

Using a Susto Symptoms Scale to Analyze Social Wellbeing in the Andes

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Abstract *Susto* is a cultural syndrome associated with fright that impacts Andean farmers. Measures of social wellbeing were utilized to determine possible risk factors for development of *susto*. Stress was measured to assess the level of social wellbeing of *susto* sufferers. The cultural consensus model was used to explore the distribution of understandings of *susto* and Andean social roles in Peru. Highlander's ability to know and enact the cultural model of Andean social roles was investigated as it related to social wellbeing. By analyzing a variety of potential factors associated with *susto* one can gain insight into Andean culture and social wellbeing.

Keywords Susto, Cultural Syndrome, Social Wellbeing, Andean Highland Culture

1. Studying Cultural Syndromes using Cultural Domain Analysis

The aim of this research is to use cultural domain analysis and quantitative statistical analyses to examine the relationship between social wellbeing and individuals' susceptibility to the cultural syndrome of *susto*. *Susto* is a fright illness common in many parts of Latin America. In order to identify what Andean highlanders regard as stressful, one has to understand how different areas of perceived stress are culturally shaped. This research was influenced by approaches to understanding *susto* pioneered by Arthur Rubel [19], who identified *susto* risk factors to be physical weakness and social stress which he defined as individual failure to meet culturally agreed upon social role expectations. One way to study social wellbeing is to operationalize it in terms of emotional and physical wellbeing Brooks [5]. Social stress defined as different domains of agreement about particular elements of the cultural model of highland life within Andean society can also help to better understand social wellbeing. Cultural domains can help anthropologists begin to unpack the components of meaning that informants' use to cognitively

evaluate their society. In addition to the cultural domain of *susto*, emotional well-being was investigated for its possible relationship to *susto*. Emotional wellbeing looks at how well an individual is in control of the sociocultural surroundings within society Brooks [5]. Specifically, do they feel that they are able to control their social environment. Andean physical wellbeing was also measured as it relates to *susto* by assessing ones physical health and general wellbeing. The research methods of cultural domain analysis facilitate the investigation of culture on individual biopsychosocial processes such as emotional and physical wellbeing.

In medical anthropology literature, the nature of illness is conceptualized from various perspectives. Understandings of cultural syndromes are formulated based on four competing notions of illness in medical anthropology: illness representations as folk beliefs, cognitive models, culturally constituted realities, and mystification Good [10]. A cultural syndrome, also known as a folk illness, is a complex understanding of illness that is culturally specific Rubel et al. [19]; Oths [14]. The holistic conception of the mind body connections and group and individual understanding of sickness must be encompassed in the study of such illness. The perspective adopted for this research seeks to demonstrate the strengths of a biocultural framework by discussing how cultural syndrome studies using this orientation have shown relationships between illnesses and a combination of biological and cultural factors. Some researchers suggest that the definition of a cultural syndrome is a discrete set of clustered symptoms unique to a particular cultural group Davis and Guarnaccia [6]. However, this definition of cultural syndromes is problematic because it does not take into account that cultural syndromes tend not to be unique to one cultural group, given that some exist within distinct cultural groups who share some larger cultural historical similarities.

In "What's Cultural about Biocultural Research?," Dressler [7] describes the biocultural approach to medical anthropology as a research orientation that furthers the understanding of culture and biology by incorporating a cognitive notion of culture that is embedded within current culture theory, utilizes more rigorous research methods such

as cultural consensus analysis, emphasizes meaning, and links collective meaning to individual behavior. The biocultural framework is used to study cultural syndromes by allowing the researcher to show how collective and individual meaning relate to individual behavior in the context of an illness. Other biocultural researchers, such as Guarnaccia and Rogler [11] suggest that further research on cultural syndromes must integrate cultural and clinical knowledge. The biocultural medical anthropological perspective shows that each cultural syndrome is not necessarily unique, but instead is a complex notion of meaning related to the way an individual tries to enact agreed upon cultural models in his or her life, along with the physiological consequences of failure to adequately enact those models.

The assessment of Andean social role expectations will extend cultural anthropological knowledge of social life in the Andes in general and, more specifically, give greater ethnographic knowledge of farmers' lives in the Callejón de Huaylas. The use of cultural domain analysis to create a *susto* symptom checklist will extend the utility of this type of analysis as a research technique for comparing individual and group understandings of illness. Stein [16] emphasizes the necessity for anthropologists to study the association between folk symptoms and physical symptoms in the Andes, just as Rubel et al. [19] did in Oaxaca, Mexico by using the tools of epidemiology to develop a multidimensional perspective on *susto*. This research will address Stein's [16] recommendation by showing that *susto* in the Andes is associated with social stress and physical weakness. Additionally, this will expand on Rubel's earlier findings in Mexico, suggesting that *susto* might be associated with physical weakness. The research design I employ demonstrates how cultural phenomenon, such as cultural syndromes, can be quantified and measured in relation to culturally prescribed social understandings that vary based on individual command of cultural knowledge. Studying *susto* and its relationship to social stress demonstrates that social dysfunction, as the individual experiences it, is culturally constructed in the form of a culturally acceptable type of illness: a cultural syndrome.

2. Development of *Susto* Symptoms Scale Using Cultural Domain Analysis

Cultural Domain Analysis Cultural Domain Analysis

The research was conducted in the Callejón de Huaylas of Peru located in the department of Ancash, at an altitude

ranging from 10,000-15,000 ft. Within the valley 9 of the hamlets were selected. The hamlets are comprised of highland farmers engaged in small-scale agriculture Bode [4]. The research was part of a larger case-control study of Andean social roles and *susto*. All informant interviews were conducted in Spanish by the researcher and his research assistants. Each interview was recorded using an electronic digital recorder and then transcribed and translated to be used in later data analysis. Each informant was given informed consent and voluntarily agreed to participate in the research project by signing an informed consent form following Institutional Review Board guidelines.

For the cultural domain analysis a total of 90 different informants participated in the three-stage process. The informants were selected using convenience and snowball sampling methods. The informants selected for the cultural domain analysis phase of data collection had not suffered from *susto* and lived in the same 9 hamlets as the *susto* sufferers. A sample of 30 informants from the nine hamlets participated in the 30-minute free listing exercise. Then thirty additional informants from the same nine hamlets were selected to perform the 30-minute unconstrained pile sorting exercises, and then lastly 30 different informants from the same nine hamlets performed the ranking exercises. These three sample sets of 30 separate informant samples were used to ultimately comprise the *Susto* Symptom Scale.

To elicit the structure of the cultural model of *susto* a sample of 30 informants were asked: If a person has *susto*, what are the symptoms? How does his/her body feel? How does his/her mind feel? This resulted in a list of 68 items. 12 items were named by 20% or more of the sample such as loss of appetite and soul loss.

Informants were then asked to perform an unconstrained pile sort on *susto* symptoms. A sample of 30 different informants sorted the items, and these were analyzed using nonmetric multidimensional scaling. It appears that one dimension of the multidimensional representation consists of a differing definitions of illness. Groupings of symptoms that are associated with general sickness cluster closer together and classic symptoms of the specific illness of *susto* are organized near one another. For example, the general sickness cluster represents nonspecific symptoms associated with many different illnesses such as the flu or the common cold. The cluster of classic *susto* symptoms represents symptoms that are specific to the illness of *susto* and would not be associated with another type of illness. These symptoms, such as "being thrown to the ground," are often encountered in ethnographic descriptions of the syndrome in Peruvian Andean highlands Brooks [5].

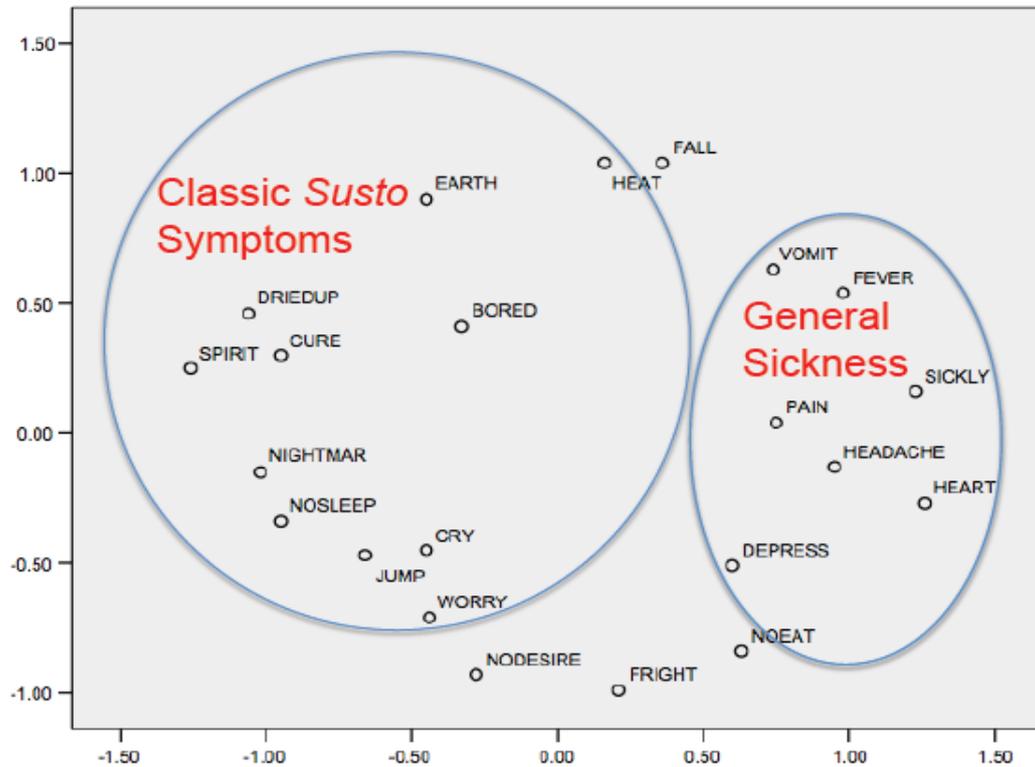


Figure 1. Multidimensional Scale Representation of *Susto* Symptoms

The cultural consensus model was employed to determine if there was enough similarity in the rankings in the group to make the claim that all of the respondents were using a single cultural model Romney et al. [18]. When the *susto* symptom rankings were analyzed using cultural consensus analysis, there was no consensus for the sample as a whole. There was, however, consensus among persons with less than a secondary school education (median competence = 0.62) versus persons with at least some secondary education (median competence = .30).

Using the information from the cultural domain analysis, I developed a Susto Symptoms Scale. The Susto Symptoms Scale is comprised of variables for each *susto* symptom to be used for measuring physical well-being among *susto* and non-*susto* participants. Modeled after Dressler's [7] approach, I chose for the domain of *susto* to ask if the respondent experienced these symptoms. To develop the individual-level items to include in the epidemiological survey, I took the items, or weighted words, from the consensus analysis for the domain of *susto*. In order to measure physical well-being, the informants were asked if they had suffered from the following symptoms in the past five years. The *Susto* Symptom Scale is designed to measure individual levels of well-being by assigning numerical values to the answer choices in the scale. The yes and no responses were assigned 1 and 0 respectively. The maximum score one could receive is 22, meaning they have experienced all 22 of the culturally salient symptoms associated with *susto* in the Andes. For the domain of *susto* symptoms, I asked if the informant had experienced each

symptom in the last 5 years. To develop the individual-level items to include in the epidemiological survey, I utilized the weighted words from the consensus analysis for each domain. I administered the Susto Symptoms Scale (Cronbach's alpha = .926). The maximum score one can receive on the *susto* scale is 22, with a sample mean score of 12.8. When a t-test was conducted the average symptom score of *susto* sufferers was 17.1, which was both significantly and substantially higher than the 8.5 score of nonsusto sufferers.

3. Cohen's Perceived Stress Scale

Cohen's Perceived Stress Scale is comprised of 15 statements designed to assess one's mental well-being which I operationalized as cultural consonance and includes variables for events that were regarded as traumatic among *susto* and non-*susto* participants in the Callejón de Huaylas of Peru. Dressler [7] defines culture consonance as the degree to which individuals can enact in their own life the culturally agreed upon models of a particular domain. The following are the items chosen to measure mental well-being in which informants were asked to rate an event's impact on their life as never, almost never, once in a while, frequently, and almost always. The statements about mental well-being in the valley are associated with the themes of physical well-being such as difficulty sleeping and feeling tense. Generating a measure of one's self-assessment of resolving issues in life is assessed by asking about the themes of dealing with change, management of personal problems,

time management, and ability to deal with problems. Some of the statements had to be reverse coded because the consonant response was the opposite of the written statement. For example, if a highlander were unable to resolve all the situations they had to face in the last month than they are not consonant. The consonant response is to disagree with statement indicating that they were able to resolve all situations they faced. Andeans were asked, "In the last month, have you felt upset by the situations that were out of your control?" again using the 5-point rating scale. Responses were assigned score of zero, one, two, three, and four respectively. The maximum score one could receive is 60. The score one would need to have to indicate the highest mental well-being would be 60, which would be comprised of fours on the statements. Perfect mental well-being is not likely but total scores close to 60 indicate individuals with low levels of mental stress and high levels of mental well-being. For perceived stress in the Andes, the score of *susto* sufferers was 31.0, which was higher than the 26.1 score of non-*susto* sufferers ($p=.10$).

4. General Health Questionnaire

The General Health Questionnaire (GHQ) is comprised of 12 statements designed to assess one's emotional well-being Goldberg [9]. The purpose of this research instrument is to enable an investigator to gather data regarding physical and emotional well-being, which can be translated into numerical scores representing a measure of emotional wellness. The General Health Questionnaire measures depression, anxiety, social impairments, and hypochondriasis; furthermore, it has been shown by Pedersen et al. (2008) to effectively assess Andean mental health outcomes when the cut-off point for obtaining a positive screening result is lowered to two. The GHQ uses a response scale of much less than usual, same as usual, more than usual, and much more than usual and asks questions such as "Have you been able to concentrate on whatever you are doing?", "Have you been feeling unhappy and depressed?", and "Have you been thinking of yourself as a worthless person?". The GHQ was selected to add to the research design a measure of assessment of individual level of social well-being specifically in regards to one's emotional health.

The average General Health Questionnaire score of *susto* sufferers was 20.5, which was slightly higher than the 17.9 score of non-*susto* sufferers ($p=.10$). This figure compares cases and control mean scores on the General Health Questionnaire, Perceived Stress Scale, and the *Susto* Symptoms Scale. The *Susto* Symptoms Scale shows the greatest difference between cases and controls suggesting that it is a better discriminator of cases than the other scales. The General Health Questionnaire and the Cohen Perceived Stress Scale are not as able to accurately assess highland physical and mental well-being since these scales are devoid of Andean cultural sensitivity having been derived from

different social contexts.

Graph

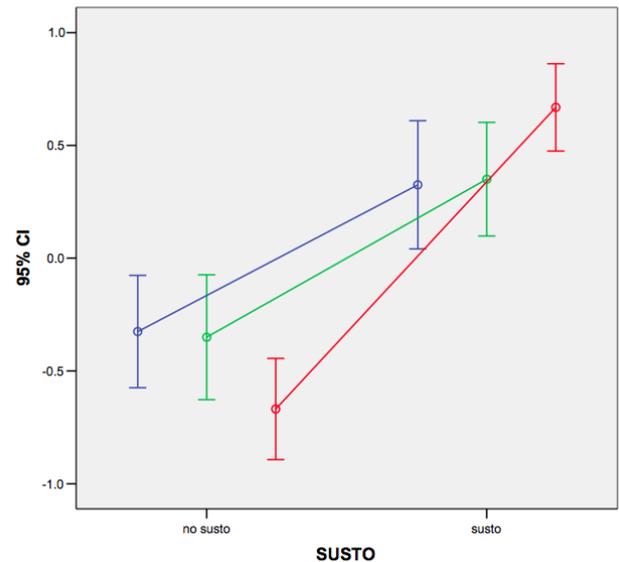


Figure 2. Test of Susto Symptoms Scale as a Predictor of Susto Status

5. Regression Analysis of Perceived Stress Scale

Linear regression analysis was used to examine the relationship between consonance as it relates to the Cohen Perceived Stress Scale. Linear regression allows for the examination of more complex relationships among variables. Another component of this research was to examine the domain of social role expectations using the Cultural Consonance in Social Role Expectations Scale, which was developed using cultural domain analysis. The responses in Cohen's Perceived Stress Scale are assigned zero, one, two, and three respectively. Many of the statements had to be reverse coded because the consonance response was the opposite of the written statement. For example, if a highlander says that they have recently felt constantly under strain than they are not consonant. The consonant response is to disagree with statement indicating that they have not felt under strain. The score one would need to have to indicate the highest level of emotional well-being would be 36, which would be comprised of three's on the statements. Perfect emotional well-being is not likely but total scores close to 18 indicate individuals with low levels of physical and emotional stress and high levels of emotional well-being. Weller et al. [20] demonstrated that perceived stress as measured using the Cohen Perceived Stress Scale was a risk factor for the development of *susto* among Mexicans. By determining that *susto* was significantly associated with stress their findings demonstrated an important link between stress and cultural syndromes.

Table 1. Regression Analysis of Cohen’s Perceived Stress Scale

Linear Regression of Cohen Perceived Stress Scale

Independent Variable	Standardized Beta of Dependent Variable- Cohen Perceived Stress Scale
Sex	.091
Education	.021
Age Categorized	.002
Historical Trauma	.287*
Cultural Consonance	-.339*
Age x Cultural Consonance	.148

*p< .01

I thought that highlanders with lower cultural consonance would also have decreased levels of mental well-being. The hypothesis was supported; there was a direct effect of cultural consonance on perceived stress. As cultural consonance increases among highlanders there is a decrease in perceived stress scores. More culturally consonant individuals have the lowest levels of perceived stress; therefore, they have the highest levels of mental well-being. This demonstrates that there is a relationship between stress and one’s ability to enact culturally agreed upon cultural models in their daily lives.

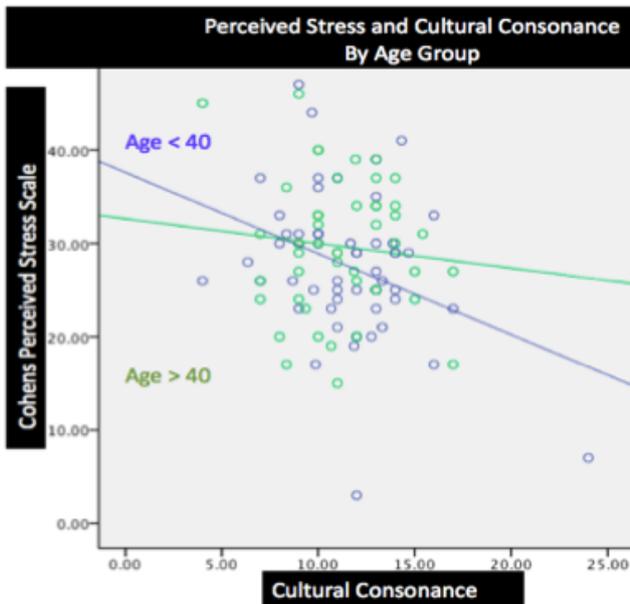


Figure 3. Perceived Stress and Cultural Consonance by Age Group

6. Regression Analysis of General Health Questionnaire

Linear regression analysis was also utilized to examine the relationship between consonance and the General Health Questionnaire. I was interested in how cultural consonance might be associated with physical well-being while controlling for sex, education, and age. The physical well-being of *susto* and control cases was measured using the General Health Questionnaire. Earlier research has demonstrated that individuals with *susto* are also likely to be physically weaker. Baer and Penzell [3] found that individuals with pesticide poisoning and *susto* were sicker and weaker. In a longitudinal study in Mexico, Rubel et al.

[19] found that *susto* sufferers were at greater risk for mortality than controls. Weller et al. [21] in study of diabetics found that individuals with *susto* were more likely to develop diabetes when compared with controls.

Table 2. Regression Analysis of General Health Questionnaire

Linear Regression of Cohen Perceived Stress Scale

Independent Variable	Standardized Beta of Dependent Variable- Cohen Perceived Stress Scale
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Education	.021
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Historical Trauma	.287*
Cultural Consonance	-.339*
Age x Cultural Consonance	.148

*p< .01

Based on the earlier research, I hypothesized that individuals with lower cultural consonance would have reduced physical well-being. My research confirmed the hypothesis. Individuals with higher cultural consonance have greater physical well-being. Given the relationship between low cultural consonance and *susto*, these findings confirm that lower cultural consonance is a stressful experience and that *susto* is a culturally acceptable way for Andeans to express the reality of low cultural consonance. My conclusions support the earlier research findings that individuals with *susto* are physically weakened making them more susceptible to sickness.

7. Discussion

The cultural syndrome of *susto* was selected as a tool to gain greater understanding of the cultural models Peruvian Andeans use to define illness. Furthermore, *susto* was chosen because of its high prevalence rate in many parts of Latin America, including Peru. Studying *susto* was helpful in identifying the complex risk factors associated with illness in the Andes. Influenced by epidemiological approaches to understanding *susto* pioneered by Arthur Rubel [19], who identified *susto* risk factors to be physical weakness and social stress which he defined as individual failure to meet culturally agreed upon social role expectations, I created a multiphase research design.

Susto is a complex understanding of illness consisting of symptoms of physical weakness and bodily pain that follows a sudden frightening experience. The symptoms of *susto* in the Callejón de Huaylas can be classified into two groups based on cultural domain analysis: symptoms of general sickness and classic *susto* symptoms. There are three levels of *susto* severity. In its mildest form, sufferers generally suffer from head pain and nausea. Intermediately, difficulty sleeping and loss of appetite can be experienced. In the most severe cases it is related to the separation of one’s soul from the body as a result of a traumatic event Rubel [19]. If untreated at this level, *susto* can lead to extreme debility and death. Highlanders discussed car accidents and being chased by animals as common causes of the onset of *susto* symptoms. Some symptoms discussed in interviews were

loss of appetite, jumping in the night, and feeling like you are being absorbed by the earth. It seems that the classic *susto* symptoms are most often associated with the worst level of *susto*. This finding suggests that symptoms that individuals are more likely to remember or know more about are ones associated with the most grave cases of *susto*. One can be “*asustado*” but not necessarily have all of the classic symptoms of *susto* such as soul loss.

These findings suggest that the harsh conditions of the Andean lifestyle create the increased possibility for individuals, regardless of suffering from *susto* or not, to experience decreased physical well-being. Having highlanders report on perceived stress and symptoms described as *susto* combines clear biological processes and physical symptoms in the context of a cultural rubric of *susto*. Lewis-Fernandez et al. [12] stress that in the biocultural approach one must incorporate research instruments specifically developed to elicit key features of psychophysiology. The Cohen’s Perceived Stress Scale and General Health Questionnaire used in the Andes research were important in establishing measures of psychophysiology for highlanders.

Research in which human beings are conceptualized as beings in webs of shared meaning influences certain psychobiological processes. Demonstrated by Weller et al. [20], biology and culture are conceptualized as being interrelated in a biocultural research design.

Addressing intercultural and intracultural diversity as recommended by Baer et al. [1] is possible through a biocultural framework. Studying the various symptoms of *susto* is an approach that enables one to examine the intracultural diversity present in the Andes. The relationship between biological and cultural variables as they relate to outcomes is addressed in research by Baer and Bustillo [2]. Highlanders reported on perceived stress and symptoms described as *susto* to combine clear biological processes and physical symptoms in the context of a cultural rubric of *susto*.

Biocultural medical anthropology demonstrated by Oths [14] research uses methods such as open-ended interviews to get general social information and then transforms the data into variables that can be quantitatively tested as they relate to an illness. In this study, cultural domain analysis was used to elicit general social context to create the Susto Symptoms Scale, which then was utilized to transform the data into quantitatively measurable variables. Lewis-Fernandez et al. [12] stress that in the biocultural approach one must incorporate research instruments specifically developed to elicit key features of psychophysiology. The Cohen’s Perceived Stress Scale and General Health Questionnaire used in the Andes research were important in establishing measures of pathophysiology for highlanders. A methodological strength of a biocultural research design is the use of complex sampling strategies such as the case-control method employed by Brooks [5]. Case-control sampling was also effectively used in this study of *susto*. Baer et al. [1] suggest that biocultural researchers use

consensus analysis to look at systems of shared knowledge in their research samples. The shared knowledge of *susto* was investigated in the Andes using the process of cultural consensus analysis. The various attributes of a biocultural approach in medical anthropology discussed here demonstrate how this research in the Andes was able to create a bridge between biological physical states and *susto* as being manifestations of culture.

The *susto* research focused on psychopathophysiology discussed here is a bridge into biological stress research, because it uses cultural anthropology methods that have already been demonstrated as important tools for understanding biological stress by Dressler [7] and Lewis-Fernandez et al. [12]. Dressler [7] utilizes cultural domain analysis to investigate the aspects of Brazilian culture that create the potential for stress in one’s life. He then links the social stress process through his theoretical concept of cultural consonance to the biomarker of blood pressure, which is an indicator of the impact of stress on the body. Similarly, Lewis-Fernandez et al. [12] in a study of *ataques de nervios* used a research instrument to gather data about the social aspects of Puerto Rican culture that might contribute to stress. They then employed the Explanatory Model Interview Catalogue (EMIC) and the Structured Clinical Interview for DSM-III-R to collect general psychiatric data on sufferers of the illness. The psychiatric data was then compared with the social data to identify the role of each in the stress process. These two different research projects demonstrate the efficacy of using biocultural frameworks to garner a clearer understanding of the complex relationships between biology and culture that are exemplified in the stress process.

I also wanted to know the level of influence cultural consonance may have on Andean perceived stress levels. Weller et al. [20] demonstrated that perceived stress as measured using the Cohen Perceived Stress Scale was a risk factor for the development of *susto* among Mexicans. By determining that *susto* was significantly associated with stress their findings demonstrated an important link between stress and cultural syndromes. I thought that highlanders with lower cultural consonance would also have decreased levels of mental well-being. The hypothesis was supported; there was a direct effect of cultural consonance on perceived stress. As cultural consonance increases among highlanders there is a decrease in perceived stress scores. More culturally consonant individuals have the lowest levels of perceived stress; therefore, they have the highest levels of mental well-being. This demonstrates that there is a relationship between stress and one’s ability to enact culturally agreed upon cultural models in their daily lives. Individuals who are better able to meet the Andean social role expectations are under less stress than those highlanders who have trouble living up to the demands of their culturally defined social role. When that finding is combined with the demonstrated relationship between cultural consonance and perceived stress, it ties these results to the previous findings by Weller et al. [20] of a strong relationship between *susto* and stress.

The physical well-being of *susto* and control cases was measured using the General Health Questionnaire. Earlier research has demonstrated that individuals with *susto* are also likely to be physically weaker. Baer and Penzell [3] found that individuals with pesticide poisoning and *susto* were sicker and weaker. In a longitudinal study in Mexico, Rubel et al. [19] found that *susto* sufferers were at greater risk for mortality than controls. Weller et al. [21] in study of diabetics found that individuals with *susto* were more likely to develop diabetes when compared with controls.

Based on the earlier research, I hypothesized that individuals with lower cultural consonance would have reduced physical well-being. My research confirmed the hypothesis. Individuals with higher cultural consonance have greater physical well-being. Given the relationship between low cultural consonance and *susto*, these findings confirm that lower cultural consonance is a stressful experience and that *susto* is a culturally acceptable way for Andeans to express the reality of low cultural consonance. My conclusions support the earlier research findings that individuals with *susto* are physically weakened making them more susceptible to sickness.

Susto has been studied in many different parts of Latin America and as Weller et al. [21] point out many different Hispanic populations have a similar descriptive profile for *susto*. However, the entire symptom profile of *susto* had never been elicited and studied in great detail. *Susto* is a culturally acceptable way of dealing with both physical and mental stresses. The findings here support the notion of cultural syndromes as localized idioms of distress that individuals can embody to represent the stress created by current living conditions. Some researchers including Glick [8] and Spiro [15] have demonstrated that being able to label a phenomenon is an important part of dealing with the realities imposed by the illness. People seek ways to understand the world around them and often times create elaborate cultural explanations for current social conditions. *Susto* can be understood as an “explanatory model,” used by Andeans as a framework for dealing with the suffering and anxiety that is associated with stress.

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