Seasonal Variation in Cortisol Biomarkers in Hispanic Mothers Living in an Agricultural Region

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Supplemental Information

Table 1: Instrumental Parameters for Analysis by LC-MS/MS

Compound	Quantitation Limit* (pg/mg)	Retention Time (min)	Precursor Ion (m/z)	Product Ion (m/z)	Fragmentor Voltage (V)	Collision Energy (V)
Cortisol Quant Ion Qual Ions	3	4.11	363	121 147 105 97	148	26 34 50 26
Cortisol-d4 Quant Ion		4.06	367	121	148	22
Cortisone Quant Ion Qual Ions	3	4.61	361	163 121 105	138	22 38 54
Cortisone-d2 Quant Ion		4.59	363	165	209	24

Table 2: Demographic characteristics of our study population.

Demographic Characteristics	
Age, mean (sd)	37 (4.5)
Hispanic (%)	96
Language Spoken in the Home	
Spanish (%)	89
English (%)	0
Refused (%)	11
Country of Birth	
USA (%)	11
Mexico (%)	89
Marital Status	
Married or living with a partner (%)	89
Divorced or separated (%)	11
Never married (%)	0
Widowed (%)	0
Other (%)	0
Number of Children, mean (sd)	3.6 (1.5)
Annual Household Income	
Less than $5,000 (%)	0
$5,001-10,000 (%)	0
$10,001-15,000 (%)	11.1
$15,001-25,000 (%)	25.9
$25,001-35000 (%)	25.9
$35,001-50,000 (%)	22.2
More than $50,001 (%)	7.4
Don't know (%)	3.7
Refused (%)	3.7

Table 3: Mexican Immigrant Farmworker Stress Scale (MIFSS) responses. Each question from Snipes et al. 2007 is shown below with the average and standard deviation across visits. Questions are answered on a scale of 1 to 5 (with 1 being "Not at all", 2 being "Yes, a little", 3 being "Yes, sometimes, 4 being "Yes, a lot of the time" and 5 being "Yes, most of the time")

	Summer		Fall	
Question	**Average**	**Standard Deviation**	**Average**	**Standard Deviation**
In the past month, have you felt stressed because you did not have enough money to pay your bills?	2.19	1.14	2.15	1.17
In the past month, have you felt stressed because of lack of enough work?	1.67	1.07	1.67	1.11
In the past month, have you felt stressed because of injustice at work?	1.70	1.32	1.63	1.04
In the past month, have you felt stressed because of painful injuries at work?	1.41	0.75	1.63	1.11
In the past month, have you felt stressed because you have to work too hard?	1.44	0.93	1.74	1.10
In the past month, have you had feelings of desperation because of sickness in your family?	1.89	1.22	1.78	1.15
In the past month, have you had feelings of desperation due to lack of money to pay medical bills?	1.74	1.02	1.59	1.15
In the past month, have you had feelings of desperation because members of your family have problems that you cannot solve?	1.78	1.19	1.78	1.09
In the past month, have you been stressed about where to leave your children while working?	1.22	0.58	1.11	0.42
In the past month, have you had feelings of desperation because members of your family live far away?	2.15	1.06	1.96	0.98
In the past month, have you felt stressed because of problems with your children?	1.37	0.69	1.48	0.85
In the past month, have you felt stressed because there is a lack of communication in your home?	1.22	0.42	1.52	0.85
In the past month, have you felt stressed because of a drinking problem in your home?	1.04	0.19	1.04	0.19
In the past month, have you felt stressed because of drug use in your home?	1.00	0.00	1.00	0.00
In the past month, have you felt stressed because of domestic violence in your home?	1.00	0.00	1.00	0.00
In the past month, have you felt stressed because of crime in your community?	1.74	1.02	1.63	0.88

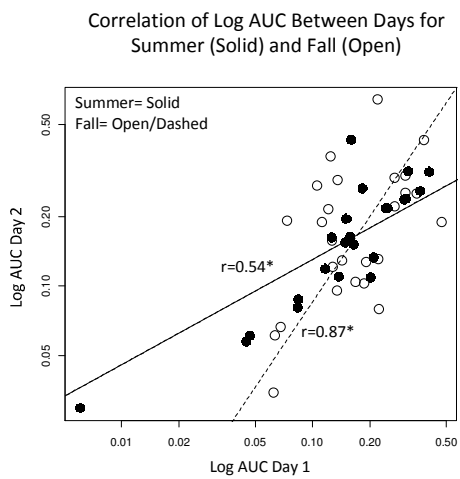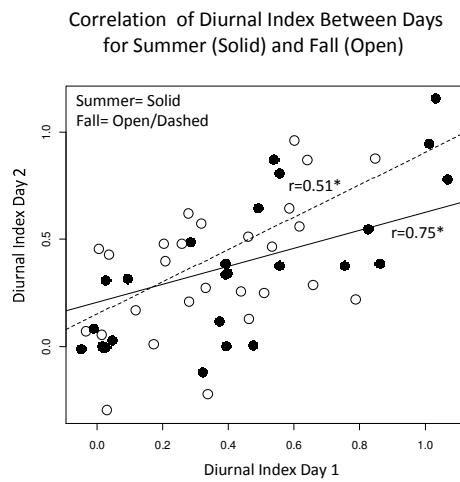|				
In the past month, have you felt stressed because of discrimination in your community?	1.74	1.16	1.67	0.92
In the past month, have you felt stressed because there is lack of communication with the youth in your community?	1.67	1.11	1.59	0.84
In the past month, have you felt stressed because you do not speak English?	1.85	1.17	2.07	1.17
In the past month, have you felt stressed because there is discrimination in schools?	1.67	1.14	1.44	0.85
In the past month, have you found it hard to work up the energy to do things?	1.74	1.16	1.52	0.80
In the past month, have you lost sleep because of stress?	1.74	1.23	1.67	1.00
In the past month, have you to felt depressed due to stress?	1.56	0.97	1.56	0.93

A.) Correlation of AM Change Between Days
for Summer (Solid) and Fall (Open)

Summer= Solid
Fall= Open/Dashed

r= 0.65*

r=0.32

AM Change Day 2

AM Change Day 1

Correlation of Diurnal Index Between Days
for Summer (Solid) and Fall (Open)

Summer= Solid
Fall= Open/Dashed

r=0.51*

r=0.75*

Diurnal Index Day 2

Diurnal Index Day 1

Correlation of Log AUC Between Days for
Summer (Solid) and Fall (Open)

Summer= Solid
Fall= Open/Dashed

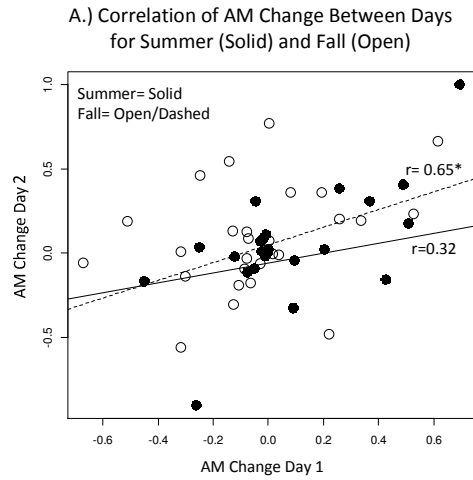r=0.54*

r=0.87*

Log AUC Day 2

Log AUC Day 1

Figure S1: The correlation for salivary cortisol between A.) AM Change, B.) Diurnal Index and C.) AUC between consecutive days (1 and 2) for summer and fall. Asterisk indicates a significant correlation with $p < 0.05$.

PSS Buzzwords

1. **Confident:** In the last month, how often have you felt confident about your ability to handle your personal problems?
2. **Control:** In the last month, how often have you felt that you were unable to control the important things in your life?
3. **Difficulty:** In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
4. **Irritate:** In the last month, how often have you been able to control irritations in your life?
5. **No Control**: In the last month, how often have you been angered because of things that were outside of your control?
6. **No Cope:** In the last month, how often have you found that you could not cope with all the things that you had to do?
7. **On Top**: In the last month, how often have you felt that you were on top of things?
8. **Positive:** In the last month, how often have you felt that things were going your way?
9. **Stressed:** In the last month, how often have you felt nervous and "stressed"?
10. **Unexpectedly:** In the last month, how often have you been upset because of something that happened unexpectedly?
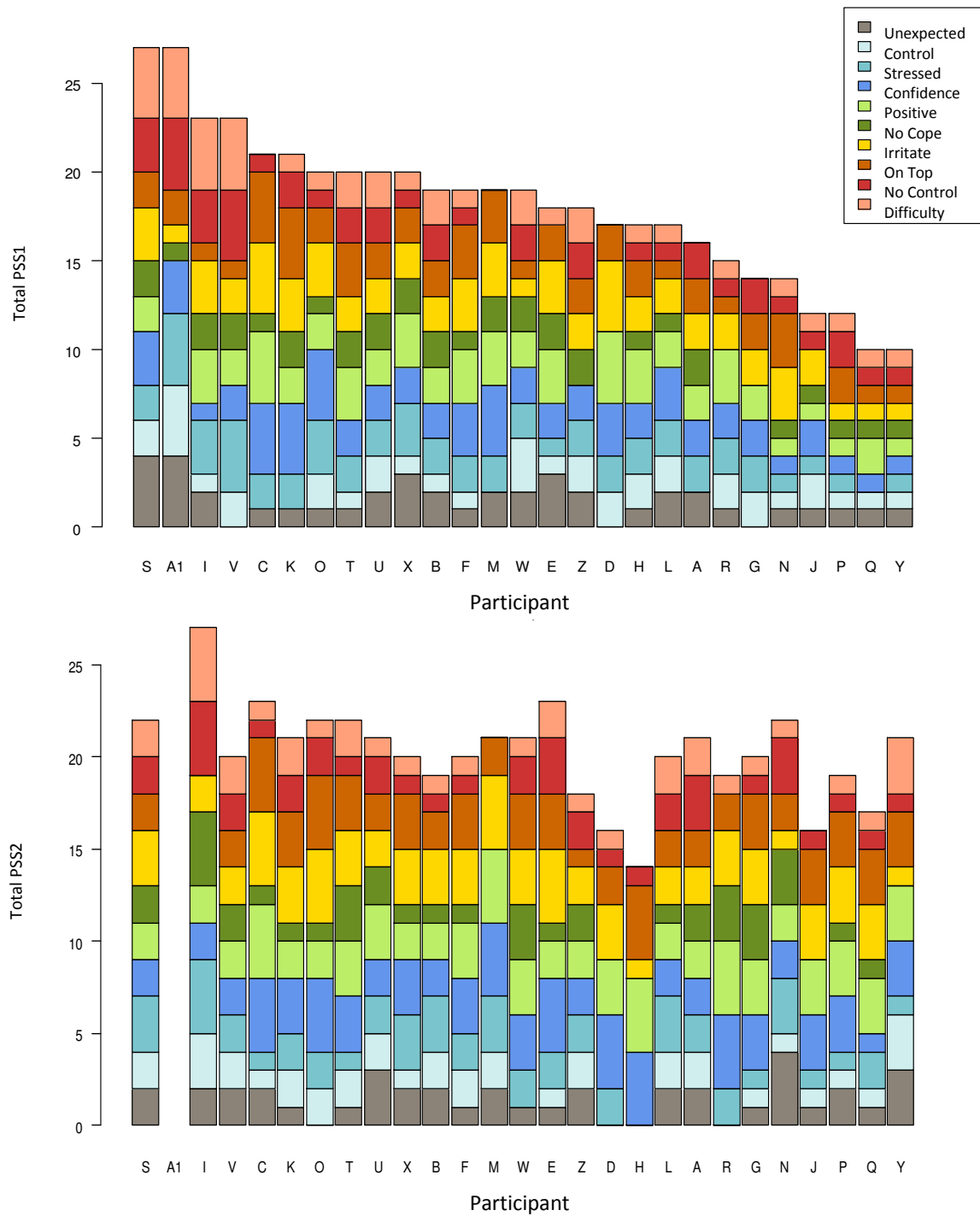
Figure S2: Stacked Barplots showing the distribution of PSS scores across participants (x-axis) and questions (colors). Summer questionnaire responses are shown on top (PSS1) and Fall is shown on bottom (PSS2). Buzzwords associated with each question are shown to the right with a color code and defined in the supplement. Higher PSS scores are associated with increased stress.