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## Objective and Subjective Stress Differences: Foreign-Born and U.S. Native Adults in Boston Communities

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*Et al.*

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# **Objective and Subjective Stress Differences: Foreign-Born and US Native Adults in Boston Communities**

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Jerrold Meyer  
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Celia L. Moore**

# Overview

- Community engagement and partnerships
- Measures of biological and subjective stress
- Timeline
- Preliminary Pilot Results:

Discuss differences in stress for foreign-born and US adults living in ‘high-risk’ Boston communities, based on ‘Health of Boston’ (Boston Public Health Commission) risk identifiers: e.g., zipcode, density, poverty, unemployment



# HORIZON Center UMB and Project Community Partners

- **COHS:** Cherishing our Hearts and Souls (founded 1997)  
Grassroots coalition (residents, community organizations, professionals)  
Minority health and health disparities.  
Roxbury, Dorchester, and surrounding inner Boston neighborhoods
- **CRAB:** Community Research Advisory Board (founded 2005 by COHS)  
Mission to serve as bridge between researchers and community  
Incorporated nonprofit, 2012  
(Organizational support moved from HSPH to UMB 2009)
- **Project Partner:** Christopher Thompson, EdD, Executive Director of Quincy Geneva Housing, Inc. Grove Hall area, Roxbury/Dorchester  
Membership links with CRAB and COHS  
Participated in initial research plan, community liaison, recruitment, community educational follow-up

## TEAM

- Our team includes UMB and RCC students Research Assistants, many of whom are first generation in higher education and international students
- RAs helped with translating materials, recruiting, testing
- Community locations: YMCAs, Churches, Vine St. Center, UMB campus



# AIMS

## *Improve community engagement.*

- Partnership for recruitment, implementation of the study, and dissemination of findings.

*Identify stress-related differences between foreign and US-born adults.*



# Pilot Study

**Population:** N = 50 (about 1/2 of sample for preliminary results)

Foreign-born and US Natives Boston (ages 18-30,  $M = 21.80$ , 65% female, 50% foreign born)

**Subjective Stress and Scales** (available in 4 languages):

Perceived Stress **In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?**

CHAOS (Confusion, hubbub, order) **At home we can talk to each other without being interrupted**

City Stress Index **Vandalism is common in my neighborhood**

Lifetime Discrimination **Were you discouraged by a teacher or advisor from seeking higher education?**

Daily Discrimination **Do people act as if they think you are dishonest?**

Social Identity-**How much pride do you have in your heritage group/ how much identify**

Subjective Social Status Ladder (from 1-10)



Modern Racism-(assesses negative biases) **Immigrants should not push themselves where they are not wanted**

Self Esteem- **I take a positive attitude toward myself.**

PANAS 20 emotion words: **baseline and post (excited, proud, strong, hostile, jittery, guilty)**



## **Biological Stress and health measures:**

Hair Cortisol-biomarker of chronic stress

Waist hip ratio, resting blood pressure

Cardiovascular indices

## **Cognitive and Task measures** (non-language based):

Stroop

Emotion Go No Go

Raven's Fluid Intelligence

## **Controls: to control for factors that may influence outcome measures**

Prescription meds

Birth control or any corticosteroid

Hair treatment: wash, dye, weave, straighten, etc.



# Timeline



## Arrival

Consent  
Attach CV  
monitor

## *Objective*

*Stress  
Measures*  
Hair  
Resting BP

## *Subjective*

*Stress  
Measures*  
PSS  
discrimination

## Debrief

Thanked  
and paid





# Hair cortisol

Hair cortisol (hCORT) is a relatively new biomarker of chronic stress via long-term alterations in hypothalamus-pituitary-adrenal axis (HPA) activity. Under stress, cortisol is released.

Since hair grows 1 cm per month, 3 cms can measure cortisol remnants reflecting the past 3 months (Davenport, Tiefenbacher, Lutz, Novak, & Meyer, 2006).

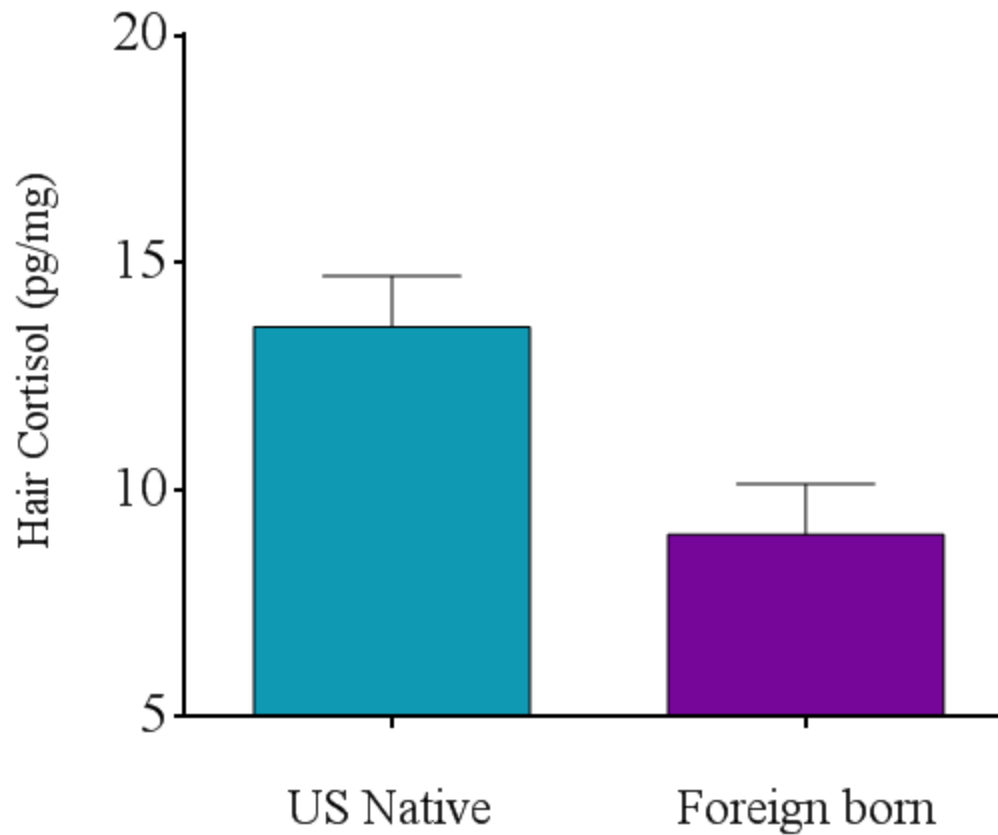
We are the first research group to use hair cortisol to examine social and structural factors with this objective chronic stress measure: discrimination, poverty, social exclusion and status, acculturation related stress.



## RESULTS: *Objective stress measures*

### *Hair Cortisol*

*US natives are slightly higher than the foreign born individuals*

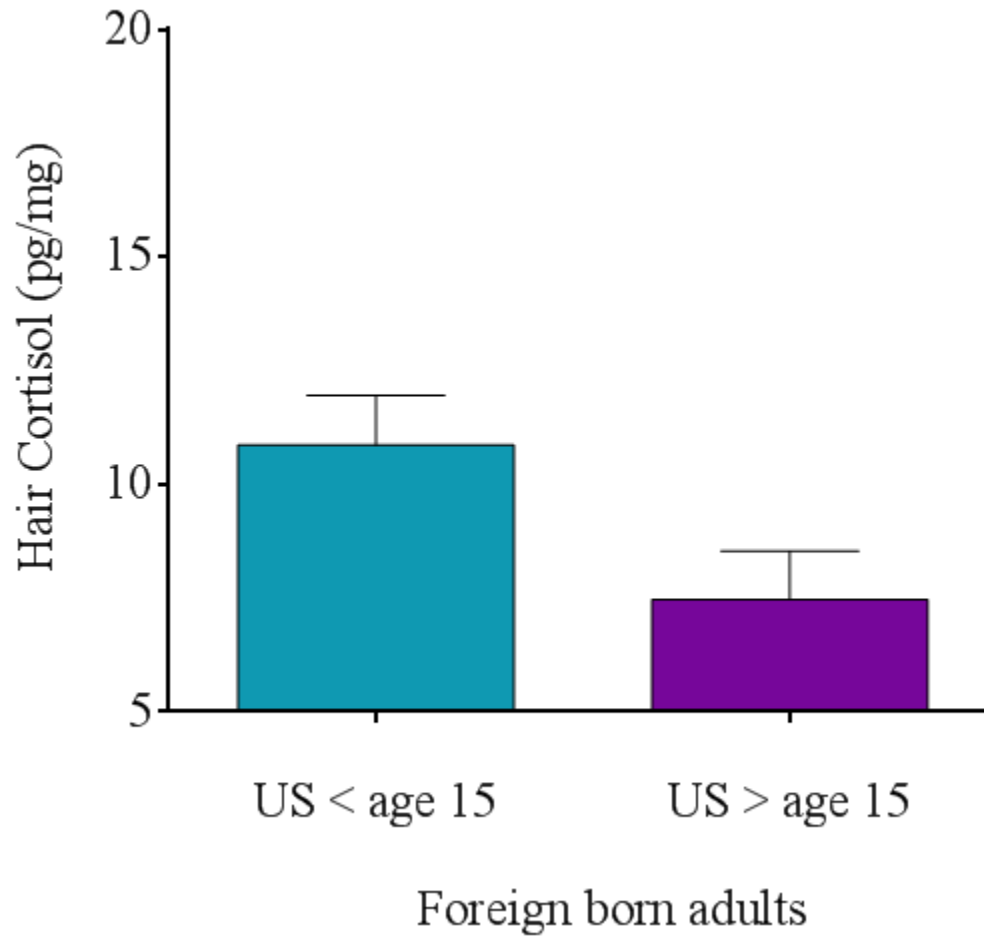


$t(44)=1.6, p<.10,$



# Hair Cortisol

*When examining only foreign-born individuals, those who immigrated to the US before the age of 15 have higher hair cortisol.*

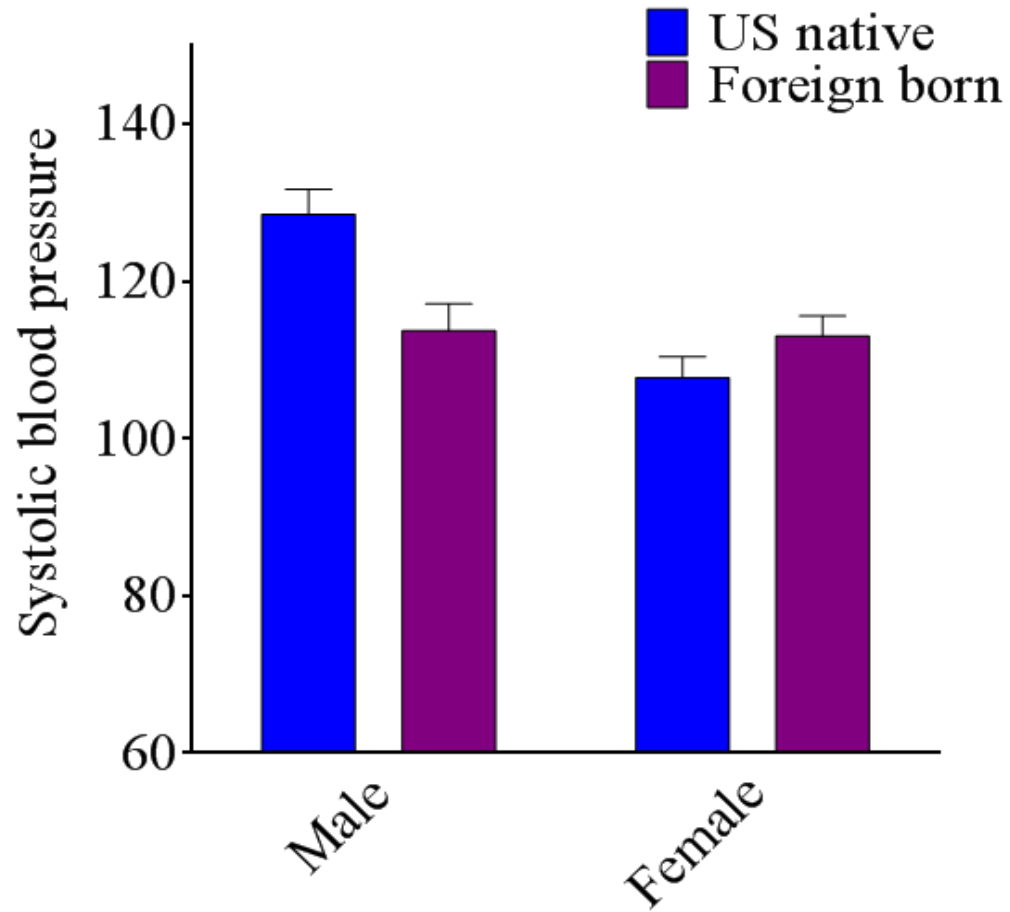


$t(21)=2.06, p<.052,$



## Blood pressure: *Interaction Nativity x sex*

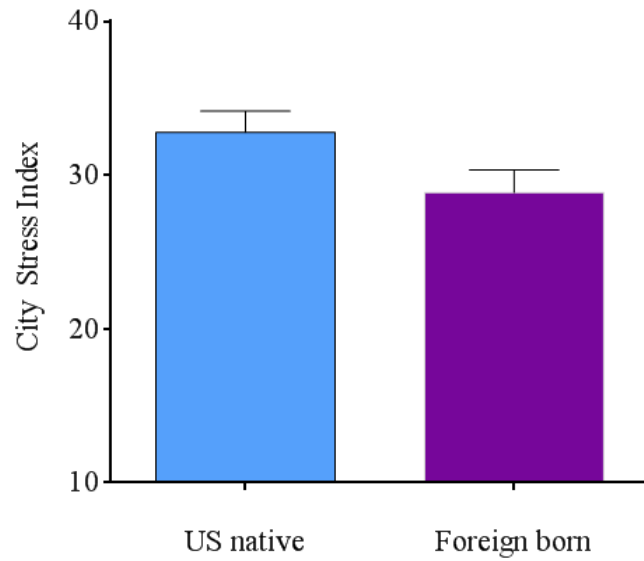
*Male US residents showed the highest resting SBP*



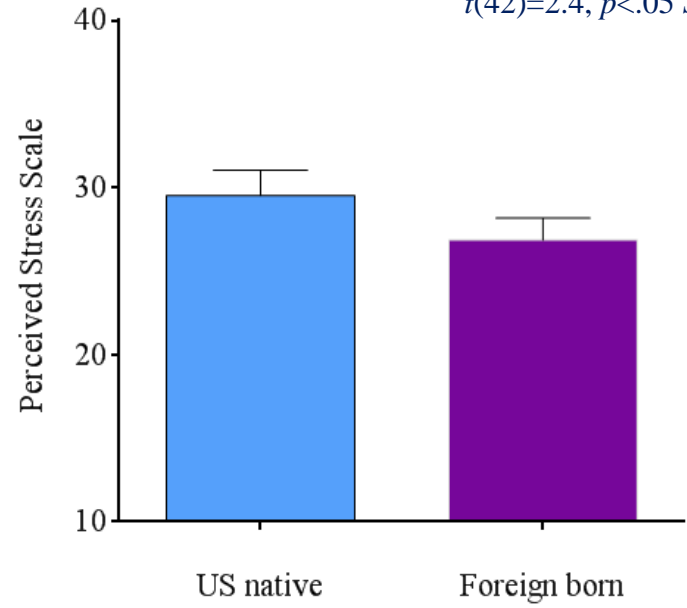
$F(1,43)=11.32, p<.001$



# RESULTS: *Subjective Stress*

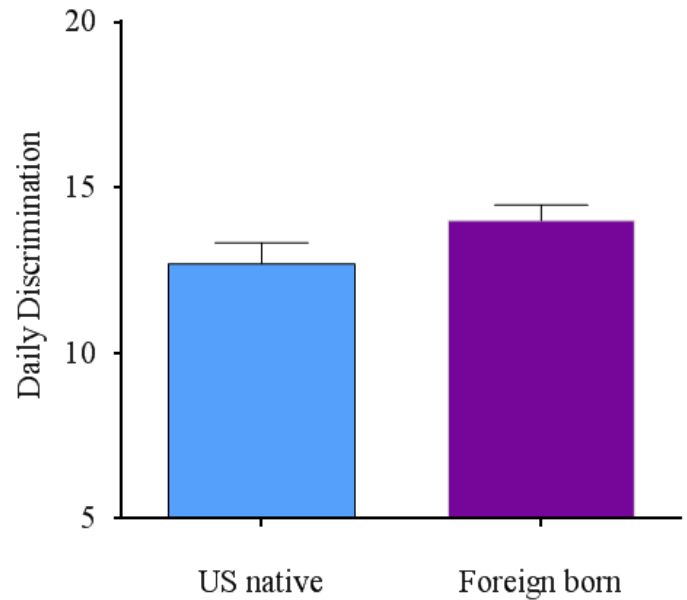
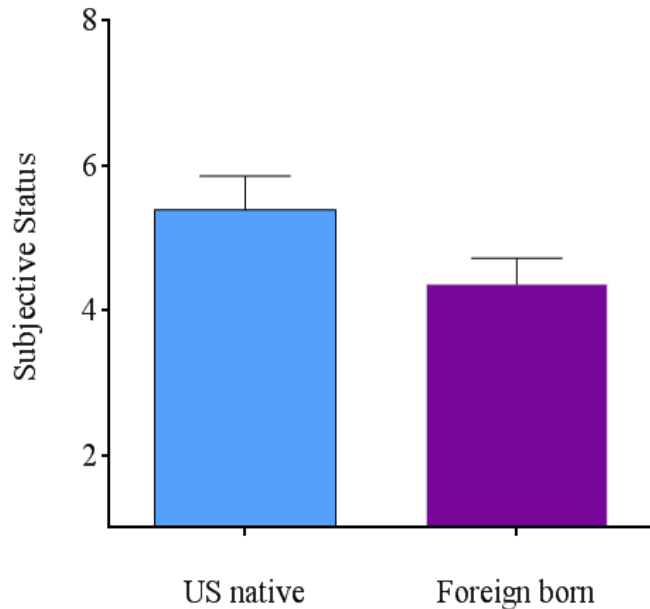


$t(42)=2.4, p<.05$  Scale 0-40



$t(42)=2.9, p<.05$  Scale 16-64

## Subjective Status ladder



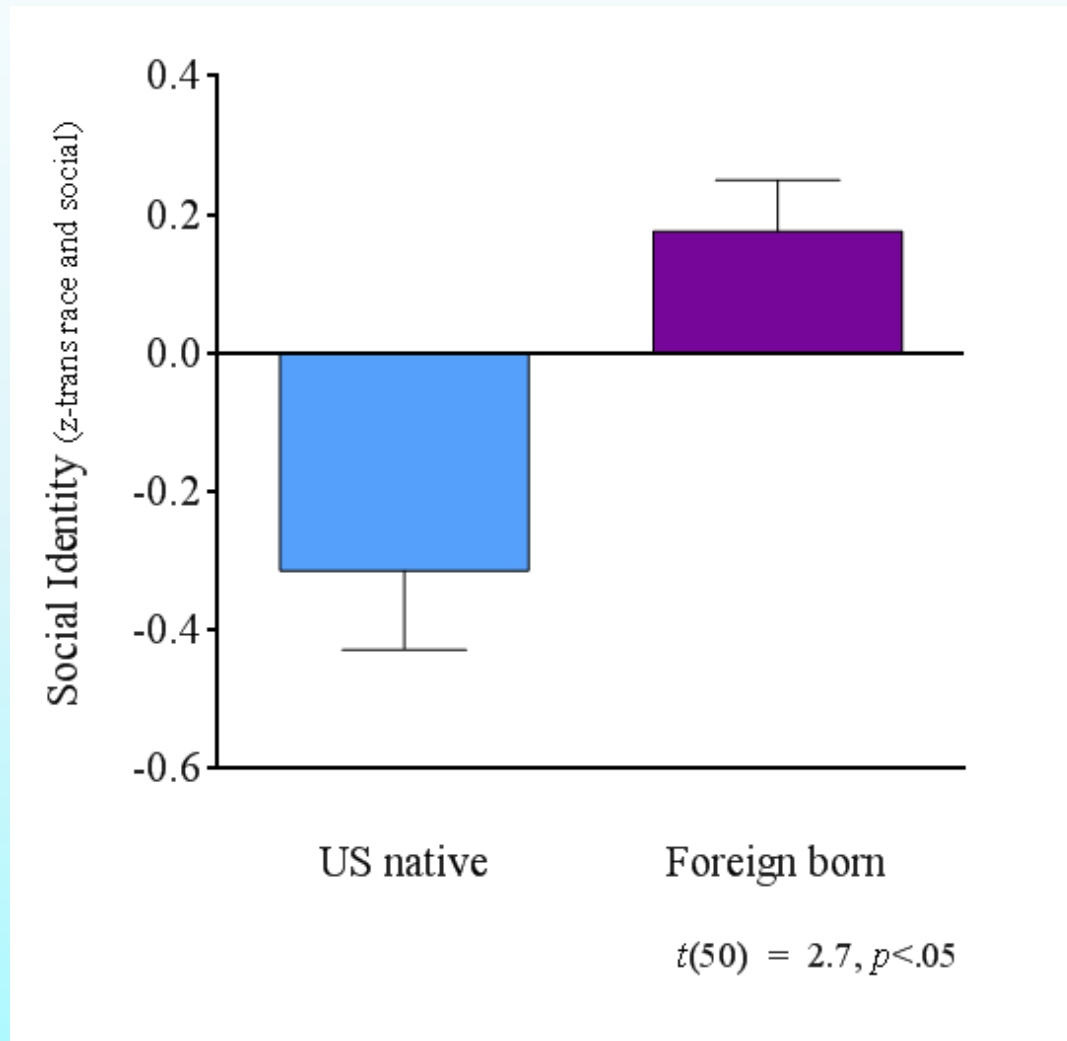
$t(45)=1.6, p=.09$

$t(42)=3.2, p<.05, Scale 1-10$

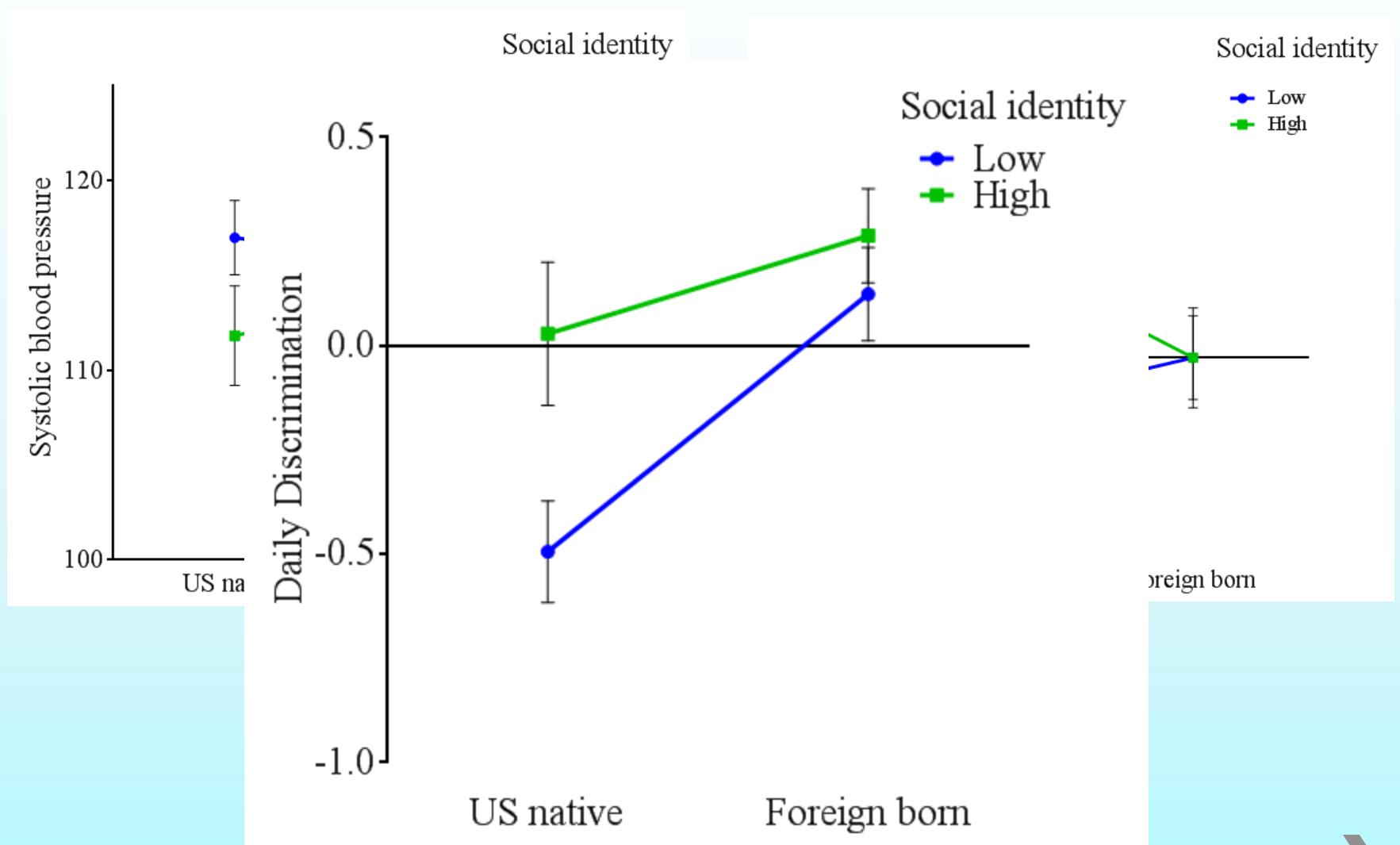
## Social identity:

*Foreign born adults are significantly strongly in social identity.*

*Is this protective?*



# Is a stronger social identity protective for health outcomes and stressors?



## SUMMARY of preliminary findings

### Objective Stress Outcomes

- *Hair cortisol values were higher* for US natives compared to foreign-born adults, living in similar high-risk neighborhoods Boston
- Although, Hair cortisol values were higher for foreign born adults who immigrated to the US *before the age of 15*.
- Resting systolic blood pressure was also significantly lower for both male and female foreign born adults

### Subjective Stress Outcomes

- Broadly, the foreign born adults rated *subjective stress as lower* than the US natives, unless they reported greater social identity.
- Although, Foreign born adults rated *subjective social status as lower* than US natives.

### Social identity

- Social identity was significantly *stronger for foreign-born adults*
- Although, the benefits of stronger social identity were found more for the US but only for objective (blood pressure) not subjective (perceived stress).
- For some, stronger social identity was related to greater negative stressors, for example, reporting of greater Daily discrimination
- *Contrary to general findings: but consistent in our samples.*
- *Argument for additional neighborhood level and community research.*
- Limitations: no comparison group. All Ps living in high-risk areas.





Thank you!

Ira Ockene

Philip Merriam

Any Borg

Suzanne Cashman

And all CCTS!

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Chris Thompson

Jerry Meyer

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