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**Formulating Culturally Relevant Indicators for Stressors  
and Quality of Life Issues in San Luis**

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15 July 2010

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## Introduction

Costa Rica was called the happiest place in the world, but not until recently has the Costa Rican public health sector started to study stress in Costa Ricans, or “Ticos.” The reason is because stress is now an important facet in health care, as stress is being identified as an important factor for disease, both mental and physiological (Dressler, 2004;Dressler,2007). The physiological manifestations, of which we will focus on in this study, are things such as diabetes and cardiovascular disease (CVD) (Dressler, 2004;Dressler,2007). Yet, before assessing the impact of stress in health, we must identify culturally relevant stressors and quality of life indices as they are both environmentally and culturally constructed (Aznar & Castañón, 2005;Diener & Suh, 1997;Ice, 2007;Ice & James, 2007). Our field study for this proposed study will be in San Luis a rural town in Guanacaste, a *cantón* of Costa Rica.

As medical anthropologists and public health students in conjunction with the University of South Florida and the Instituto de Monteverde, we are creating a preliminary stress baseline in rural San Luis. We are formulating culturally relevant indicators of stress and Quality of Life (QoL) indices in effort to find a relationship between stress and chronic disease. Once the relevant stressors and QoL issues are identified we can then test for any statistical significance and correlations.

## Background

CNN.com reported on the 5th of July, 2009 that Costa Rica is one of the happiest places on earth according to The New Economics Foundation’s (NEF) Happy Planet Index (HPI)(Costa Rica tops the list of 'happiest' nations, 2009). So, if Costa Rica places as one of the happiest places on earth, how does it rank with stress? The purpose of this study is to assess stress in San Luis, which is located in the *cantón*, or province, of Guanacaste, Costa Rica. No stress assessment has been made in the area, so our team will measure the perceived stress and stressors of the individuals living in San Luis.

Culture constructs the way groups and individuals perceive and respond to their environment. Stress comes as an emotional and behavioral response to a stressor, or something that changes the homeostasis, or balance, of a given environment (Dressler, 2007;Ice, 2007;Ice & James, 2007). However we must realize that culture and stress are not universals. How individuals understand stress and quality of life, or the ability to become happy, must be approached ethnographically to understand the underlying behavioral, psychological, cognitive and physiological responses to their environment (Dressler, 2007;Dressler, 2004). Stress is a mutable term making it necessary to identify cultural stressors from ethnographic research (Dressler, 2007).

QoL is an important measure when considering the happiness and the ability of an individual to attain happiness (Aznar & Castañón, 2005). As such, QoL must also be approached in a manner sensitive to the area being researched as it is also culturally defined and constructed (Aznar & Castañón, 2005; Diener & Suh, 1997). A QoL baseline must be created using the social or contextual, material or objective, and personal or subjective indices of the San Luis community to incorporate the multiple dimensions of QoL (Aznar & Castañón, 2005; Diener & Suh, 1997).

## Methods

A health fair was conducted in the community of San Luis, in conjunction with the Monteverde Institute and the students from the University of South Florida Globalization and Community Health Field School 2010. The health fair consisted of 12 stations, including stations for blood pressure, blood glucose, sociodemographic intake information, and other anthropometric data. Also, the health fair consisted of numerous stations with surveys focusing on research topics such as nutrition, exercise, menopause, and stress.

The participants of the health fair were first asked a series of questions about their sociodemographic information, including age, place of residence, occupation, type of water used in home, type of stove, size of household, and years in current residence. This information was placed in a folder for each household, and the participants took their folder to the subsequent station. Blood pressure and blood glucose was taken of every participant that was older than 18 years of age. Other anthropometric data was taken of all participants, including height, weight, and body mass index (BMI). Waist and upper arm circumferences, as well as supriliac and tricep skin folds were taken of every participant over 18 years of age. A 24-hour food recall was completed for every participant above 50 years old. Also, all women over 18 years of age completed a menopause survey. All participants over 18 completed the illness recall, exercise survey, and stress survey. Of the twelve stations at the health fair, we analyzed information from the stress survey, blood pressure, blood glucose, sociodemographic intake information, and anthropometric data stations.

The stress survey consisted of 6 questions, 3 were multiple choice and three were open ended (See Appendix A). The first question was *¿Ud. cómo describe el estrés?* (How would you describe stress?). The second question was, *¿Ud. cómo califica su nivel del estrés?* (How would you rate your level of stress?). For this question, the participants were give four options: *Muy estresado* (Very stressed), *estresado* (Stressed), *un poco estresado* (a little stressed), or *nada estresado* (Not stressed). The third question was, *“En los últimos 5 años su nivel del estrés ha:”* (in the last 5 years, your level of stress has:), and the possible answer choices were *subido* (risen), *no ha cambiado* (has not changed), or *bajado* (lowered). The fourth question was, *“¿Ud. podría enumerar las cosas que le causan el estrés?”* (Can you explain the things that cause stress?). The fifth question was, *“Mi nivel del estrés es:”* (My level of stress is:). The participants were given three options: *“Es más alto que los demás en mi comunidad”* (Is higher than those in my community) *“Es igual que los demás en mi comunidad”* (Is the same as those in my community), or *“Es más bajo que los demás en mi comunidad”* (Is lower than those in my community). The last question was, *“¿Ud. hace algo para aliviarse el estrés?”* (Do you have something to alleviate stress?) For this question, if the participant answered positively, they were asked to explain the things that relieve their stress. By the end of the health fair, we had a total of 37 stress surveys.

From the results of the stress surveys from the health fair, common words were extracted from the dictations. From these lists, main themes and common phrases were listed in their respective frequencies. Using a visual experimental qualitative research method, known as Word Clouds, the presence of certain words and phrases can be seen visually in sizes related to their respective frequencies (See Appendix C).

From the 37 stress surveys that were obtained from the health fair, we chose 10 random participants to conduct semi-structured interviews with. A total of 6 women and 4 males were interviewed. The interviews took place at each participant's homes and took place at convenient times for the interviewee. If the interviewee was a female, then two females conducted her interview. For the four males, they were each interviewed by two males.

For each of the semi-structured interviews, each interviewee was asked 10 questions about things such as the role family plays in stress, what worries they have, what role they believe stress has on health, and whether men and women handle stress similarly (See Appendix B). The interviews took place over two days, with 3 interviews being conducted the first day and seven interviews being conducted the second day. Each interview was audio recorded, and written consent for both the interview and audio recording was received prior to the interviews. The interviews lasted about 10-15 minutes each and each interview was completed in its entirety. The interviews were dictated in Spanish and main themes were extracted for further qualitative analysis.

### **Data Analysis**

We conducted stress surveys on July 2nd, 2010 in the San Luis "*Feria de Salud*" held in the Altos de San Luis School. Thirty-seven surveys were taken, but 35 surveys were used for data analysis due to duplicate surveys, of these twenty-nine women and six men participated in the surveys: 31.4% were "not stressed," 42.9% were "a little stressed," 5.7% were "stressed" and 20.0% were "very stressed." The overall level of stress of men however was lower when compared to women as 33.3% men were "not stressed," 50.0% men were "a little stressed" and 16.7% men were "stressed;" no respondents were "very stressed." When asked how they compared to the overall stress of the community 57.1% (n=20) said they were lower, 28.6% (n=10) said they were the same and 14.3% (n=5) said their stress was higher. Using free-lists we identified five major community descriptors of stress: *dolores* (n=10), *preocupaciones* (n=9), *no sé* (n=9), *trabajo* (n=4) and *enfermedad* (n=4). The five major community causes of stress are: *preocupaciones* (n=21), *trabajo* (n=14), *enfermedad* (n=10), *hijos* (n=8), and *familia* (n=7).

The results of the SPSS frequencies on the perceived level of stress and anthropometrics, and other physiological measures, are as follows: thirty-one participants were used to run their level of stress against blood glucose. Using SPSS to run an ANOVA test there was a 0.752 level of significance on a 95% confidence interval. Thirty-four participants's levels of stress were compared to systolic and diastolic blood pressure. Using SPSS to run an ANOVA test, both blood pressure measures were found with 0.643 and 0.881 level of significance respectively, on a 95% confidence interval. Thirty-four participants were used to run their level of stress against body mass index (BMI). Using SPSS to run an ANOVA test there was a 0.934 level of significance on a 95% confidence interval. Therefore, none of the intervals show statistical significance that will be accounted for in the limitations section.

We then compared the level of stress to the sociodemographic factors sex, age and length of residence. Age and length of residence were tested for significance using an ANOVA analysis with a 95% confidence interval, while sex was run as a frequency against perceived levels of stress. Sex could not be used as an ANOVA test due to their not being categories to test it against. The age of the participants was problematic as some participants were not certain of

their age, but did recall their year of birth. The age had to be corrected for in the database. The ANOVA results for significance of age and length of residence against perceived levels of stress are as follows: age had a significance of 0.565 using the corrected age to fix any discrepancies. Length of time showed a significance of 0.670. Again, as with anthropometrics, none of the intervals show statistical significance that will be accounted for in the limitations section.

Analysis of the interview data shows a general consensus between males and females on the relationship between stress and illness, stress and depression, stress and pain, stress and health and causes of stress. Two themes emerged from the interview data as central causes of stress in this community: lack of transportation and work-related issues. Transportation was reported as a fundamental quality of life constraint. Lack of transportation limits physical access to healthcare, education, job opportunities, and social events. While respondents did not give specific examples of work related stress, general comments were made about stress over economic change, where money would come from in the future, and aging affecting their ability to work. Despite these themes however, respondents reported an overall low level of stress in this community.

Despite a general consensus between men and women on causes of stress, the interview data suggests that men and women conceptualize stress differently. When asked if women and men experience stress differently, a majority of the men said yes, but only half of the women said yes, the other half said it was equal. When asked to elaborate, more men attributed this to the differences between how men and woman process life events. In this model, stress is a result of the individual's reaction to events. Women, however, seemed to conceptualize stress as a constant, and the result of accumulation of stressors. Half of the women interviewed reported men as having more stress than women because they worked more, the other half reported that stress was equal between men and women. However, these data are most likely skewed because men were in the room during the interview process.

### **Limitations**

The data and analysis presented here are constrained by several obstacles encountered by the research team. The short amount of time allocated for field work during the field school presented obstacles that limited other factors of the study. Conducting research in a Spanish-speaking country also presented an obstacle to three members of the team who were non-native Spanish speakers with an intermediate level of proficiency. While the team members felt confident in their abilities to conduct interviews, local colloquialisms and terms unfamiliar to the researchers challenged the researchers' ability to capture the full context of respondents' comments. This affected the ability of non-native Spanish speakers to probe for clarification or elaboration. However, despite this limitation, the researchers feel confident that key data points are accurately represented in the reported data.

The time constraints of the field school and the travel time between interview locations limited our sample selection to a small convenience sample. Thirty-seven surveys were administered to respondents at the *feria de salud* in San Luis. From these 37, 10 individuals were selected for follow up with semi-structured interviews. These Interviews were conducted at participants' homes during the week to minimize respondent burden and to simplify the logistics of transportation. Interviews were conducted in respondents' *salas*, or living rooms, and often in

the presence of other members of the household. It became clear during a few of the interviews that the presence of spouses and children affected respondents' responses to sensitive questions pertaining to stress and the family, stress and gender, and respondents' personal level of stress.

### **Conclusions**

The residents of San Luis reported an overall low level of stress, however most reported a great deal of *preocupaciones* (worries). Women reported higher levels of stress compared with men, and were the only ones to perceive themselves as being “very stressed.” From the stress surveys obtained from *La Feria de Salud*, some of the main descriptors of stress were *dolores* (pain), *preocupaciones* (worries), *no sé* (do not know), *trabajo* (work) and *enfermedad* (illness). Also, from the stress survey it was found that some of the main causes of stress are *preocupaciones* (worries), *trabajo* (work), *enfermedad* (illness), *hijos* (children), and *familia* (family). Overall, individuals perceived their stress as being lower than others in their community. Walking was found to be the most common way to relieve stress, followed by working and dancing. It was interesting that work was both a cause and relief of stress.

During the semi-structured interviews, transportation was a theme that emerged as a main cause of stress, which was not present during the stress surveys. Work, money, and illness were found as common causes of stress. Family was found to be a relief of stress for some, while for others it was one of the main causes of stress. There was no relationship found in the responses as to whether there is a difference between how men and women handle stress.

### **Recommendations**

As a preliminary study, this research found some culturally relevant indicators for San Luis, and although not statistically significant, the ground work has been laid for future stress research in the area. One of these major stressors and quality of life issues that should be researched is transportation. Transportation was found to be cause of stress for many residents in San Luis; however, more research would need to be performed to determine whether transportation concerns truly affect quality of life in San Luis. For future studies, a larger samples size would help to potentially normalize the data or to reach statistical significance.

Researching further into the differences of perceived stress for males and females, and the differences that may be present in terms of coping mechanisms for stress would benefit future research. An in depth study focusing on the understanding of *preocupaciones* could serve to deconstruct this main theme that was prominent in all aspects of the current research. Some factors of *preocupaciones* were identified such as family and economic situations. However, a recommendation would be for future studies to explore further into what exactly *preocupaciones* means for a person or family, and how these worries impact quality of life.

The next possible step could be a larger examination of how stressors and other quality of life indices affect physiological health. Since no prior stress studies have been performed in San Luis, the role of stress in quality of life is unknown and needs to be further explored. The relationship between stress and health indicators, such as anxiety and depression, would need to be researched in San Luis to determine whether stress is negatively impacting quality of life.

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## Appendices

### Appendix A: Health Fair Stress Survey

#### Cuestionario (Questionnaire)

1. ¿Cómo describe usted el estrés? (How would you describe stress?)
2. ¿Cómo califica usted su nivel de estrés? (How would you classify your level of stress?)
  - o Muy estresado (Very stressed)
  - o Estresado (Stressed)
  - o Un poco estresado (A little stressed)
  - o No estoy estresado (Not stressed)
3. En los últimos 5 años su nivel del estrés ha: (In the past 5 years, your level of stress has:)
  - o Subido mucho (Risen a lot)
  - o Subido (Risen)
  - o No ha cambiado (Hasn't changed)
  - o Bajado (Lowerd)
  - o Bajado mucho (Lowerd a lot)
4. ¿Por qué? (Why?)
5. ¿Podría enumerar usted las cosas que le causan estrés? (Can you please describe the things that cause stress)
6. Mi nivel del estrés es: (My level of stress is:)
  - o Es más alto que los demás en mi comunidad (Higher than others in my community)
  - o Es igual que los demás en mi comunidad (Is equal to those in my community)
  - o Es más bajo que los demás en mi comunidad (Is lower than others in my community)
7. ¿Hace usted algo para aliviar el estrés? (Do you have something to relieve stress?)
  - o Sí o No (Yes or No)
  - o Por ejemplo que hace para aliviar el estrés. (For example, what do you do to relieve stress?)

## Appendix B: Semi-structure Interview Questions

1. ¿Cómo diría Ud. que está en términos de estrés? (What is your stress level?)
  - oMuy estresado (Very Stressed)
  - oEstresado (Stressed)
  - oUn poco estresado (A little stressed)
  - oNada estresado (Not stressed)
2. ¿Ud. piensa que el estrés afecta su salud? (Do you think stress affects your health?)
  - oSi (Yes)
  - oNo
    - Como? (How?)
2. ¿Ud. asocia el estrés con dolores corporales? (Do you associate physical pain with stress?)
  - Si – ¿que tipos? (Yes - what types?)
  - ¿Ud. piensa que el estrés causa dolores corporales, o los dolores corporales causan estrés? (Do you think that stress causes body pain, or body pain causes stress?)
2. ¿Ud. piensa que el estrés esta relacionado con la ansiedad [if not: nervios/irritabilidad] y la depresión [if not: tristeza]? (Do you feel that stress is related to anxiety and depression?)
3. ¿De que se preocupa la gente en San Luis? (What are some things people worry about here?)
4. ¿Hay temporadas durante el año que son mas estresantes que otras? (Are there times of the year that are more or less stressful?)
5. En la feria de salud en la escuela de San Luis, encontramos que varias personas no sabían que era el estrés ¿Ud. que opina sobre eso? (A lot of people at the health fair didn't know what stress was, what is your opinion?)
6. ¿Ud. piensa que los hombres y mujeres experimentan [if not understood: tienen una distinta experiencia sobre el estrés] el estrés diferentemente? (Do you think there is a difference in the stress levels of men and women?)
  - ¿Como?

- ¿Por que?

2. ¿Que papel juega la familia en el estrés? (What role does family play in stress?)
3. ¿Ha sentido mucha preocupación? (Have you felt a great deal of worry?)
  - a. Si - ¿Cuando está preocupado(a) que cosas piensa? (When you are worried what do you think of?)
    - i. ¿Cuales son los motivos que lo(la) mantienen preocupado(a)?

## Appendix C

Table 1: Free List Frequency for stress survey question, “¿Cómo describiría usted el estrés?” (How would you describe stress?)

Word	Frequency
dolores	10
preocupacion(es)/preocupado	9
no se	9
trabajar/o/a	5
hacer	4
mal carácter/mal humor/irritable/bravo	4
enfermedad	4
ansiedad	4
cansancio/cansado	3
tranquilidad/calma	3
aburrido/a	3
tensa cuerpo	2
tristeza/Triste	2
dormir	2
nervios	1
temblorina	1
agitado	1
afecta/molesta la persona	1
inestabilidad	1
sueno	1
presion	1
salir	1
comunicación	1
motivacion	1

Figure 1: Word Cloud for stress survey question, “¿Cómo describiría usted el estrés?” (How would you describe stress?)

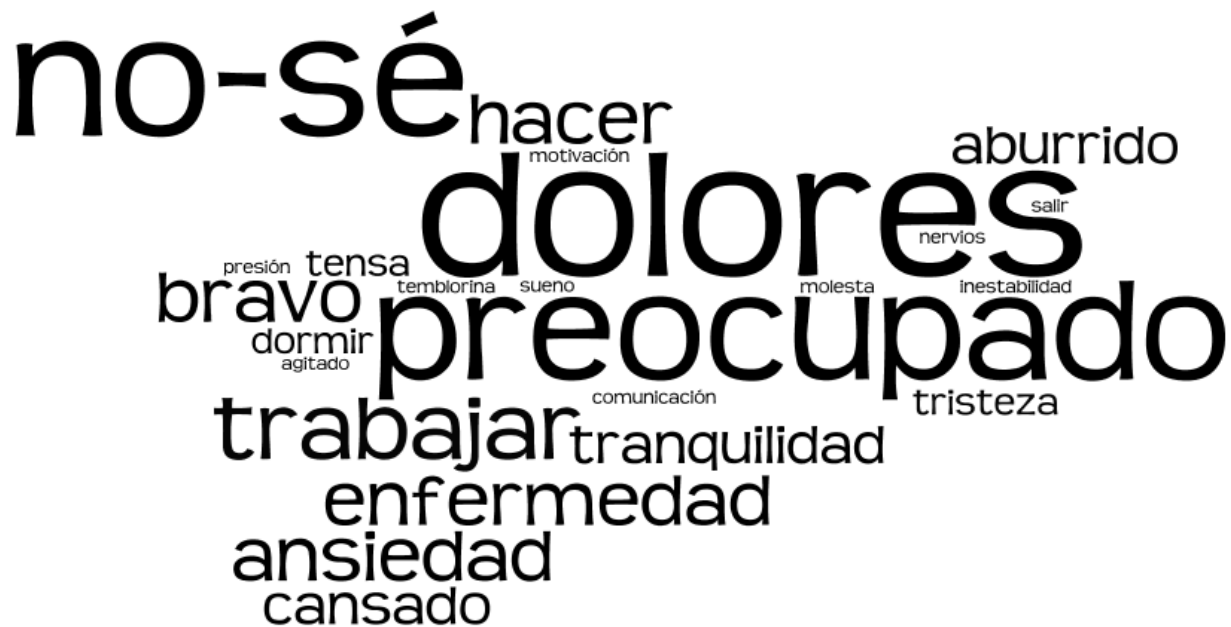


Table 2: Free List Frequency for stress survey question, “¿Por qué?” {follow-up question for, “En los últimos 5 años su nivel del estrés a:” (In the last 5 years, your level of stress has:)}.

Word	Frequency
trabajo	10
no estrés	9
hijos	5
preocupación	5
edad	3
problemas	3
ejercicio	3
no sé	2
masajes	2
económico	2
comida	2
seguridad	1
Dios	1
muerte	1
dolor	1

enfermedades	1
comunicación	1
familia	1
ocupado	1
falta de sueño	1
cambiarse	1
más tiempo libre	1
vivir sola	1
manera de alimentación	1

Figure 2: Word Cloud for stress survey question, “¿Por qué?” {Follow-up question for, “En los últimos 5 años su nivel del estrés a:” (In the last 5 years, your level of stress has:)} }



Table 3: Free List Frequency for stress survey question, “Por favor enumera las causas que le causan estrés,” (Please explain what causes stress)

Word	Frequency
preocupaciones	21
trabajo	14
enfermedad	10
hijos	8
familia	7
no hacer nada	6
estado económico	5
no tengo	2

pareja	2
dolor	2
no tener comunicación	2
NA	2
no dormir	1
menopausia	1
lluvia	1
Soledad	1
estudiar mucho	1
mucho pensar	1
malas noticias	1
no poder trabajar como antes	1
no poder caminar	1
no la a padecido	1
ir a las clínicas	1
otras personas	1
tiempo	1
cansancio	1
no sabe	1

Figure 3: Word Cloud for stress survey question, “Por favor enumera las causas que le causan estrés,” (Please explain what causes stress)



Table 4: Free List Frequency for “No” responses to the stress survey question, “Ud. hace algo para aliviarse el estrés,” (Do you have something to alleviate stress?)

Word	Frequency
------	-----------

puede	3
trabajar	2
preocupacion/preocuparse	2
ejercicio/caminar	2
quisiera	2
NA	1
<i>Dios</i>	1
tranquila	1
estrés	1
no Se	1

Figure 4: Word Cloud for “No” responses to the stress survey question, “Ud. hace algo para aliviarse el estrés,” (Do you have something to alleviate stress?)

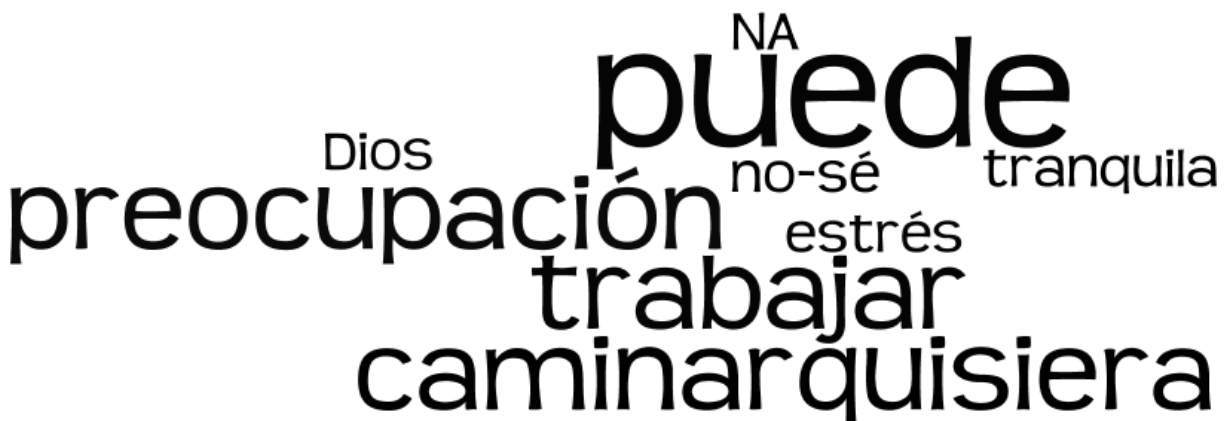


Table 5: Free List Frequency for “Yes” responses to the stress survey question, “Ud. hace algo para aliviarse el estrés,” (Do you have something to alleviate stress?)

Word	Frequency
caminar	15
Trabajando	7
Bailar	5
ejercicio	5
escuchar música	4



Familia	4
Pasear	4
platicar	3
oraciones	3
Distracciones	3
amigos	3
Actividades	3
masajes	2
correr	2
cuidando animales	2
ver animales	2
soledad	2
Meditando	2
siendo saludable	2
ayudarlos en los estudios	1
una pomada para relajar	1
dormir	1
tomar suero de vaca	1

Figure 5: Word Cloud for “Yes” responses to the stress survey question, “Ud. hace algo para aliviarse el estrés,” (Do you have something to alleviate stress?)



Table 6: Frequency of Participant Genders at Health Fair

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	7	18.9	18.9	18.9
Female	30	81.1	81.1	100.0
Total	37	100.0	100.0	

Table 7: Frequency of Responses for Stress Survey Question, “How would you describe your level of stress?”

	Frequency	Percent	Valid Percent	Cumulative Percent
Not stressed	13	35.1	35.1	35.1
A little Stressed	15	40.5	40.5	75.7
Stressed	2	5.4	5.4	81.1
Very stressed	7	18.9	18.9	100.0
Total	37	100.0	100.0	

Table 8: Gender Frequency Percentages of Responses for Stress Survey Question, “How would you describe your level of stress?”

		Participant Gender		Total
		Male	Female	
How would you describe your level of stress?	Not stressed	33.3%	31.0%	31.4%
	A little Stressed	50.0%	41.4%	42.9%
	Stressed	16.7%	3.4%	5.7%
	Very stressed	0.0%	24.1%	20.0%
Total		100.0%	100.0%	100.0%

Figure 6: Pie Chart for Stress Level Responses

**Como diria Ud. que esta en terminos de estres (how would you say you are in terms of stress?)**

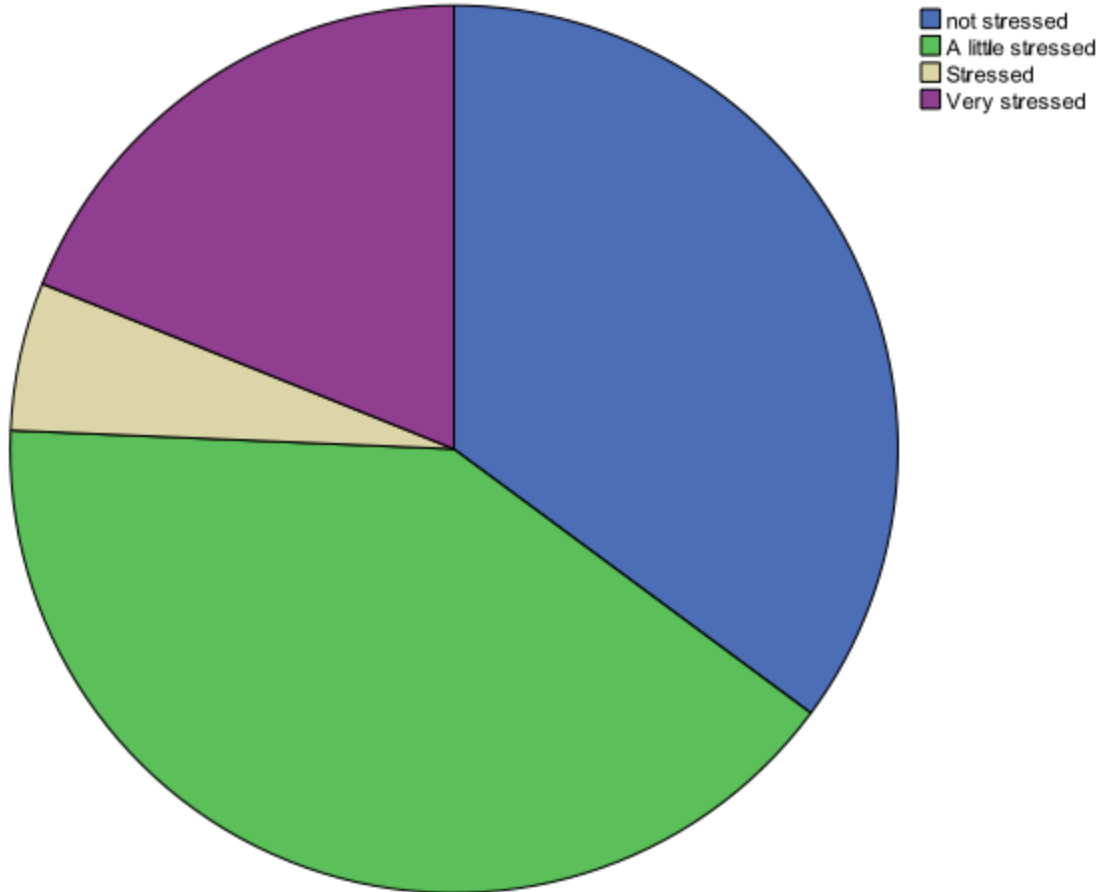


Table 9: Frequency Percentages for the stress survey question, “En los últimos 5 anos su nivel del estrés a:” (In the last 5 years, your level of stress has:)

	Frequency	Percent	Valid Percent	Cumulative Percent
Lowered a lot	4	11.4	11.4	11.4
Lowered	7	20.0	20.0	31.4
Has not changed	10	28.6	28.6	60.0
Risen	9	25.7	25.7	85.7
Risen a lot	5	14.3	14.3	100.0
Total	35	100.0	100.0	

Figure 7: Bar Graph of Responses for the stress survey question, “En los últimos 5 años su nivel del estrés a:” (In the last 5 years, your level of stress has:)

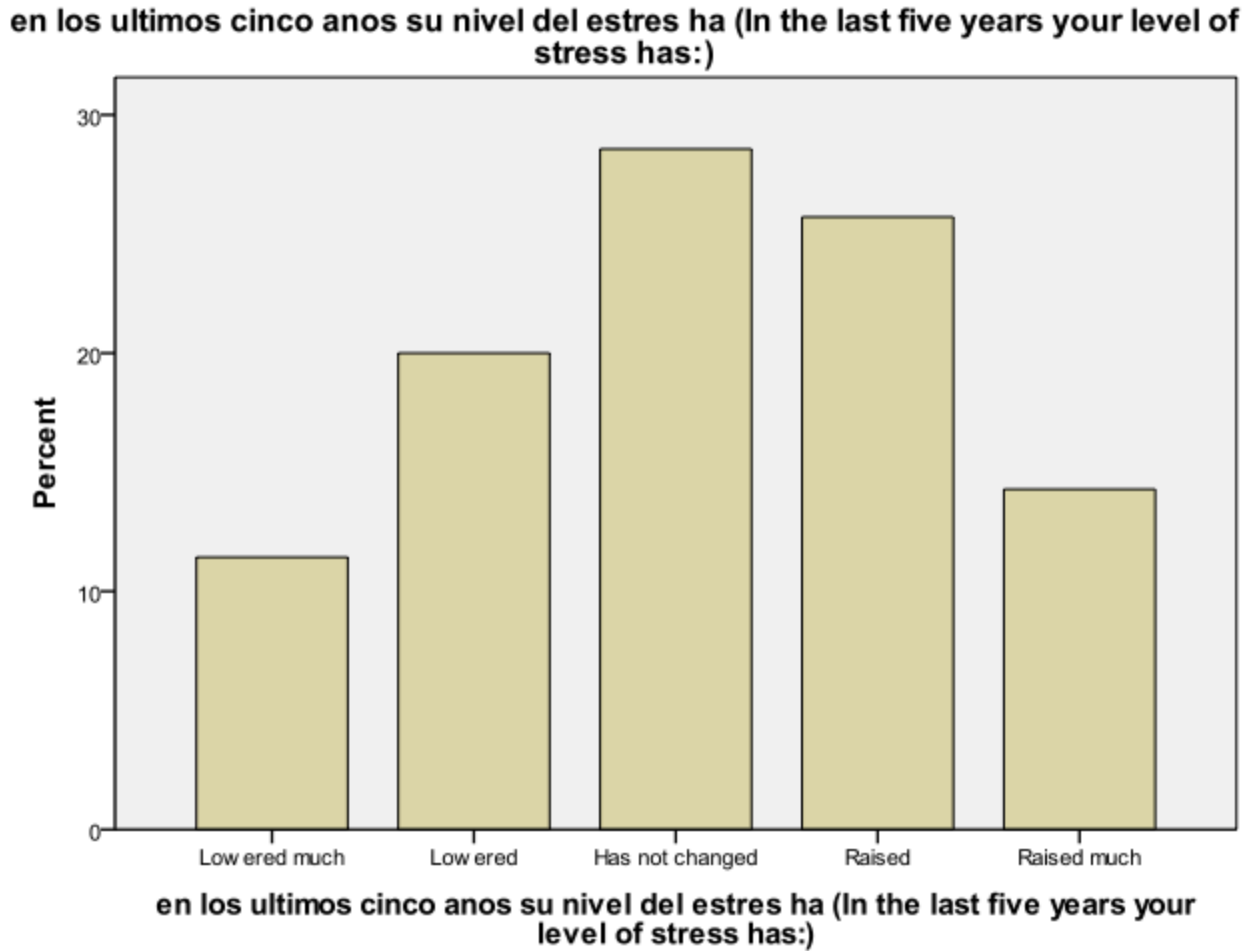
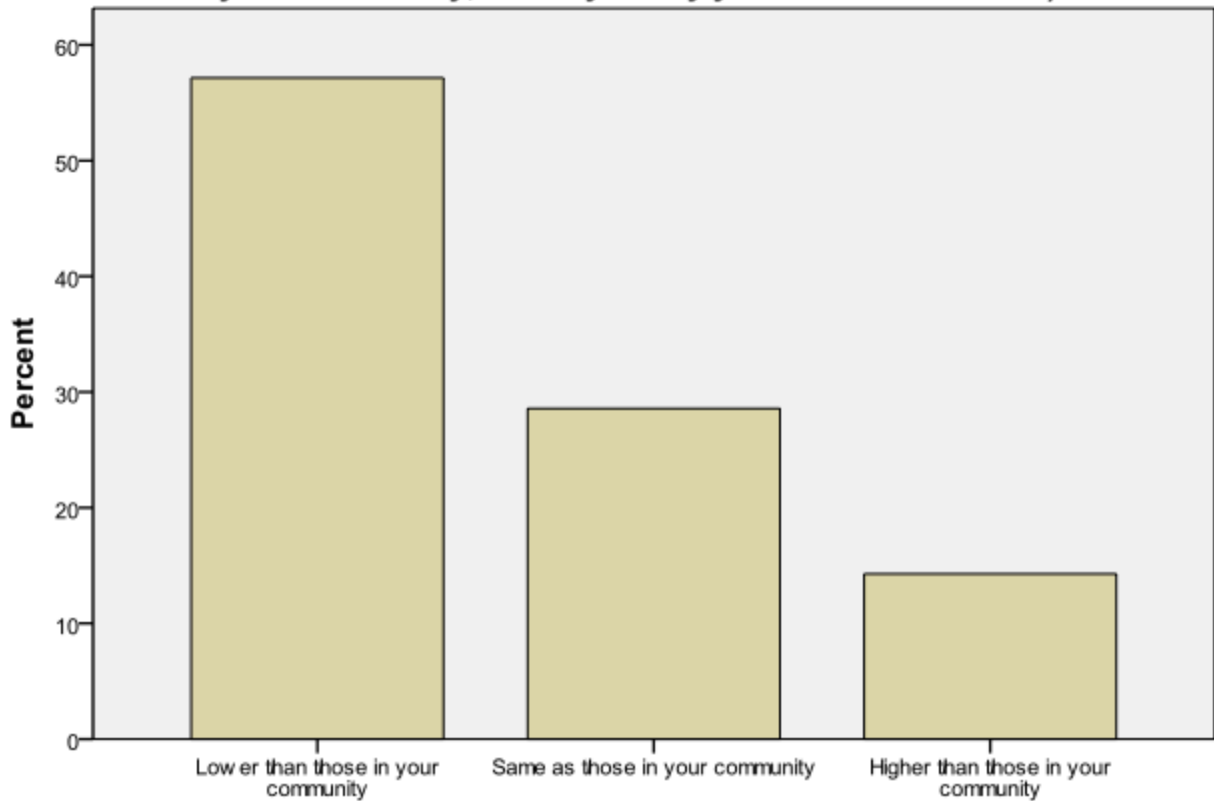


Table 10: Frequency Percentages for the Stress Survey Question, “Compared with your community, would you say your level of stress is:”

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Lower than those in your community	20	57.1	57.1	57.1
Same as those in your community	10	28.6	28.6	85.7
Higher than those in your community	5	14.3	14.3	100.0
Total	35	100.0	100.0	

Figure 10: Bar Graph for Responses to stress survey question, “Compared with your community, would you say your level of stress is:”

**Comparando con du comunidad, Ud diria que su nivel del estres es (comparing with your community, would you say your level of stress is:)**



**Comparando con du comunidad, Ud diria que su nivel del estres es (comparing with your community, would you say your level of stress is:)**

Table 11: ANOVA of Glucose, Systolic, Diastolic, and Body Mass Index versus Stress Level Groups

		Sum of Squares	df	Mean Square	F	Sig.
Glucose	Between Groups	400.188	3	133.396	.403	.752
	Within Groups	8933.490	27	330.870		
	Total	9333.677	30			
BP-Systolic	Between Groups	612.736	3	204.245	.643	.593
	Within Groups	9523.529	30	317.451		
	Total	10136.265	33			
BP-Diastolic	Between Groups	317.903	3	105.968	.881	.462
	Within Groups	3610.362	30	120.345		
	Total	3928.265	33			
Body Mass Index (kg/m <sup>2</sup> )	Between Groups	84.683	3	28.228	.934	.437
	Within Groups	906.841	30	30.228		
	Total	991.525	33			
Sex	Between Groups	.435	3	.145	.991	.410
	Within Groups	4.536	31	.146		
	Total	4.971	34			

Figure 11: Bar Graph of the Association between Stress Level and Sex

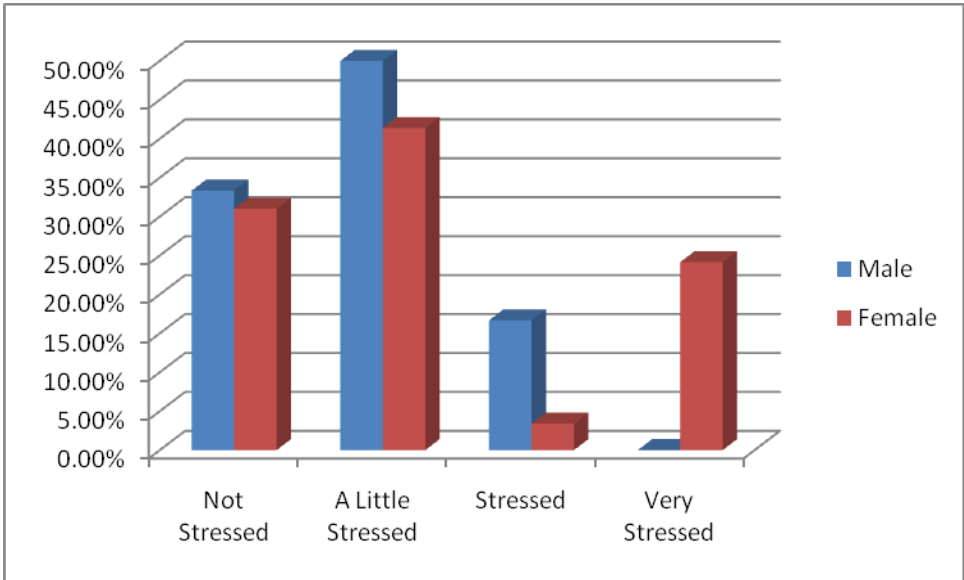


Figure 12: Bar Graph of a Means Plot of the Association between Stress Level and Mean Blood Glucose Level, Significance of .752

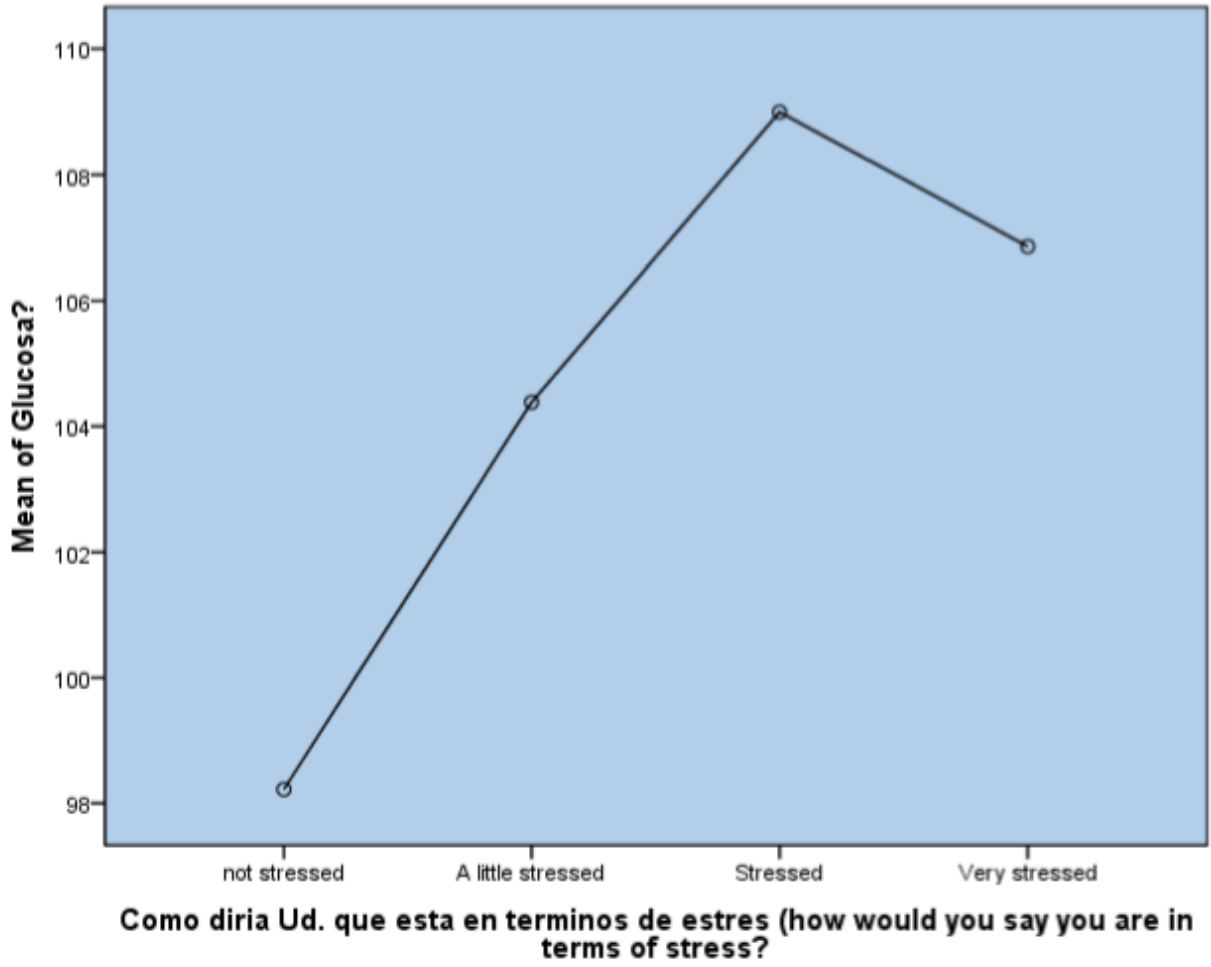




Figure 13: Bar Graph of a Means Plot of the Association between Stress Level and Mean Level of Blood Pressure-Sistolic, Significance of .593

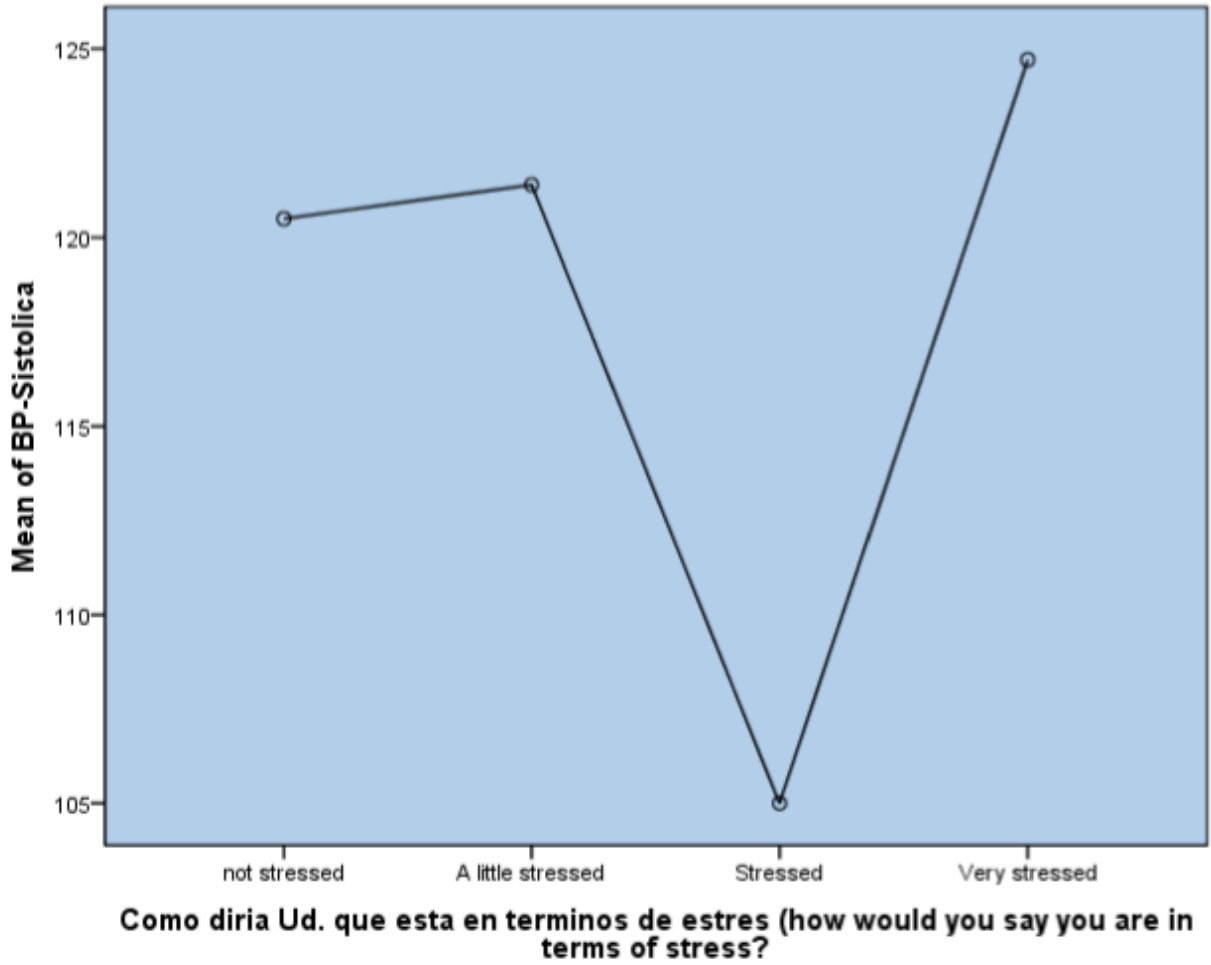


Figure 14: Bar Graph of a Means Plot of the Association between Stress Level and Mean Level of Blood Pressure-Diastolic, Significance of .462

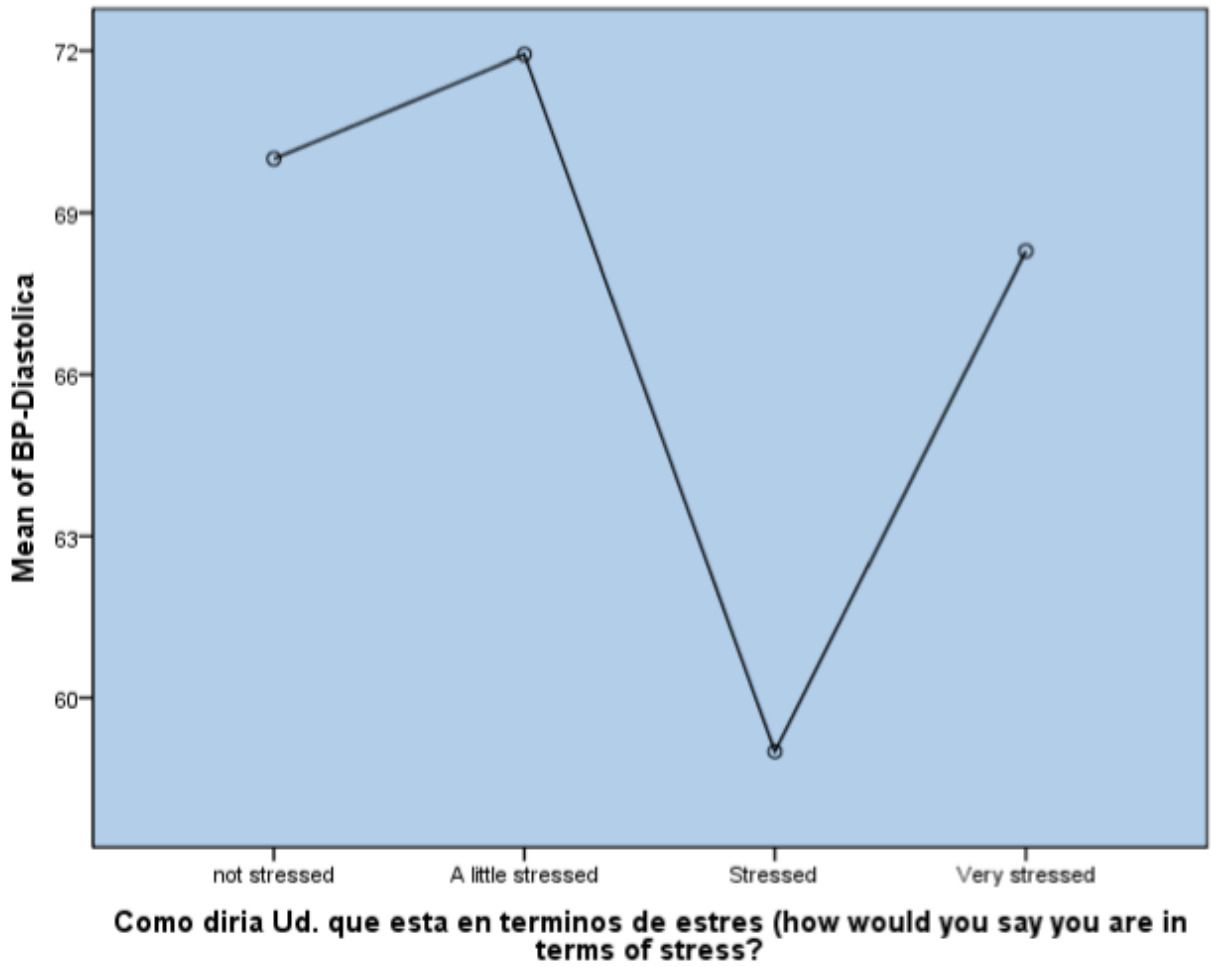


Figure 15: Bar Graph of a Means Plot of the Association between Stress Level and Mean Body Mass Index, Significance of .437

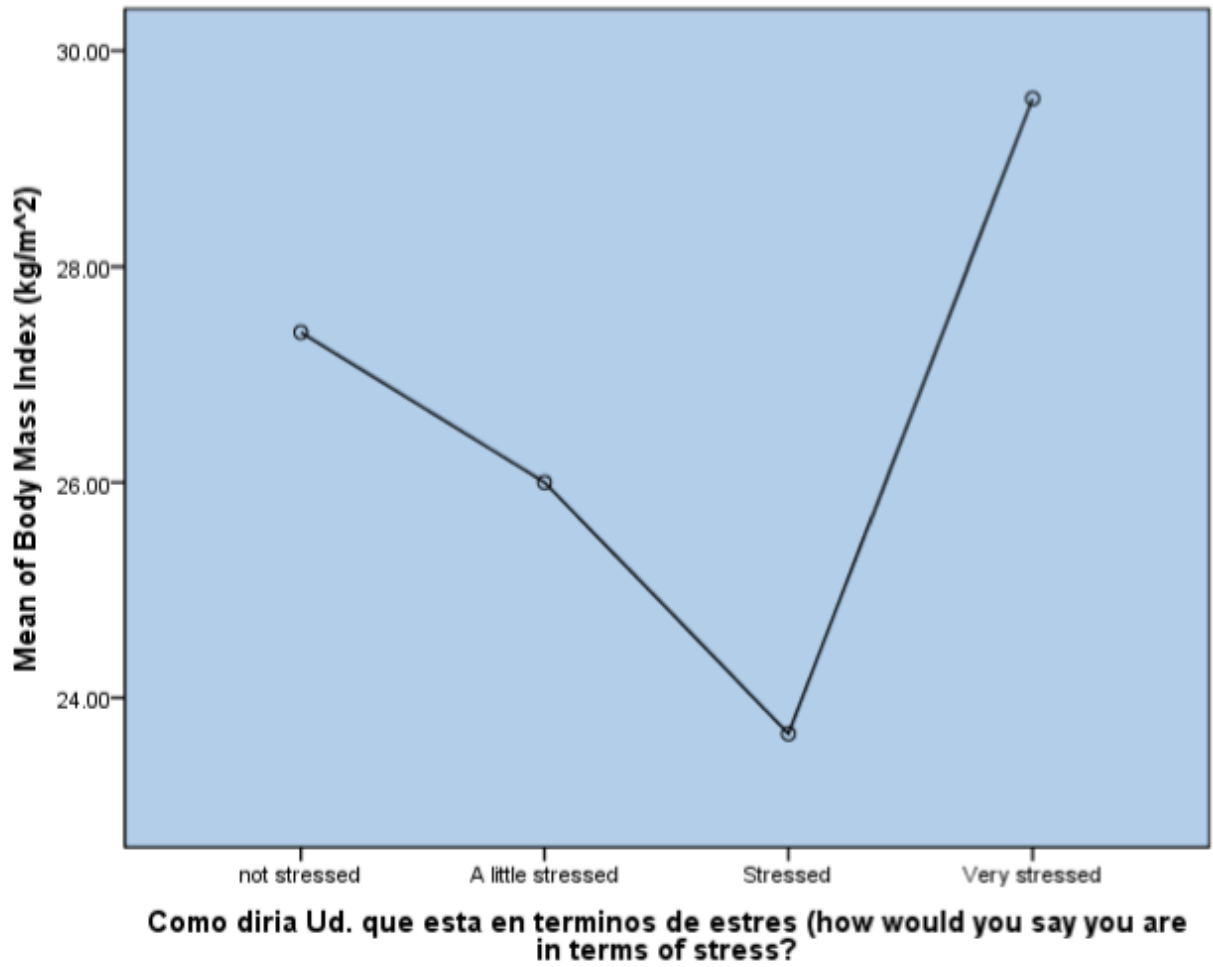


Figure 16: Bar Graph of a Means Plot of the Association between Stress Level and Mean Amount of Time Lived in the Monteverde Zone, Significance of .670

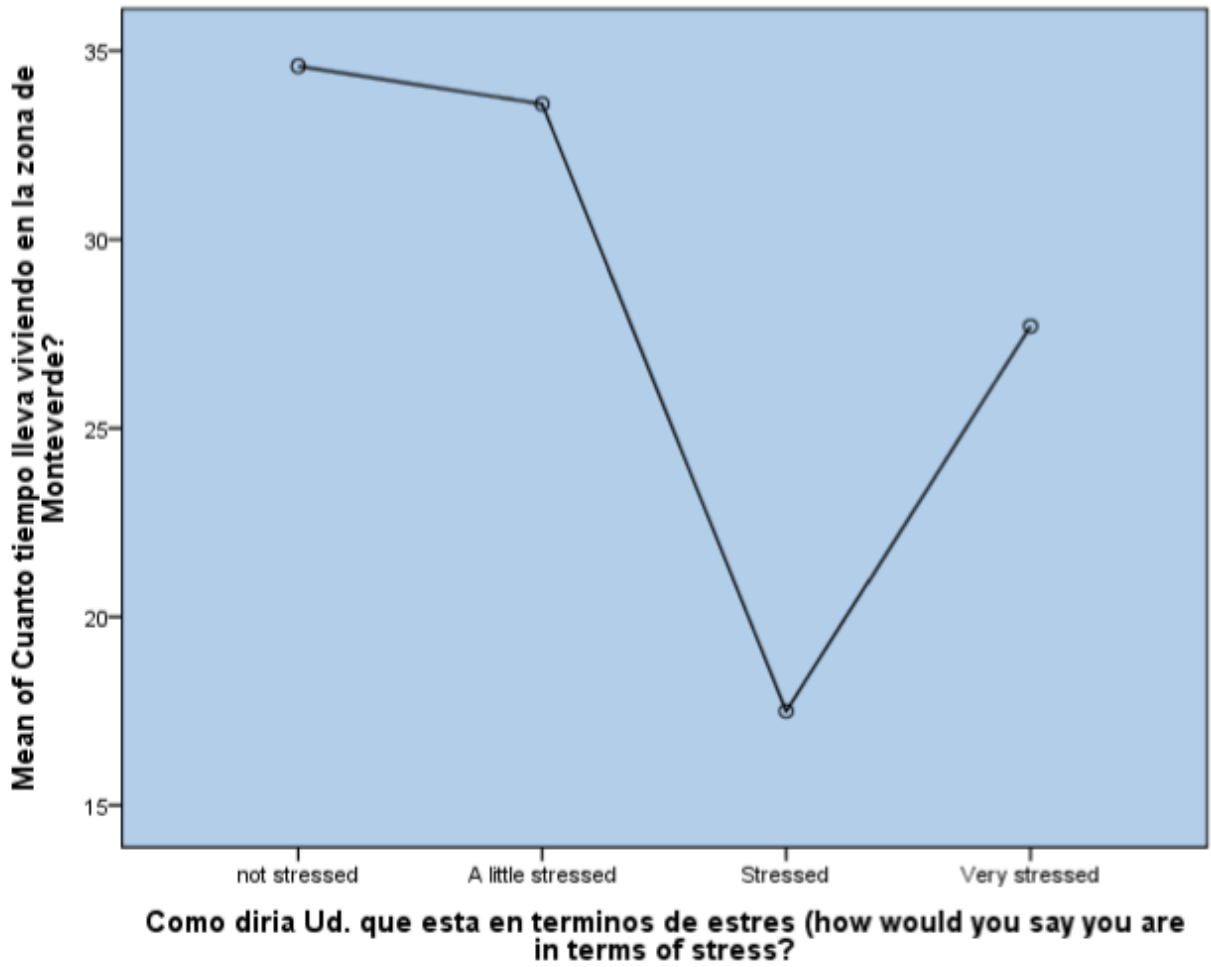


Figure 17: Bar Graph of a Means Plot of the Association between Stress Level and Mean Age, Significance of .875

