

SOCIAL STRESS AND THE HEALTH OF WOMEN IN THE ANDEAN HIGHLANDS: AN
EXPLORATIVE STUDY

by

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ABSTRACT

Social stress and health were explored among Andean highlanders to understand what stressors Andean women experience. The women's stressors were investigated using the research methods of cultural domain analysis: free listing, unconstrained pile sorting, and constrained pile sorting. Analysis of the data has shown insight into how Andean women process the stressors they experience. The collected data was analyzed using cultural domain analysis to examine relationships between demographic variables and social stress. The findings reflect a shared consensus among women in the Andean highlands surrounding the kinds of stressors they experience, as well as how they categorize these stressors.

INTRODUCTION

The purpose of this study is to investigate women's stressors in the Andean highlands. The study explores what stressors Andean women experience, as well as how they interpret such stressors. All data was collected in the Callejón de Huaylas Andean highlands of Peru. The Callejón de Huaylas is an Andean valley in the Ancash region of Peru, situated between the mountain ranges of the Cordillera Blanca and the Cordillera Negra. Informants who had resided in the valley for the majority of their lives were sought from the numerous highland hamlets throughout the Callejón de Huaylas.

The study consisted of three separate research phases. Phase one was conducted during summer 2016: data were gathered on the general types of stressors that women in the Andean highlands experience. The technique of free listing was utilized for phase one, in which the informants were asked to list the stressors that they experience. Phase two was also conducted during summer 2016, and utilized the research technique of unconstrained pile sorting. The thirteen most frequently mentioned stressors from phase one were utilized, and new informants were asked to sort the stressors into categories. Phase three was conducted during summer 2017 using constrained pile sorting. The most frequently grouped categories from phase two were utilized for the constrained pile sorting where women were asked to sort the thirteen stressors into three specific categories.

Analysis of the data was completed using Anthropac and SPSS software. The data was analyzed to potentially find statistical significance among the stressors allocated to each category of stress by the informants. Nonparametric analysis of the demographic variables collected during each phase of data collection was also performed; the demographics data was analyzed to look for similarities among the stressors experienced by women in each demographic category.

The results of the data analysis give insight into shared agreement among women in the Andean highlands concerning the stressors they experience, as well as how they categorize such stressors.

LITERATURE REVIEW

Cultural Domain Analysis

Because informant interviews are a main source of qualitative data within the field of anthropology, an accurate and objective tool must be utilized to analyze culture. In an attempt to make the criteria by which anthropologists deem answers to cultural questions correct, Romney, Weller, and Batchelder created the model of “Culture as Consensus” (1986). The model was based upon the theories of signal detection, latent structure analysis, and decision analysis (Romney, Weller, & Batchelder 1986). The cultural consensus model serves to assess cultural beliefs and the degree to which informants know and understand these beliefs.

The cultural consensus model is founded on the idea of shared agreement, or consensus, among individuals within a culture (Romney et al. 1986). However, different individuals within a culture may be more knowledgeable than others about a particular cultural domain. The model therefore places more weight on the answers of the more knowledgeable participants in the findings of the cultural assessment questions. The theory was tested on the classification of diseases in Guatemala, and results were used to measure the validity and reliability of the theory. The cultural consensus model was shown to measure the cultural competence of research participants within a multitude of cultural domains (Romney et. al. 1986). Its use allows an anthropologist to select the most competent informants in each area in order to gauge an accurate assessment of the culture.

There are two types of cultural consensus models – formal and informal. The formal model is intended for short, open-ended, and multiple choice answers (Romney et. al. 1986). The informal model, on the other hand, is intended for ratio-scaled, ordinal, and interval answers (Peternel, Malnar, & Klaric 2015). The informal model does not require the anthropologist to

correct for guessing, but instead allows for the analysis of how well the informants each responded to the questions in relation to the other informants in the research group.

The cultural consensus model has now become a standard research technique utilized by anthropologists when studying cultural domains. The various published studies using the cultural consensus model show the variety of domains that can be studied with cultural domain analysis techniques. One such study was conducted to analyze the construct of a “good life” within two sub-domains: ‘health and wellbeing,’ and ‘migration and socioeconomic milieu’ (Peternel et. al. 2015). The population studied was secondary school students, along with their parents and teachers within four Croatian cities. In the first phase of the study, data was collected using interviews and free-listing techniques (Peternel et. al. 2015). This data was then used to construct an organized questionnaire whose questions would be utilized in the survey during the second phase of data collection. The informal cultural consensus model was utilized for data analysis in order to gauge the uniformity of the respondents’ answers.

Another study utilized the cultural consensus model in order to analyze the categorization of cooperation within both China and the U.S. (Keller & Loewenstein 2011). The study provides evidence that cooperation is a cultural category in that the definition of cooperation is culturally governed (Keller & Loewenstein 2011). Cultural consensus model analysis was utilized in understanding the types of situations which people may categorize as cooperation, and whether these situations are uniform within both China and the U.S. The findings of the study reflected that systematic cultural differences exist within beliefs about cooperation (Keller & Loewenstein 2011). Keller and Loewenstein (2011) recommend that more research be carried out concerning the manner by which culture impacts behavior.

Another study sought to understand health disparities within African American communities regarding arterial blood pressure, using the cultural consensus model. Dressler and Bindon (2000) utilized cultural consensus analysis to study shared cultural models around the lifestyles and social support systems within African American communities. They also utilized the theoretical construct of cultural consonance to assess the extent to which individuals within these communities behaved in accordance with the cultural model (Dressler & Bindon 2000). The findings of the study suggest that cultural consonance in both lifestyle and social support systems are linked to health – specifically, the levels of arterial blood pressure. The use of cultural consensus analysis helped Dressler and Bindon to detect the extent of sharing among individuals in the communities with regard to cultural models.

Overall, the cultural consensus model is an analytical technique for assessing cultural knowledge. It is useful in gathering data from informants in order to gauge the pervasiveness of cultural domains engrained within the population. The cultural consensus model may be used for a variety of cultural domains, including health, illness, and psychological well-being.

Social Stress

One such cultural domain is social stress. Social stress has been conceptualized as a state of arousal that results from either the inability to achieve goals or the existence of “socioenvironmental demands” that challenge an individual’s ability to adapt (Aneshensel 1992). The concept of social stress refers to a stress response that individuals exhibit because of societal structure. Societal stressors vary among different cultures, and can depend on demographics and cultural norms. Social stress has been tied to both psychological and physiological deviation from a state of health within humans (Kellie 2005). Research delving into the social stress

domain began with Walter Cannon and his discovery that adrenal activity is linked to major emotions and pain within animals (Cannon 1914). Consequently, Hans Selye coined the term ‘diseases of adaptation,’ which refers to the damaging effects that a prolonged stress response can have on the body (Sandoz 2015).

Emerging research has addressed the connection between social stress and detrimental biological outcomes. Inflammatory response has been shown to be triggered via stress, and immune cells upregulate the expression of proinflammatory genes during periods of social stress (Powell, et. al. 2013). Another biomarker of stress is elevated blood pressure due to increased cortisol release. A study by Dressler shows that social status mismatch for individuals correlates with a higher blood pressure (1999). Congruently, higher levels of social support are correlated with lower blood pressure. Specifically, social support among adult siblings was linked with lower blood pressures while other kin ties were associated with higher blood pressures (Dressler 1999).

Cultural syndromes, or shared attitudes around a theme, are also tied to higher stress levels. For instance, the Latin American illnesses of *susto* and *nervios* are significantly associated with stress (Weller, Baer, Garcia, & Rocha 2008). Among the cultural syndromes experienced by Peruvian highlanders, *chucaque* has been linked with higher household social stress levels (Brooks 2014). *Chucaque* is a cultural illness in which a person suffers from headaches due to experiencing a traumatic event. The illness was found especially to be experienced more frequently in Peruvian highlanders that live within households where the ratio of males to females is imbalanced. Such imbalance is a source of social stress among Peruvian highlanders because it adds to the workload of the household due to assigned gender roles.

Culture and stress have been shown to be correlated – what people perceive as stressful is shaped by the culture they belong to (Rubel, O’Neill, & Collado-Ardon 1984). A useful term in evaluating how much an informant can enact the shared cultural model within their society is cultural consonance. Cultural consonance is the degree to which an individual behavior’s parallels that of the cultural model by which they abide. When an individual does not exhibit cultural consonance, they can experience chronic stress (Dressler, et. al. 2007). In other words, not fitting into the shared model of one’s culture can result in a stress response, and thereby lead to more negative health outcomes. The expectations placed upon a person within their culture may cause them stress when their performances do not match social expectations (Rubel et. al. 1984).

Within Peruvian culture, the household one lives in also impacts one’s level of social stress. The assigned gender roles serve as a balancing mechanism for the tasks of men and women within Andean society. The ratio of males to females should therefore be balanced within a household, so that one sex does not become burdened by a larger workload within the family unit (Oths 1999). When a household has more male children than female, the tasks placed on the mother as a nurturer in addition to her productive role within the field are increased. This puts a strain on the mother and her well-being. In order to address the imbalance of a specific gender, Andean highlander families may adopt or foster a person from a poor family (Oths 1999). A loss of the balance, and therefore partnership, between the sexes can be harmful to the family’s success within the marketplace, and can put a financial strain onto the family. The imbalance will thereby add additional social stress onto highlander families.

The social relations one has impact a person’s health. When one has damaging relationships with others in their society, it can have a negative impact on their physical health.

Stressful social relations within the Andean culture include the dominant class labeling the peasant body as “coarse” and “vulgar” (Oths 1999). Additionally, the probability of encountering similar stressors within a culture can be linked to the position of person within the social strata (Aneshensel 1992). The highland Andean culture has its own set of unique social stressors. Harsh realities such as oppression, exploitation, and difficult manual labor are commonly experienced (Oths 1999). A primary source of social stress experienced by highlanders is the dissonance between the expected role of an individual versus his or her real role. For both males and females, achieving the set of social expectations placed upon them decreases their level of social stress (Brooks 2014).

A gauge for social stress levels was developed by Arthur Rubel and Carl O’Neill in 1980. They wanted to explore the hidden meanings behind the experiences, especially those of cultural and social interactions, they observed as anthropologists (O’Neill & Rubel 1980). By creating a gauge to measure social stress levels, O’Neill and Rubel sought a technique to obtain more rigorous ethnographic data. They also recognized that there needed to be a way to make more valid inferences from the data gathered ethnographically. The Social Stress Gauge therefore enables anthropologists to hasten data collection in the field, and translates the data into numerical scores so that it may be analyzed with quantitative methods (O’Neill & Rubel 1980). Use of the gauge also allows anthropologists to increase the replicability of their data, both within their own sample groups as well as by other anthropologists.

In creation of the Social Stress Gauge, O’Neill and Rubel (1980) attempted to explain the meaning of *susto* – a folk illness characterized by experiencing fright. O’Neill and Rubel wished to understand the syndrome itself through their research. They sought to develop an operational definition of social stress, which they linked to *susto* (O’Neill & Rubel 1980). The Social Stress

Gauge was created in order to effectively measure social stress. The objectives of the Social Stress Gauge are twofold – it gathers data on a person’s perceived inadequacy within their social role, and translates this data quantitatively. Two versions of the Social Stress Gauge were developed, one for males and another for females, to cater toward what O’Neill and Rubel termed “ethnographic reality.” The male gauge addresses items such as work, social involvement, and public services. The female gauge includes questions targeting female tasks and family obligations rather than community engagement (O’Neill & Rubel 1980). The social expectations and tasks relegated for females impose their own set of stressors onto women of the Andean highlands.

Women of the Andes

Living in the Andean highlands is especially stressful for women due to the confined gender roles placed upon them. Rural Peru has traditionally exhibited a patriarchal culture, in which different roles are assigned to men and women. Peruvian women are expected to occupy the role of “mother” and “wife,” whereas men are generally thought of as the providers (World Bank 2013). While men are able to earn a wage and cash income for the family, women are confined to unpaid domestic and farm work. Compared to women in urban parts of Peru, those in the highlands experience a disproportionate burden placed on their fieldwork duties in addition to their household duties (Kang 2006). Women are expected to work diligently in planting and herding alongside Andean males and in addition to completing daily household chores such as caring for the children and the home. Although women have additional responsibilities in the household, they are not to usurp the authority of their husbands. The dual nature of the

responsibilities placed upon women in the Andean highlands contributes to their stress, because their contribution is not as valued as men's.

Gender roles are also seen in agricultural duties themselves. Women are excluded from using the plough and from managing irrigation; this gender division is reinforced by taboos and myths about the danger of women practicing such farming techniques (Radcliffe 1986). Specifically, the plough is thought to be too difficult for a woman to use, and the use of irrigation may threaten a woman's fertility status. After the land is ploughed, Andean women typically sow the seeds, which is vital for the continued fertility of the fields. However, generally the male agricultural tasks are more highly valued by Andean society than are women's (Radcliffe 1986).

While men control the productive tasks in Andean society, such as providing food and resources for the household, women do have some economic power. Andean women typically control their household's finances, and are also able to gain a level of economic independence via inheritance, healing, trade, and craft creation such as weaving (Oths 1999). However, women typically have to rely on men in order to achieve higher status within Andean society.

A woman's status in Andean culture primarily comes from her success in the "reproductive role" (Oths 1999). This reproductive role has a dichotomous meaning – women need to plant the seeds in the field in order to usher in a fertile planting cycle as well as be sexually fertile. The expectation placed upon women in the Andes is that they give birth to several children and raise them to adulthood. In fact, the status of a man is partially associated with his wife's reproductive success (Oths 1999). The expectation is that women play a larger role within their children's upbringing and support them until maturity. When a woman does not have children, she is seen as an outcast; consequently, other highlanders either take pity on her, or blame her for her childlessness (Oths 1999). She becomes marginalized by her peers, and is

seen as a sad case. Even so, families with a large number of children, such as ten to thirteen, are also looked down upon; the father is viewed as not looking after his wife, and the mother is blamed for not washing herself properly after engaging in sexual relations (Bourque & Warren 1981). However, women often do not have a reliable form of contraception prevention due to limited access and supplies. The inability to fulfill their reproductive roles may add to the stress that women in the highlands experience.

The relationships between parents and daughters may often become strained due to the roles women are assigned as both daughters and wives (Bourque & Warren 1981). In general, women tend to retain kinship ties with their families. However, this may lead to fathers wishing to retain their daughters' domestic help at home, which can be a source of added stress upon women in the highlands. In addition to taking care of the household she and her husband have created, she may need to also contribute to her childhood home, which she may find difficult due to financial strain or lack of time.

The stress of being a highland woman comes from the dichotomous role of reproduction and production, and is further compacted by the lack of opportunities for advancement for women that exists within Peruvian culture. Lack of education may serve as a source of stress for highland women as it reduces one's opportunities for upward mobility. It is challenging for the state to provide education in the remote areas of the Andean highlands. School is mandatory from the ages of six to sixteen, but education within indigenous communities is limited due to lack of funding for bilingual education (Marino 2014). Because indigenous children come from rural areas, it is often difficult for them to get to school and receive education. The situation is worsened for girls, upon whom education is not seen as necessary in order to fulfill their social roles. Limited education therefore serves as a barrier for women to function within the higher

levels of Peruvian economy and society. The Andean highland culture itself lends to issues of social stress among women due to their ascribed roles within the society.

Ethnographic Descriptions of the Andean Highlands

The Andean highlanders are native inhabitants of the Andean Mountains in South America. Families in the Andes exhibit unity throughout generations, especially within nuclear family units (Hudson 1992). A household may be multigenerational with multiple nuclear family units within it. The average Peruvian family size consists of 5.1 people to a household, with the highlander household being an average of 4.9 people (Hudson 1992). The highlander household is typically smaller than that of urban Peru due to migration of household members into cities.

The roles of males and females typically follow consistent patterns among the varying social classes. In Peruvian society, the father acts as the head of the family, although women also occupy this role in around 20% of households in both rural and urban areas (Hudson 1992). In order to meet the needs of their families, women often seek out wage labor. Although the male of the household is considered an authority figure, the wife typically plays a large role in maintaining the household and working in the market (Hudson 1992). The Incaic kinship system of patrilineages survives in many Quechua communities (Hudson 1992). In such a lineage, wives belong to their father's lineage and their children belong to the father's family lineage (Hudson 1992). While fathers act as authority figures and control how resources enter the household, mothers decide how such resources are utilized to take care of the children and maintain the structure of the household.

Agriculture is a large component of life in the Andean highlands, and a diverse species of crops abound. The typical rural highland family begins its day in the fields of the Andean highlands. Such field work occurs on family *chacras*, which are family farms located at a different altitude than their home and may take hours to reach (Hudson 1992). Historically, in the late pre-Hispanic period, populations throughout the Andes utilized agricultural economies

(Pearsall 2008). Such economies were able to support large populations, and led to the evolution of complex societies. Many crops are grown within the Andean highlands including a wide variety of potatoes. Almost 200 different kinds of potatoes are cultivated in the highlands (Food and Agriculture Organization of the United Nations [FAO] 2017). Terraces allow for cultivating crops at different elevations, with maize being grown in lower altitudes and tubers in higher altitudes (FAO 2017). Threats to the agricultural norms of the highlands include socioeconomic factors such as male migration in search of earning possibilities, as well as environmental factors due to climate change such as water contamination, water scarcity, and problems with seed storage (FAO 2017).

Modern technological advances and economic situations have resulted in a demographic shift in rural Peru. Households are losing the youth to migration, which decreases the productive capabilities of households. The decline in workforce numbers has also been impacted by the Shining Path since the early 1980s (Hudson 1992). The political group's regime has resulted in a third of the houses in the highlands being left empty, permanently uncultivated fields, and collapsed irrigation systems (Hudson 1992). Such losses are ones that Peru cannot repair easily due to diminished modern agricultural production and a reliance on imported foods (Hudson 1992).

The demographic changes in the Andean highlands that result in migration also have an impact on cultural institutions such as festive celebrations. Festive systems, or *fiestas*, involve families working alongside relatives and friends to plant and harvest their *chacras* (Hudson 1992). Such celebrations are also accompanied by musicians and food. *Fiestas* are a function of communal social life, and require substantial planning and preparation by the family hosting it throughout the entire year (Christie & Weismantel 2008, 17). A *mayordomo* – the person in

charge of organizing the fiesta – asks other people in the village for cash donations for the celebrations, which may at times be difficult to procure, in which case he must convince and motivate them to give donations. Once a person agrees to give a cash donation, they too are thought of as putting on the *fiesta* (Kuhn & Vessuri 2016, 92). Cargo holders, who are in charge of civil duties such as the maintenance of roads and cemeteries, also rely on motivating others for help in order to be successful in their roles. Likewise, when families are in charge of putting on a *fiesta*, they must make appeals to their extended family and friends to help fund the *fiesta* (Kuhn & Vessuri 2016, 93).

The *fiesta* functions to redistribute resources, namely food, among highland communities that are a part of an informal economy. Different households take turns hosting the fiesta, which functions to not only redistribute food, but also to redistribute wealth among the community (Monaghan 1990). Each household goes through a cycle of having to sponsor the fiesta within their community, which can be an added stressor during the year of hosting. Economic strain can create a burden on families that host a *fiesta*, because the hosts may be unable to secure enough donations from their family and friends to put on a good fiesta. Likewise, their close relations may feel stressed due to being unable to donate to the hosts for the fiesta. In addition, the host family may be unable to keep the celebration focused on the harvest, which results in an inefficient use of resources (Hudson 1992).

Social relationships are highly valuable in the Andean highlands, specifically for their economic efficiency. The types of relationships that abound include kinship, godparent (*compadrazgo*), and friendship (Longmore 1948). The *compadrazgo* system is a formalized friendship, and employs a fictional form of kinship (Longmore 1948). The *compadrazgo* relationship enables a person to become a patron to another, and the person becomes strongly

obligated to help the other in times of economic distress. People of the same economic status are chosen to participate in the *compadrazgo* system, which lessens the economic load and strain on individual families (Longmore 1948). Dyadic contracts such as the *compadrazgo* relationships are often employed in the Andean highlands, and are based off of the cultural norm of reciprocity. Reciprocal responsibilities serve as a way to exchange goods and services in order for families to economically survive in the rural villages of the highlands (Foster 1961). The harsh realities of living in the Andes necessitates sociocultural strategies to address the economic stresses faced by marginalized highland populations.

METHODS

This research study was conducted in three phases, each utilizing a systematic anthropological approach. Phase one consisted of collecting free list data from thirty informants in the Callejón de Huaylas. In order to gain understanding of the types of social stressors that women in the Andean highlands experience, informant interviews were conducted. Andean women in the highlands described terms that were sources of social stress for them. Phase two consisted of unconstrained pile sorting, in which informants were presented with a set of cards representing terms from the cultural domain of social stress and asked to sort them in as many piles as they saw fit. Phase three was conducted using the technique of constrained pile sorting, in which informants were asked to sort the cards into specific categories gleaned from phase two data. The phase three data was analyzed for understanding of shared consensus amongst the informants on the cultural domain of social stress.

Phase I

The informants were chosen at random for all three phases of the research study in order to generate a broad sample. Informants were women eighteen years of age and older that were native to the Callejón de Huaylas. They were recruited using a snowball sampling method, in which random participants were asked to help identify other women that would fit the aforementioned criteria. Therefore, the researchers were able to interview more informants based off of the previous informant's referrals.

During phase one, free listing was conducted in order to gain a broad understanding of the stressors Andean highland women face. Free listing is a technique in which informants identify terms that are cognitively associated with a specific domain – for the purposes of this

research study, the domain in question was social stress. Focus groups were conducted among women in the Andean highlands in order to gain insight into the types of stressors that are placed on highland women by their society. Informant interviews were conducted in which women were asked to identify their sources of social stress and to expound upon them.

Free listing provides a broad list of terms which can then be studied to determine meaning among the terms in relation to the cultural domain being analyzed – namely, social stress in this study. Therefore, women were specifically asked to list everything that came to mind which was a potential source of social stress for them. Sample terms that came up from this activity included “feeling insecure,” “not having work,” and “having problems with a spouse.” This activity generated a large number of responses, which was later narrowed based on synonymous terms.

In the analysis of the free listing data, all the responses were tallied. The top twenty percent of stressors mentioned by the thirty informants were chosen for continuation of the study in phase two. The top twenty percent consisted of thirteen terms to describe stressors that women of the Andean highlands experience regularly.

Phase II

Phase two utilized the anthropological research technique of unconstrained pile sorting. For the unconstrained pile sort, informants were recruited utilizing the snowball method. They were presented with a set of index cards that listed terms gathered from the free listing exercise in phase one. These terms were representative of the broad array of causes of social stress among Andean highland women. The informants were instructed to sort these cards into as many piles

as they thought necessary in order to categorize them, with each category containing cards that were more closely related to one another.

The objective of the unconstrained pile sort was to obtain a general understanding of the categorization of the different types of social stressors experienced by women in the Andean highlands. The categories from each informant were recorded, and the data analyzed to look for shared agreement for categories amongst all informants. Anthropac software was used to analyze the data in the form of cluster analysis. Cluster analysis assigned x and y coordinates to the thirteen terms listed by the informants within a two-dimensional plane, and sought to identify those that were more closely related to one another. The proximity of the points in two-dimensional space therefore creates clusters, or groups, of terms. Terms similar to one another are grouped in the same cluster, whereas dissimilar terms are located further away and grouped into other clusters. The clusters were then analyzed using SPSS software in order to create a multidimensional scaling model.

Phase III

Phase three was conducted utilizing the technique of constrained pile sorting amongst a new set of informants utilizing the snowball sampling method. The three most frequent categories for the broad array of social stressors from phase two were chosen. These categories were: problems associated with being a woman, problems associated with the *chacra*, and problems associated with the household. The terms that were utilized for the constrained pile sort in phase three were the thirteen most frequently cited terms for social stressors gathered from the phase one data and the same ones used in the unconstrained pile sorting. Informants were asked to sort the terms into these three specific categories. The results from the constrained pile sort

categorizations were used to determine if a shared understanding of social stress exists among among Andean highland women. In other words, the constrained pile sort data show whether Andean highland women conceptualize the social stressors they experience in similar ways.

Cultural Domain Analysis

A common thought in anthropology is that culture consists of superimposed cultural models (Dressler, 2001). The cultural models are representations of notable social phenomena within the society, and are shared by individuals within the culture (Dressler, 2001). The chosen cultural domain of this study is social stress. This exploration into women's social stressors has aimed to elucidate how women in the culture of the Peruvian highlands conceptualize their stressors, and whether there is shared agreement among them.

The selection of the stress domain stemmed from the multitude of research linking stress to negative health outcomes (Dressler, 1999; Powell, 2013; Weller, 2008). Thus, identifying the most common stressors for women of the highlands will help in understanding the cultural domain of stress, as well as provide the initial knowledge needed to address it. Cultural domain analysis through the techniques of free listing, unconstrained pile sorting, constrained pile sorting, and cluster analysis explore the cognitive structuring of social stressors that women experience in the Andean highlands

Sample

Demographic information was gathered from each informant including informants' age, marital status, residence, education level, number of children, and years lived in the Callejón de Huaylas.

RESULTS

Each set of data gathered from the three separate research phases was analyzed via Anthropac software to identify a shared model of social stress for women of the Andean highlands. The thirteen most frequently cited terms from the data gathered in phase one included: lack of work, problems with one's spouse, feeling insecure, having little harvest/blights, being sick/being in pain, having few opportunities for women, no water/not enough rain, difficulty with planting/working on the farm, lack of money, cooking, not having an education, taking care of the animals, and taking care of the children. In phase two, women were asked to group these terms into as many categories as they saw fit; this technique is called unconstrained pile sorting.

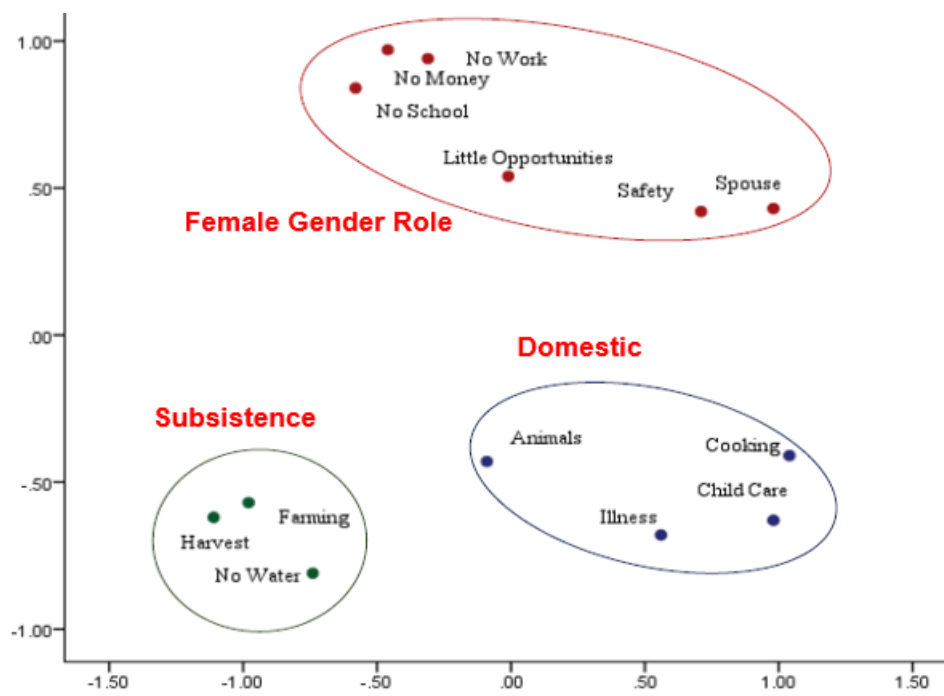


Figure 1. Phase 2 Multidimensional Scale of Social Stressors for Andean Women.

Figure 1 is a visual representation of the phase two data, and was created using Anthropac and SPSS software which plotted the data gathered from the categorization of the thirteen social stress terms into x and y coordinates. The terms that are more closely grouped together were more frequently cited by the informants as belonging to the same dimension of the cultural domain. As evidenced by Figure 1, three categories emerged out of the data gathered in phase two concerning how women organized different sources of social stress: social stress associated with being a woman, social stress associated with subsistence farming, and social stress associated with the household.

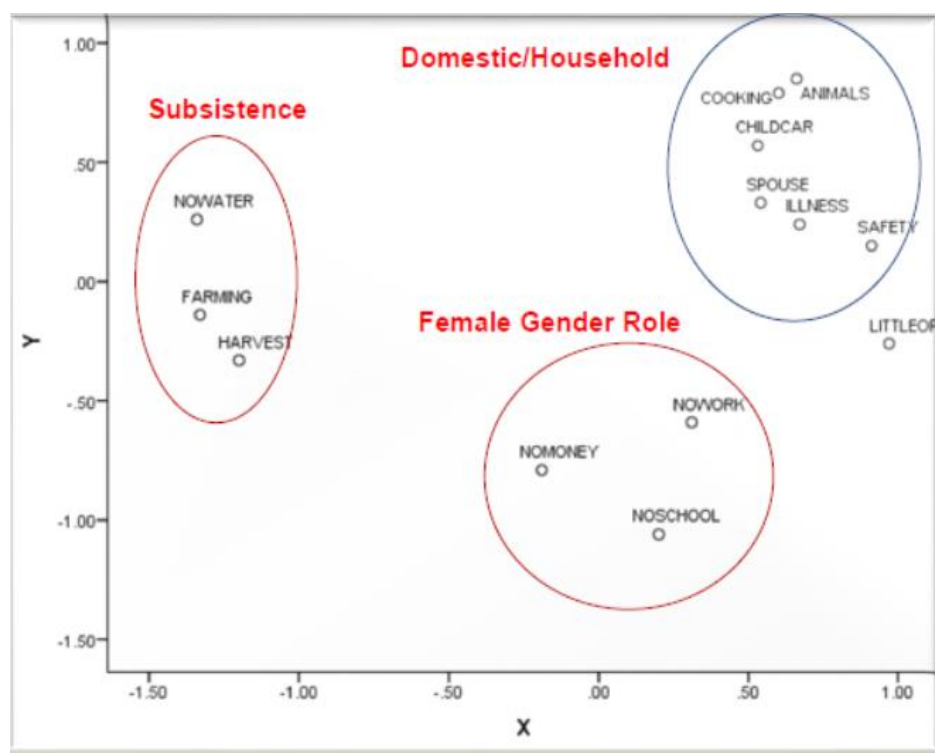


Figure 2. Phase 3 Multidimensional Scale of Social Stressors for Andean Women.

A similar graph was generated through Anthropac and SPSS software for the results of the phase three data, seen in Figure 2, in which women were asked to organize the social

stressors into the three specified categories derived from phase two, a task also called constrained pile sorting. The amount of overlap between the social stress terms grouped in each category between Figures 1 and 2 was compared to look for shared consensus among Andean highland women regarding their categorizations of various dimensions of the cultural domain of social stress.

DISCUSSION

Figures 1 and 2 were analyzed to look for overlap among the categorizations of the social stress terms, which signifies shared consensus among informants. There is significant overlap between how the social stressors were organized within the specified categories in Figure 2, which depicts the phase three data, when compared with Figure 1, which depicts the phase two data. The stressors associated with subsistence farming – no water/not enough rain, difficulty with planting/working on the farm, and having little harvest/blights – were grouped closely together in both phases. As for stressors associated with being a woman in the highlands: lack of money, lack of work, and not having an education all were sorted by many informants into the same piles. And finally, for stressors associated with the domestic sphere: cooking, taking care of the children, taking care of the animals, and being sick/being in pain were grouped into the same piles by both sets of women in phases two and three.

However, the domestic grouping was different between phase two and three. The phase two data was collected using unconstrained pile sorting, in which women could place the stressors within any category of their choice, whereas in phase three data collection women were asked to categorize the stressors within three categories derived from the phase two pile sorting data. Consequently, when having to make the choice between several stressors being associated with the women's role versus the domestic role, many women may have chosen to ultimately place the stressors within the domestic sphere. The terms that migrated from female gender role to stress associated with the domestic sphere were feeling insecure and having problems with one's spouse. The categorizations of three additional terms within the female gender role for phase two, when compared with phase three, may have resulted due to the convergence of

women's duties within the household, whereas for phase three they had to be more specific and choose one category over the other.

The thirteen most frequently cited terms relating to stressors commonly held by women in the Andean highlands give insight into the daily lives of these women. Women expressed feeling insecure, *sentirse insegura*, frequently, which may arise from the need for a spouse and the desire to contribute to society, yet not being able to do so. The lack of money, or *no dinero*, was also a common stressor, and is likely related to the lack of education and work opportunities for women in the Andean highlands, which were also two other frequently cited stressors. Not having an education, or *no tener estudios*, was common, and resulted from the lack of opportunities and advancement for women in the region. Having few opportunities for women – *pocas oportunidades para las mujeres* – was in fact another of the thirteen most frequent stressors experienced by Andean women. It is linked to the lack of access to education for Andean highland women, as well as the few opportunities that exist for advancement out of entrenched poverty, especially within the patriarchal culture. Lack of work, or *no trabajo*, was also a common stressor for many women surveyed, because if a woman cannot find work, then she does not have a source of income. She is thus not able to take care of herself, and must rely on her family or her spouse. However, another frequently cited term was *problemas con el esposo*, or having problems with one's spouse. Problems may arise concerning the rearing of children, tending to the family's *chacra*, monetary expenses, and the division of labor, among others.

There are also several other terms that women often expressed as stressors, which deal with everyday life in the Andean highlands. Cooking, or *cocinar*, is a common stressor for these women due to not having enough time to both cook and rear children – two roles assigned to

women within the highland culture. Thus, taking care of the children – *cuidar a los hijos* – was a common stressor, due to time constraints arising from all of the duties imposed upon women in the culture such as cooking and tending to the family *chacra*. Being sick/being in pain – *estar enferma/sentir dolor* – was another common stressor, which is related to not being able to perform one’s duties as a woman when ill. The experience of being sick displaces women from their responsibilities, and may lead to problems with cultural consonance.

Issues concerning the *chacra* also arose as a common source of stress among the surveyed women. Having little harvest/blights – *poca cosecha/plagas* – is stressful for women, because of resource constraints. Not being able to produce enough food for the family, especially during a year when a family has to host a *fiesta*, places undue burden on families and leads to stress for women. Difficulty with planting/working on the farm – *dificultad con el sembrío/trabajar en la chacra* – is also stressful, because of not being able to contribute or perform one’s duties within the household as a woman. Taking care of the animals – *cuidar a los animals* – is stressful for highland women as well due to time constraints of having to cook, rear the children, etc. The task is also physically demanding, and may tie into the common stressor of being sick/being in pain.

No water/not enough rain – *no agua/menos lluvia* – is also a common concern for women that gives them stress, because little rain reduces the amount of harvest a family can reap. This is also especially stressful in a *fiesta*-hosting year, and would lead to the family having to buy food from somebody else, which also places a financial burden on the family. The situation may lead to feelings of failure as a farmer and a member of the community. There has also recently been water conflict in the Andean highlands over irrigation for *chacras*, which may contribute to the stressor of not having enough water for one’s harvest. The Peruvian highland climate consists of

six months of rain followed by six months of dry weather, during which time irrigating one's *chacra* becomes very important. Neighbors may try to divert water irrigation to their farms, which would create a shortage of water for neighboring farms leading to water insecurity and reduction in harvests.

The thirteen most frequent stressors cited by the informants illustrate the effect of cultural consonance, where stress results from not being able to meet the culturally agreed upon social expectations of the society one lives in. Thus, stress may result from not being able to perform one's duties as a woman properly, which include taking care of the children, cooking, and contributing to work on the *chacra*. Andean women may thus experience not being culturally consonant in the areas of the household, the *chacra*, and the social role of being a woman in the highlands. In a culture that focuses heavily on social relations and reciprocity to thrive, being unable to perform one's socially obligated duties leads to higher stress.

The results gathered from phases one through three of this study suggest that there is shared consensus among women in the Andean highlands regarding the kinds of stressors they experience, as well as how they categorize these stressors. Out of the ninety women surveyed, the majority agreed not only upon the categories of social stress they experience, but also the classification of certain stressors within these categories. Therefore, women living in the Andean highlands largely agree on the conceptual framework of social stress that they experience.

CONCLUSIONS

The purpose of this study was to investigate what stressors women in the Andean highlands experience as well as how they categorize such sources of social stress. The study consisted of three separate research phases. In phase one, data on the general types of stressors that women in the Andes experience was gathered using the technique of free listing. Phase two utilized the research technique of unconstrained pile sorting, in which new informants were asked to sort the most frequently mentioned stressors from phase one into categories. Phase three was conducted using constrained pile sorting, in which new informants were asked to sort the thirteen stressors into three specified categories garnered through phase two data. The results gathered from phase three suggest that there is shared agreement among women in the Andean highlands concerning the types of stressors they experience, as well as how they categorize such stressors within the domain of social stress.

The potential implications of this study are that women of the Andean highlands experience similar stressors within a shared conceptual framework. By developing an understanding of this shared model, one can build a survey tool that can be used to assess the social stress levels of individual women. The survey tool could be built based upon the three main categorizations of social stress that women in the Andean highlands experience, and could gauge women's social stress levels related to each of the thirteen social stressors. Since social stress has been linked with both psychologically and physiologically negative health outcomes, a survey tool measuring women's social stress could help identify which women are at the greatest risk. The survey could then function as a tool for both indigenous healers, as well as biomedical health practitioners to gauge their Andean highland women patients' social stress levels. Both types of health professionals could therefore counsel their Andean highland women patients on

ways to manage their social stress. This might assist in preventing and/or treating psychological and physiological negative health outcomes that result from high levels of social stress. As a continuation of this research project, a phase four will be conducted during summer 2018 to measure individual levels of social stress among Andean highland women to progress toward developing such a survey tool.

There were several limitations to this research study. Demographic variation should be accounted for, because the informants varied in age and years spent in the region of the Callejón de Huaylas. They also had varying amounts of educational training, and may therefore have experienced social stressors to varying degrees. The sampling strategy for this research study was snowball sampling and the type of data analysis was cultural domain analysis, so different types of sampling and analysis methods may account for differing results. There were also ninety informants interviewed throughout the three phases of the research study; however, more may need to be interviewed to achieve a consensus understanding of all the dimensions of the cultural domain of social stress among the women of the Andean highlands. Because this study was conducted by different university students working in teams over the course of three summers, there may also have been potential for error in understanding the research methods, as well as challenges with student administration of the research study methods to the informants.

Despite such limitations, while previous studies have investigated stressors experienced by the Andean population in general, this is the first study to specifically examine Andean women's social stressors. Social stress has been well-represented within anthropological scholarship, but there is a lack of understanding as to what specific types of social stressors women experience, as well as how they conceptualize their social stress within mental categories. There is particularly a gap of knowledge as to the kinds of social stressors indigenous

women experience. In general, women are less mobile, and tend to retain their cultural traditions and knowledge more than men. While men have the option of moving into the city to pursue economic advancement, and thereby learning the Spanish language and cultural customs, women are not afforded this opportunity within the Andean highlands. This research study therefore contributes to the body of scholarship on the effects of women retaining their culture. As evidenced by the thirteen most frequently cited social stressors, women of the Andean highlands experience social stress over lack of work, feeling insecure, not having an education, and having few opportunities available to them. Thus, retaining their cultural customs might cause Andean highland women to have increased social stress due to not having the same opportunities for mobility as men do within their culture. This research study has also shown how cultural domain analysis can be used to draw conclusions from data gathered on social stressors. This study is also an example of faculty student collaborative research demonstrating how students can be incorporated into anthropological research studies, as different sets of students travelled to Peru over the course of two summers to gather the data from informant interviews.

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