9.000	0.002

Total/Average:		242	4.840		

ALPHABETICAL ORDER

ITEM	FREQUENCY	RESP PCT	AVG RANK	Smith's S	
47	AGGRVATE	2	4	5.500	0.007
74	ALLERGY	1	2	2.000	0.016
13	ANGER	10	20	3.700	0.116
6	ANGUISH	2	4	2.500	0.032
52	ANXIETY	6	12	1.667	0.108
36	BEALONE	4	8	5.750	0.039
46	BLIND	2	4	5.500	0.023
79	BLINKING	1	2	3.000	0.010
16	BLUSHING	1	2	2.000	0.016
54	BODYACHE	4	8	2.500	0.064
30	BOREDOM	1	2	5.000	0.015
73	BREATHE	3	6	2.000	0.047
42	BUTTRFLY	2	4	7.500	0.015
72	CANCER	1	2	2.000	0.015
22	CHANGES	3	6	1.667	0.050
51	CHILLS	2	4	4.500	0.015
45	CONFUSE	1	2	1.000	0.020
26	CRYING	9	18	3.111	0.116
14	CURSING	1	2	3.000	0.010
29	DECIDE	1	2	4.000	0.016
9	DEPRESS	6	12	2.167	0.094
4	DESPRATN	3	6	5.333	0.033

APPENDIX F

			FL		
83	DIABETES	1	2	3.000	0.007
61	DISCHARG	2	4	5.500	0.010
20	DISMAY	8	16	6.000	0.074
78	DIZZY	1	2	3.000	0.013
38	DREAMS	1	2	14.000	0.003
60	EYEACHE	1	2	5.000	0.010
18	FASTBEAT	3	6	3.667	0.025
2	FEAR	13	26	2.769	0.159
55	FEVER	1	2	6.000	0.012
35	FIGHT	1	2	10.000	0.008
68	HAIRLOSS	1	2	3.000	0.016
8	HAPPINSS	1	2	5.000	0.010
3	HEADACHE	10	20	1.800	0.161
58	HEARTACH	1	2	10.000	0.006
65	HEAT	1	2	7.000	0.005
80	HIGH	1	2	4.000	0.005
53	HRTOTHR	1	2	3.000	0.017
21	HYPOTENS	2	4	3.000	0.018
63	HYPTENS	5	10	1.800	0.078
15	IGNORANT	1	2	4.000	0.005
10	ILL	3	6	4.000	0.032
43	IMAGINE	2	4	5.500	0.007
40	INCONVEN	1	2	2.000	0.015
11	INSANITY	2	4	7.000	0.011
34	INSOMNIA	2	4	5.000	0.029
12	LAUGHTER	5	10	2.400	0.084
82	LOSEVOIC	1	2	7.000	0.005
32	LOSSAPP	2	4	5.500	0.020
37	MENTALILL	2	4	8.500	0.009
28	MUSCPAIN	2	4	3.500	0.025
50	NECKACHE	1	2	4.000	0.010
48	NERVOUS	6	12	1.833	0.091
81	NOACTVTS	1	2	6.000	0.007
76	PANICATT	4	8	3.750	0.044
77	PARALYZE	3	6	3.667	0.025
71	PASSOUT	3	6	3.667	0.029
24	RUNNING	2	4	3.500	0.022
7	SADNESS	2	4	4.500	0.023
69	SCRATCH	2	4	3.000	0.030
64	SENSBLTY	1	2	4.000	0.013
23	SHOUTING	4	8	5.000	0.051
70	SINGING	1	2	9.000	0.002
59	STINGING	1	2	1.000	0.020
5	STOMACHE	4	8	3.000	0.050
31	STRESS	5	10	3.200	0.066
66	STUTTER	2	4	4.000	0.013
17	SWEATING	13	26	3.231	0.146
44	TAILPAIN	1	2	2.000	0.015
62	TEETHACH	1	2	8.000	0.002
57	THRACHE	1	2	9.000	0.008
67	TICKS	4	8	4.000	0.036
56	TIRED	3	6	4.333	0.036
1	TREMBLE	22	44	2.591	0.296
25	TWISTING	1	2	4.000	0.011
33	UNEASE	3	6	4.333	0.036
49	VIOLENCE	1	2	1.000	0.020
41	VIOLENT	1	2	3.000	0.010
27	VOMIT	1	2	7.000	0.003
19	WEAKBODY	1	2	5.000	0.004
39	WEAKNESS	1	2	1.000	0.020
75	WORRYING	2	4	2.000	0.027

 Total/Average: 242 4.840

APPENDIX F

FL

Respondent-Level Statistics:

	1	2	3	4
	Length of	Frequency	Avg Freque	Corr w/ Fr
1 01	3.00	45.00	15.00	-0.96
2 02	8.00	23.00	2.88	-0.02
3 03	4.00	17.00	4.25	-0.63
4 04	5.00	23.00	4.60	-0.19
5 05	4.00	33.00	8.25	-0.58
6 06	2.00	13.00	6.50	1.00
7 07	4.00	48.00	12.00	-0.16
8 08	7.00	38.00	5.43	-0.33
9 09	15.00	56.00	3.73	-0.24
10 10	5.00	28.00	5.60	0.22
11 11	4.00	6.00	1.50	0.77
12 12	4.00	24.00	6.00	-0.99
13 13	6.00	30.00	5.00	-0.69
14 14	3.00	22.00	7.33	0.97
15 15	4.00	42.00	10.50	-0.45
16 16	6.00	47.00	7.83	0.32
17 17	2.00	28.00	14.00	-1.00
18 18	6.00	29.00	4.83	-0.01
19 19	13.00	55.00	4.23	-0.30
20 20	8.00	37.00	4.63	-0.19
21 21	2.00	35.00	17.50	-1.00
22 22	8.00	67.00	8.38	0.17
23 23	2.00	10.00	5.00	-1.00
24 24	9.00	51.00	5.67	-0.43
25 25	1.00	22.00	22.00	1.00
26 26	3.00	30.00	10.00	-0.81
27 27	4.00	8.00	2.00	0.32
28 28	4.00	34.00	8.50	0.14
29 29	6.00	48.00	8.00	0.24
30 30	5.00	29.00	5.80	-0.72
31 31	5.00	38.00	7.60	0.54
32 32	5.00	40.00	8.00	0.33
33 33	3.00	13.00	4.33	-0.96
34 34	6.00	45.00	7.50	0.30
35 35	3.00	36.00	12.00	0.65
36 36	5.00	34.00	6.80	0.65
37 37	4.00	49.00	12.25	0.83
38 38	5.00	43.00	8.60	-0.54
39 39	5.00	59.00	11.80	0.74
40 40	6.00	37.00	6.17	-0.35
41 41	2.00	26.00	13.00	1.00
42 42	4.00	38.00	9.50	0.31
43 43	4.00	39.00	9.75	-0.92
44 44	4.00	23.00	5.75	-0.61
45 45	3.00	19.00	6.33	1.00
46 46	4.00	29.00	7.25	-0.69
47 47	8.00	48.00	6.00	-0.65
48 48	3.00	9.00	3.00	-0.94
49 49	4.00	14.00	3.50	0.40
50 50	2.00	19.00	9.50	1.00

Freelist indicator matrix saved as dataset C:\ANTHRO~1\FLMAT
 Aggregate frequencies and salience measures saved as dataset C:\ANTHRO~1\FLSTATS
 Resp-group correlations saved as dataset C:\ANTHRO~1\FLRESP

APPENDIX F

Elapsed time: 1 second. 2/23/2012 6:59 PM.
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APPENDIX G

FLRURAL

FREELIST

AA

Sensitivity level: OFF
 Max respondents: 50
 Max items: 500
 Input dataset: C:\ANTHRO~1\FLRURAL.TXT

SORTED BY SMITHS

ITEM	FREQUENCY	RESP PCT	AVG RANK	Smith's S	
1	TREMBLE	9	36	2.000	0.303
2	HEADACHE	8	32	2.000	0.242
3	ANGER	8	32	4.125	0.178
4	FEAR	6	24	2.500	0.161
5	DISMAY	8	32	6.000	0.148
6	LAUGHTER	4	16	2.750	0.129
7	CRYING	6	24	3.833	0.127
8	SWEATING	5	20	3.200	0.119
9	STOMACHE	3	12	2.333	0.087
10	DEPRESS	3	12	3.000	0.082
11	UNEASE	3	12	4.333	0.071
12	SHOUTING	3	12	6.000	0.070
13	DESPRATN	3	12	5.333	0.066
14	ANGUISH	2	8	2.500	0.063
15	TIRED	2	8	5.000	0.052
16	MUSCPAIN	2	8	3.500	0.051
17	BLIND	2	8	5.500	0.045
18	RUNNING	2	8	3.500	0.045
19	VIOLENCE	1	4	1.000	0.040
20	CONFUSE	1	4	1.000	0.040
21	WEAKNESS	1	4	1.000	0.040
22	CHANGES	1	4	1.000	0.040
23	STINGING	1	4	1.000	0.040
24	BEALONE	2	8	7.500	0.037
25	ANXIETY	1	4	2.000	0.037
26	TICKS	1	4	2.000	0.036
27	HYPTENS	1	4	2.000	0.035
28	HRTOTHR	1	4	3.000	0.034
29	DECIDE	1	4	4.000	0.032
30	BLUSHING	1	4	2.000	0.032
31	HAIRLOSS	1	4	3.000	0.031
32	BODYACHE	1	4	4.000	0.031
33	TAILPAIN	1	4	2.000	0.030
34	INCONVEN	1	4	2.000	0.030
35	BOREDOM	1	4	5.000	0.029
36	BUTTRFLY	2	8	7.500	0.029
37	STRESS	1	4	6.000	0.027
38	SCRATCH	1	4	4.000	0.027
39	SADNESS	1	4	4.000	0.025
40	SENSBLTY	1	4	4.000	0.025
41	FEVER	1	4	6.000	0.025
42	LOSSAPP	1	4	7.000	0.024
43	TWISTING	1	4	4.000	0.023
44	INSANITY	2	8	7.000	0.023
45	VIOLENT	1	4	3.000	0.020
46	NECKACHE	1	4	4.000	0.020
47	CURSING	1	4	3.000	0.020
48	NERVOUS	1	4	2.000	0.020
49	EYEACHE	1	4	5.000	0.020
50	STUTTER	1	4	2.000	0.020

APPENDIX G

			FLRURAL		
51	HAPPINSS	1	4	5.000	0.020
52	INSOMNIA	1	4	9.000	0.019
53	MENTALILL	2	8	8.500	0.018
54	FASTBEAT	1	4	4.000	0.016
55	FIGHT	1	4	10.000	0.016
56	THRTACHE	1	4	9.000	0.015
57	CHILLS	1	4	5.000	0.013
58	HEARTACH	1	4	10.000	0.012
59	HYPOTENS	1	4	4.000	0.010
60	DISCHARG	1	4	7.000	0.010
61	ILL	1	4	7.000	0.010
62	IGNORANT	1	4	4.000	0.010
63	HEAT	1	4	7.000	0.010
64	WEAKBODY	1	4	5.000	0.008
65	AGGRVATE	1	4	6.000	0.007
66	IMAGINE	1	4	6.000	0.007
67	VOMIT	1	4	7.000	0.006
68	DREAMS	1	4	14.000	0.005
69	TEETHACH	1	4	8.000	0.005
70	SINGING	1	4	9.000	0.004

Total/Average:		135	5.400		

ALPHABETICAL ORDER

ITEM	FREQUENCY	RESP PCT	AVG RANK	Smith's S	
47	AGGRVATE	1	4	6.000	0.007
13	ANGER	8	32	4.125	0.178
6	ANGUISH	2	8	2.500	0.063
52	ANXIETY	1	4	2.000	0.037
36	BEALONE	2	8	7.500	0.037
46	BLIND	2	8	5.500	0.045
16	BLUSHING	1	4	2.000	0.032
54	BODYACHE	1	4	4.000	0.031
30	BOREDOM	1	4	5.000	0.029
42	BUTTRFLY	2	8	7.500	0.029
22	CHANGES	1	4	1.000	0.040
51	CHILLS	1	4	5.000	0.013
45	CONFUSE	1	4	1.000	0.040
26	CRYING	6	24	3.833	0.127
14	CURSING	1	4	3.000	0.020
29	DECIDE	1	4	4.000	0.032
9	DEPRESS	3	12	3.000	0.082
4	DESPRATN	3	12	5.333	0.066
61	DISCHARG	1	4	7.000	0.010
20	DISMAY	8	32	6.000	0.148
38	DREAMS	1	4	14.000	0.005
60	EYEACHE	1	4	5.000	0.020
18	FASTBEAT	1	4	4.000	0.016
2	FEAR	6	24	2.500	0.161
55	FEVER	1	4	6.000	0.025
35	FIGHT	1	4	10.000	0.016
68	HAIRLOSS	1	4	3.000	0.031
8	HAPPINSS	1	4	5.000	0.020
3	HEADACHE	8	32	2.000	0.242
58	HEARTACH	1	4	10.000	0.012
65	HEAT	1	4	7.000	0.010
53	HRTOTHR	1	4	3.000	0.034
21	HYPOTENS	1	4	4.000	0.010
63	HYPTENS	1	4	2.000	0.035
15	IGNORANT	1	4	4.000	0.010

APPENDIX G

			FLRURAL		
10	ILL	1	4	7.000	0.010
43	IMAGINE	1	4	6.000	0.007
40	INCONVEN	1	4	2.000	0.030
11	INSANITY	2	8	7.000	0.023
34	INSOMNIA	1	4	9.000	0.019
12	LAUGHTER	4	16	2.750	0.129
32	LOSSAPP	1	4	7.000	0.024
37	MENTALILL	2	8	8.500	0.018
28	MUSCPAIN	2	8	3.500	0.051
50	NECKACHE	1	4	4.000	0.020
48	NERVOUS	1	4	2.000	0.020
24	RUNNING	2	8	3.500	0.045
7	SADNESS	1	4	4.000	0.025
69	SCRATCH	1	4	4.000	0.027
64	SENSBLTY	1	4	4.000	0.025
23	SHOUTING	3	12	6.000	0.070
70	SINGING	1	4	9.000	0.004
59	STINGING	1	4	1.000	0.040
5	STOMACHE	3	12	2.333	0.087
31	STRESS	1	4	6.000	0.027
66	STUTTER	1	4	2.000	0.020
17	SWEATING	5	20	3.200	0.119
44	TAILPAIN	1	4	2.000	0.030
62	TEETHACH	1	4	8.000	0.005
57	THRACHE	1	4	9.000	0.015
67	TICKS	1	4	2.000	0.036
56	TIRED	2	8	5.000	0.052
1	TREMBLE	9	36	2.000	0.303
25	TWISTING	1	4	4.000	0.023
33	UNEASE	3	12	4.333	0.071
49	VIOLENCE	1	4	1.000	0.040
41	VIOLENT	1	4	3.000	0.020
27	VOMIT	1	4	7.000	0.006
19	WEAKBODY	1	4	5.000	0.008
39	WEAKNESS	1	4	1.000	0.040

Total/Average:		135	5.400		

Respondent-Level Statistics:

	1	2	3	4
Length of	Frequency	Avg	Freque	Corr w/ Fr
1 01	3.00	23.00	7.67	-0.33
2 02	8.00	16.00	2.00	-0.44
3 03	4.00	14.00	3.50	-0.62
4 04	5.00	12.00	2.40	-0.49
5 05	4.00	22.00	5.50	-0.70
6 06	2.00	9.00	4.50	1.00
7 07	4.00	25.00	6.25	-0.70
8 08	7.00	26.00	3.71	0.00
9 09	15.00	43.00	2.87	-0.15
10 10	5.00	23.00	4.60	0.46
11 11	4.00	6.00	1.50	0.77
12 12	4.00	21.00	5.25	-0.93
13 13	6.00	19.00	3.17	-0.70
14 14	3.00	12.00	4.00	0.87
15 15	4.00	24.00	6.00	-0.07
16 16	6.00	29.00	4.83	0.12
17 17	2.00	10.00	5.00	-1.00
18 18	6.00	19.00	3.17	0.33
19 19	13.00	37.00	2.85	0.04

APPENDIX G

				FLRURAL	
20	20	8.00	28.00	3.50	-0.20
21	21	2.00	15.00	7.50	-1.00
22	22	8.00	34.00	4.25	0.36
23	23	2.00	9.00	4.50	-1.00
24	24	9.00	30.00	3.33	-0.12
25	25	1.00	9.00	9.00	1.00

Freelist indicator matrix saved as dataset C:\ANTHRO~1\FLMAT
Aggregate frequencies and salience measures saved as dataset C:\ANTHRO~1\FLSTATS
Resp-group correlations saved as dataset C:\ANTHRO~1\FLRESP

Elapsed time: 1 second. 2/23/2012 7:01 PM.
ANTHROPAC 4.983/X Copyright 1985-2002 by Analytic Technologies.

APPENDIX H

FLURBAN

FREELIST

AA

Sensitivity level: OFF
 Max respondents: 50
 Max items: 500
 Input dataset: C:\ANTHRO~1\FLURBAN.TXT

SORTED BY SMITHS

ITEM	FREQUENCY	RESP PCT	AVG RANK	Smith's S	
1	TREMBLE	13	52	3.000	0.289
2	ANXIETY	5	20	1.600	0.179
3	SWEATING	8	32	3.250	0.173
4	NERVOUS	5	20	1.800	0.162
5	FEAR	7	28	3.000	0.156
6	HYPTENS	4	16	1.750	0.120
7	DEPRESS	3	12	1.333	0.107
8	STRESS	4	16	2.500	0.106
9	CRYING	3	12	1.667	0.104
10	BODYACHE	3	12	2.000	0.097
11	BREATHE	3	12	2.000	0.094
12	PANICATT	4	16	3.750	0.088
13	HEADACHE	2	8	1.000	0.080
14	CHANGES	2	8	2.000	0.060
15	PASSOUT	3	12	3.667	0.057
16	WORRYING	2	8	2.000	0.053
17	ILL	2	8	2.500	0.053
18	ANGER	2	8	2.000	0.053
19	PARALYZE	3	12	3.667	0.050
20	BEALONE	2	8	4.000	0.041
21	INSOMNIA	1	4	1.000	0.040
22	LAUGHTER	1	4	1.000	0.040
23	TICKS	3	12	4.667	0.037
24	FASTBEAT	2	8	3.500	0.034
25	SCRATCH	1	4	2.000	0.033
26	ALLERGY	1	4	2.000	0.032
27	SHOUTING	1	4	2.000	0.032
28	CANCER	1	4	2.000	0.030
29	DIZZY	1	4	3.000	0.027
30	HYPOTENS	1	4	2.000	0.027
31	BLINKING	1	4	3.000	0.020
32	SADNESS	1	4	5.000	0.020
33	TIRED	1	4	3.000	0.020
34	CHILLS	1	4	4.000	0.016
35	LOSSAPP	1	4	4.000	0.016
36	NOACTVTS	1	4	6.000	0.015
37	STOMACHE	1	4	5.000	0.013
38	DIABETES	1	4	3.000	0.013
39	LOSEVOIC	1	4	7.000	0.010
40	DISCHARG	1	4	4.000	0.010
41	HIGH	1	4	4.000	0.010
42	IMAGINE	1	4	5.000	0.008
43	AGGRVATE	1	4	5.000	0.008
44	STUTTER	1	4	6.000	0.007
Total/Average:		107	4.280		

ALPHABETICAL ORDER

APPENDIX H

ITEM	FREQUENCY	FLURBAN		Smith's S	
		RESP PCT	AVG RANK		
20	AGGRVATE	1	4	5.000	0.008
21	ALLERGY	1	4	2.000	0.032
16	ANGER	2	8	2.000	0.053
8	ANXIETY	5	20	1.600	0.179
19	BEALONE	2	8	4.000	0.041
36	BLINKING	1	4	3.000	0.020
31	BODYACHE	3	12	2.000	0.097
9	BREATHE	3	12	2.000	0.094
5	CANCER	1	4	2.000	0.030
37	CHANGES	2	8	2.000	0.060
32	CHILLS	1	4	4.000	0.016
18	CRYING	3	12	1.667	0.104
24	DEPRESS	3	12	1.333	0.107
43	DIABETES	1	4	3.000	0.013
7	DISCHARG	1	4	4.000	0.010
34	DIZZY	1	4	3.000	0.027
10	FASTBEAT	2	8	3.500	0.034
22	FEAR	7	28	3.000	0.156
30	HEADACHE	2	8	1.000	0.080
38	HIGH	1	4	4.000	0.010
42	HYPOTENS	1	4	2.000	0.027
3	HYPTENS	4	16	1.750	0.120
6	ILL	2	8	2.500	0.053
33	IMAGINE	1	4	5.000	0.008
4	INSOMNIA	1	4	1.000	0.040
11	LAUGHTER	1	4	1.000	0.040
41	LOSEVOIC	1	4	7.000	0.010
26	LOSSAPP	1	4	4.000	0.016
25	NERVOUS	5	20	1.800	0.162
40	NOACTVTS	1	4	6.000	0.015
28	PANICATT	4	16	3.750	0.088
29	PARALYZE	3	12	3.667	0.050
2	PASSOUT	3	12	3.667	0.057
39	SADNESS	1	4	5.000	0.020
12	SCRATCH	1	4	2.000	0.033
17	SHOUTING	1	4	2.000	0.032
35	STOMACHE	1	4	5.000	0.013
23	STRESS	4	16	2.500	0.106
15	STUTTER	1	4	6.000	0.007
13	SWEATING	8	32	3.250	0.173
14	TICKS	3	12	4.667	0.037
44	TIRED	1	4	3.000	0.020
1	TREMBLE	13	52	3.000	0.289
27	WORRYING	2	8	2.000	0.053
Total/Average:		107	4.280		

Respondent-Level Statistics:

	1	2	3	4
Length of	Frequency	Avg Freque	Corr w/ Fr	
1 01	3.00	20.00	6.67	-0.82
2 02	4.00	5.00	1.25	0.26
3 03	4.00	23.00	5.75	0.03
4 04	6.00	27.00	4.50	0.33
5 05	5.00	9.00	1.80	-0.19
6 06	5.00	25.00	5.00	0.52
7 07	5.00	24.00	4.80	0.22
8 08	3.00	11.00	3.67	-0.98

APPENDIX H

				FLURBAN
9	09	6.00	33.00	5.50 0.21
10	10	3.00	18.00	6.00 0.90
11	11	5.00	24.00	4.80 0.54
12	12	4.00	28.00	7.00 0.97
13	13	5.00	27.00	5.40 -0.60
14	14	5.00	37.00	7.40 0.72
15	15	6.00	22.00	3.67 -0.38
16	16	2.00	16.00	8.00 1.00
17	17	4.00	26.00	6.50 0.36
18	18	4.00	25.00	6.25 -0.89
19	19	4.00	15.00	3.75 -0.80
20	20	3.00	7.00	2.33 -0.00
21	21	4.00	16.00	4.00 -0.26
22	22	8.00	27.00	3.38 -0.38
23	23	3.00	5.00	1.67 -0.87
24	24	4.00	11.00	2.75 0.26
25	25	2.00	12.00	6.00 1.00

Freelist indicator matrix saved as dataset C:\ANTHRO~1\FLMAT
 Aggregate frequencies and salience measures saved as dataset C:\ANTHRO~1\FLSTATS
 Resp-group correlations saved as dataset C:\ANTHRO~1\FLRESP

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