



**Gathering for Health:  
Examining the Impact of Stress on Diabetes Outcomes and Identifying  
Cultural Solutions for Health Promotion**

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for Health Team**

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Community Research Council  
member and project interviewer.



# Type 2 Diabetes Mellitus

- American Indian (AI) life expectancy is almost 5 years less than U.S. general population
- Type 2 Diabetes (T2D) is a significant contributor to this disparity
  - AIs over 2x more likely to be diagnosed with T2D than other Americans
    - AIs aged 10 – 19 years = 9x more likely
  - T2D a leading cause of death for AIs
    - Contributes to top cause of death, cardiovascular disease

# Stress & Diabetes Mellitus

*This we know: that diabetes is sometimes caused in man by mental anxiety. . . (H. Maudsley, 1899)*

*. . .the transient or intermittent glycosuria (type 2 diabetes) met with in stout overfeeders, or in persons who have undergone a severe mental strain, is very amenable to treatment. (W. Osler, 1892)*

*But if the degenerate, or the depraved nervous liquor doth continually flow into the blood, it produces sometimes the unbloody dysentery, such as we have already described, sometimes the diabetes. . .(T. Willis, 1679)*

# Our Research Aims

- 1. Improve understanding of the measurement and meaning of stress processes among American Indians (AIs).
- 2. Identify relationships between stressors and T2D progression, health behaviors, and T2D-related outcomes with AI communities.
- **3. Work within a Community-Based Participatory Research (CBPR) partnership to translate basic research findings for improved health outcomes.**

# Project Details

## Phase 1: Year 1

### Qualitative

Focus Groups (FG)

**FG #1**  
General  
Stress  
Discussion

**FG #2**  
Review  
Survey  
Measures

Participants Selected by  
Convenience Sampling

## Phase 2: Years 2-5

### Quantitative

All Participants will be  
asked to consent to 3  
things:

1

**Survey:**  
Completed  
with  
Interviewers

2

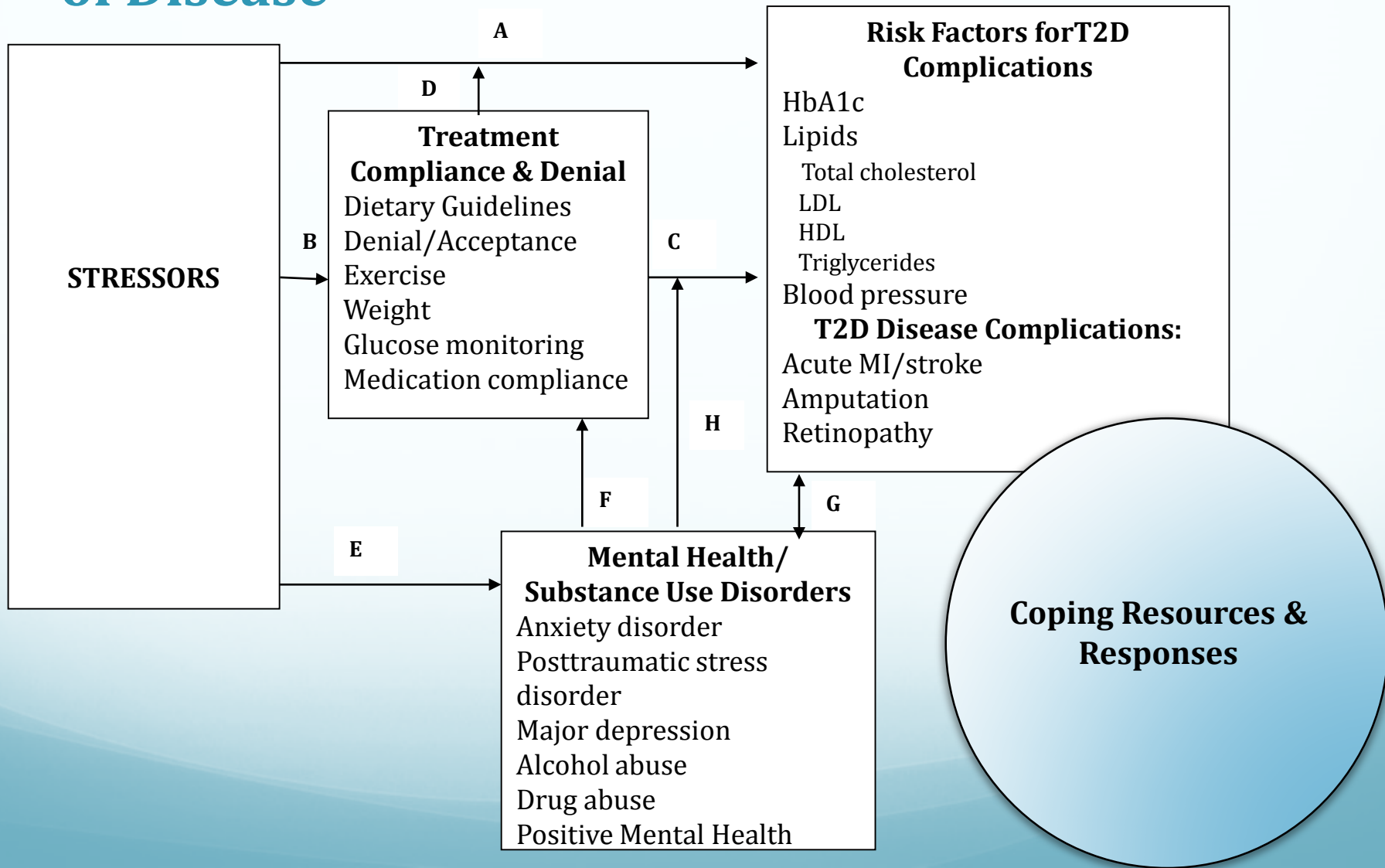
**Chart  
Reviews:**  
Completed  
by Clinic  
Staff

3

**Salivary  
Cortisol:**  
Saliva  
Collected by  
Participant @  
Home

Participants Selected from Clinic  
Records, Probability Sample

# Conceptual Model: A Stress Process Model of Disease



# Indigenized (Anishinaabe) Study Model



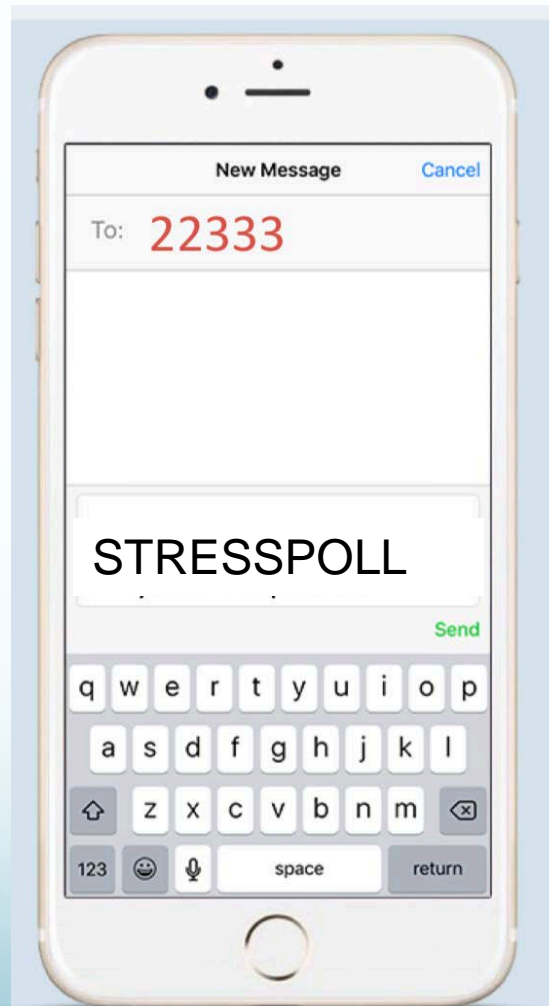
# PART 1: STRESS

## TO PARTICIPATE:

Send a text message  
to **#22333**

The message should  
read:

**STRESSPOLL**



*Text voting*

# Which of the following domains Stresses you out the MOST?

Housing/Home Issues

Work

Personal Health

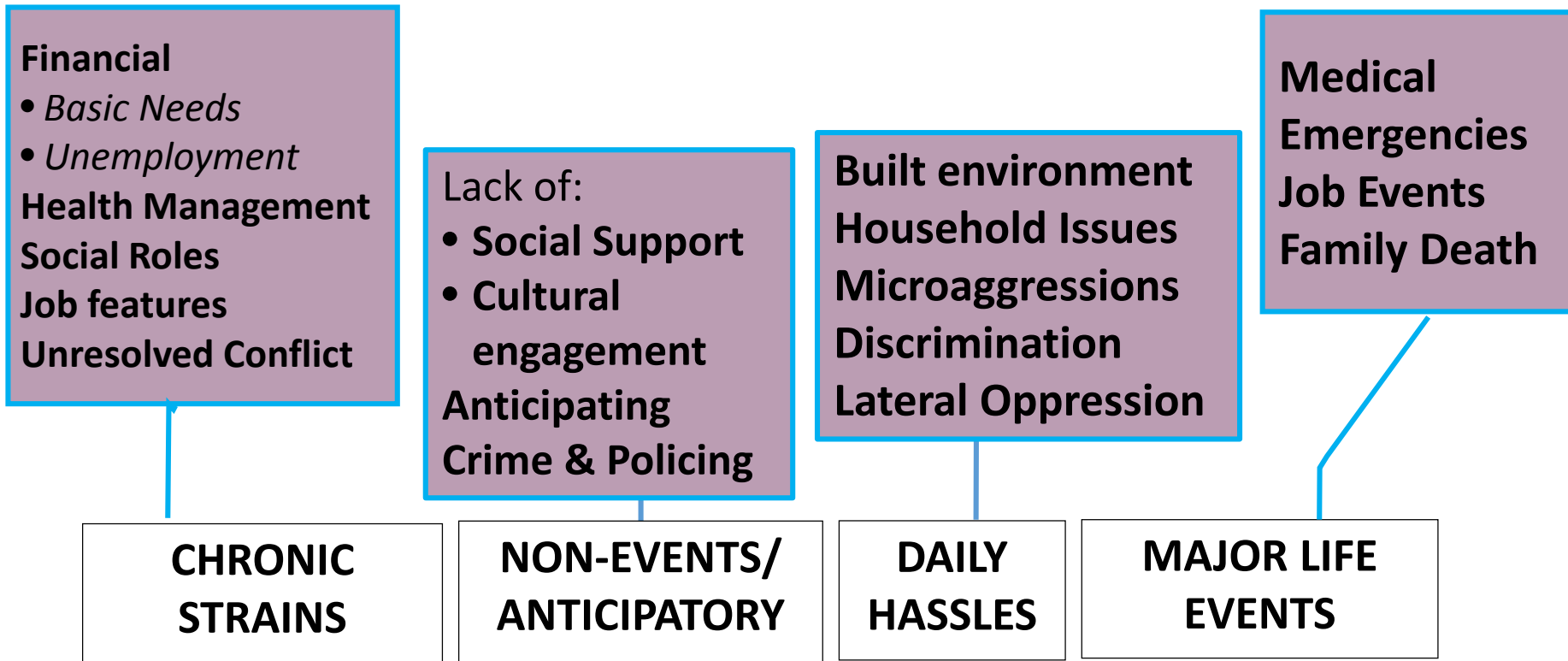
Financial/ Money Issues

Family

Interpersonal Relations

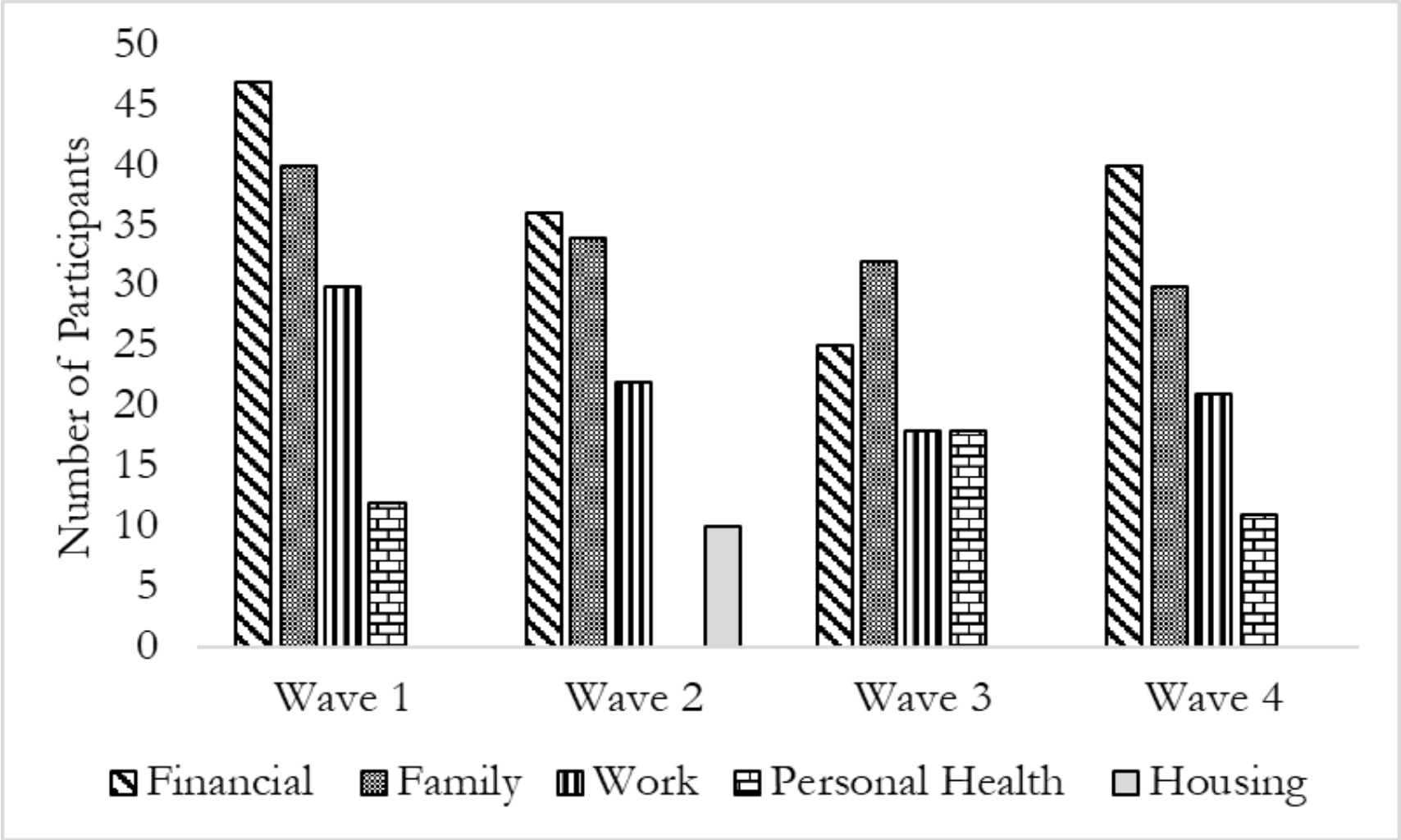
Other

# What were sources of stress for focus group participants?



**Colonization, Poverty & Genocide were viewed as factors underlying the above stressors.**

# What were the most common sources of stress for survey participants?



# How stressed were participants?

	Wave 1	Wave 2	Wave 3	Wave 4
Global Stress Males (Mean)	3.65*	3.42	3.59	3.16
Global Stress Females (Mean)	4.24	3.88	3.80	3.56
<b>Global Stress (Total Sample)</b>	<b>3.97</b>	<b>3.68</b>	<b>3.70</b>	<b>3.38</b>
N (Male/Female)	85/106	65/98	68/92	67/93
N (Total Sample)	191	163	160	160

NOTES: N = Sample Size

\*Male and Female responses significantly different from each other within each wave ( $p < .05$ )

Range = 0 (no stress) – 6 (extremely high stress)

# How do various forms of stress relate to T2D-related outcomes?

## Diabetes-related Stress

- Diabetes Distress Screener; Fisher et al., 2005
- Possible range 1 to 6 with higher scores for more diabetes-related emotional distress
- Mean 2.57, S.D. 1.39

## Family Criticism

- Family Emotional Involvement and Criticism Scale; Shields et al., 1994
- Possible range 0 to 3 with higher scores for more family criticism
- Mean 1.04, S.D. 0.44

## Daily Hassles

- Survey of Recent Life Experiences; Kohn & Macdonald, 1992
- Possible range 0 to 24 with higher scores for more daily hassles
- Mean 6.02, S.D. 3.44

## Microaggressions

- Walters, 2008
- Possible range 0 to 2 with higher scores for more micro-aggressions
- Mean 0.70, S.D. 0.48

## Financial Events

- Negative Financial Events; Dohrenwend et al., 1978
- Possible range 0 to 9 with higher scores for more events
- Mean 1.63, S.D. 1.48

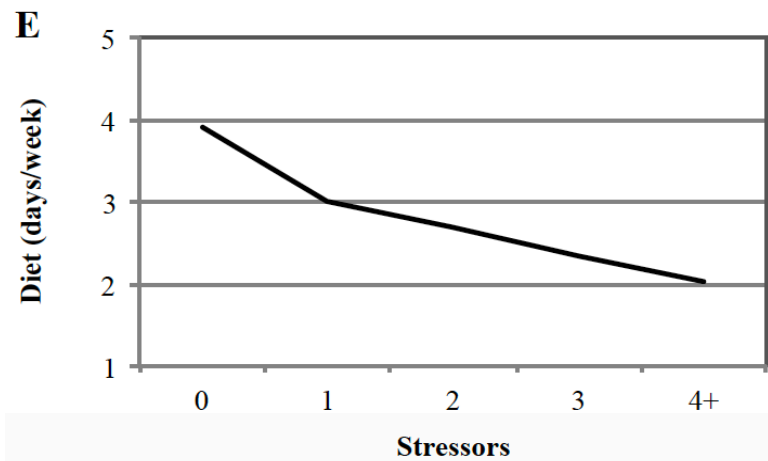
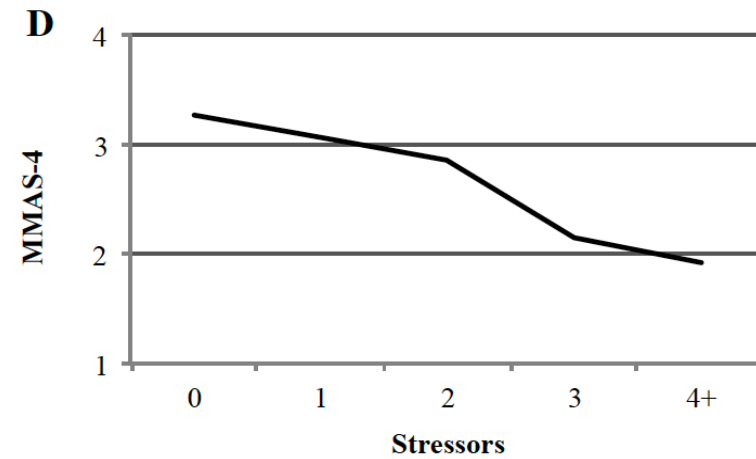
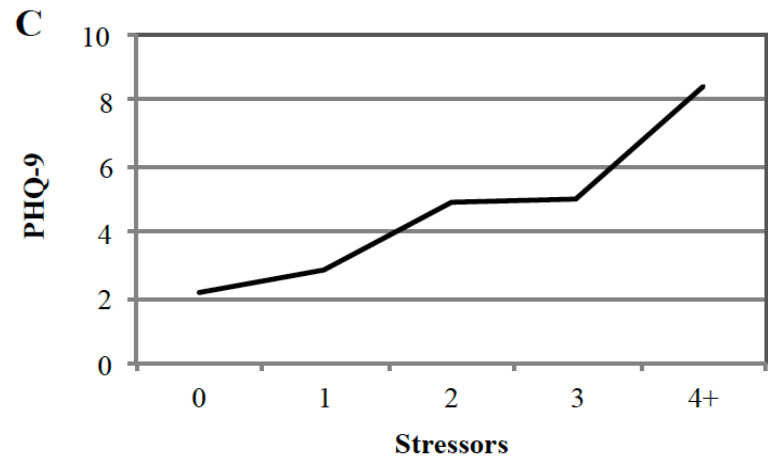
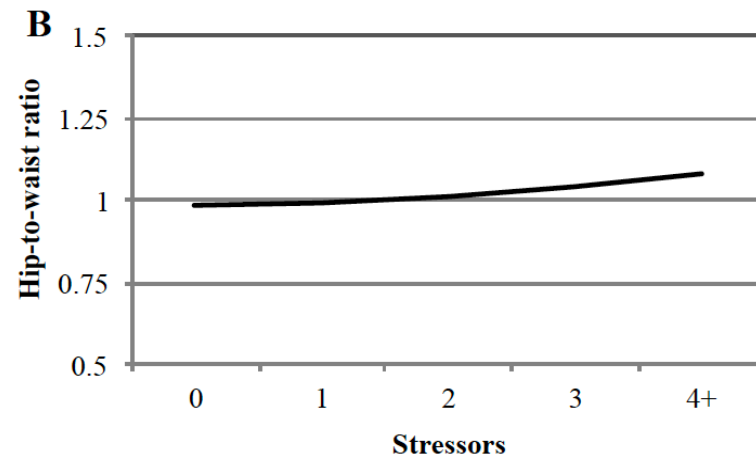
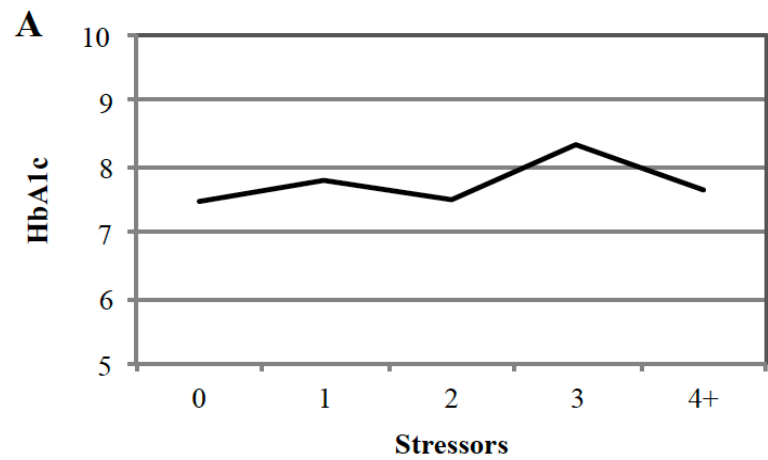
## Life Events Checklist

- Possible range 0 to 14 with higher scores for more events
- Mean 5.07, S.D. 3.12



**Continuous**

**Discrete**



Stress Accumulation and Diabetes-Related Health

**Note:** X-axis displays the count in above average exposure to stressors. Box A: A1c. Box B: Waist-to-hip ratio. Box C: Patient Health Questionnaire 9-item depressive symptoms scale. Box D: 4-item Morisky Medication Adherence Scale. Box E: Average days/week following a healthy diet plan.

# PART 2: COPING AND POSITIVE PATHWAYS

Type 1 or 2 words that best describe how you cope with stress.

# Coping

- Today, our focus is on ***Coping Resources*** or the things available to people to help them cope with stress.

# Who do you turn to most for social support?

My Friends

Spouse/  
Significant Other

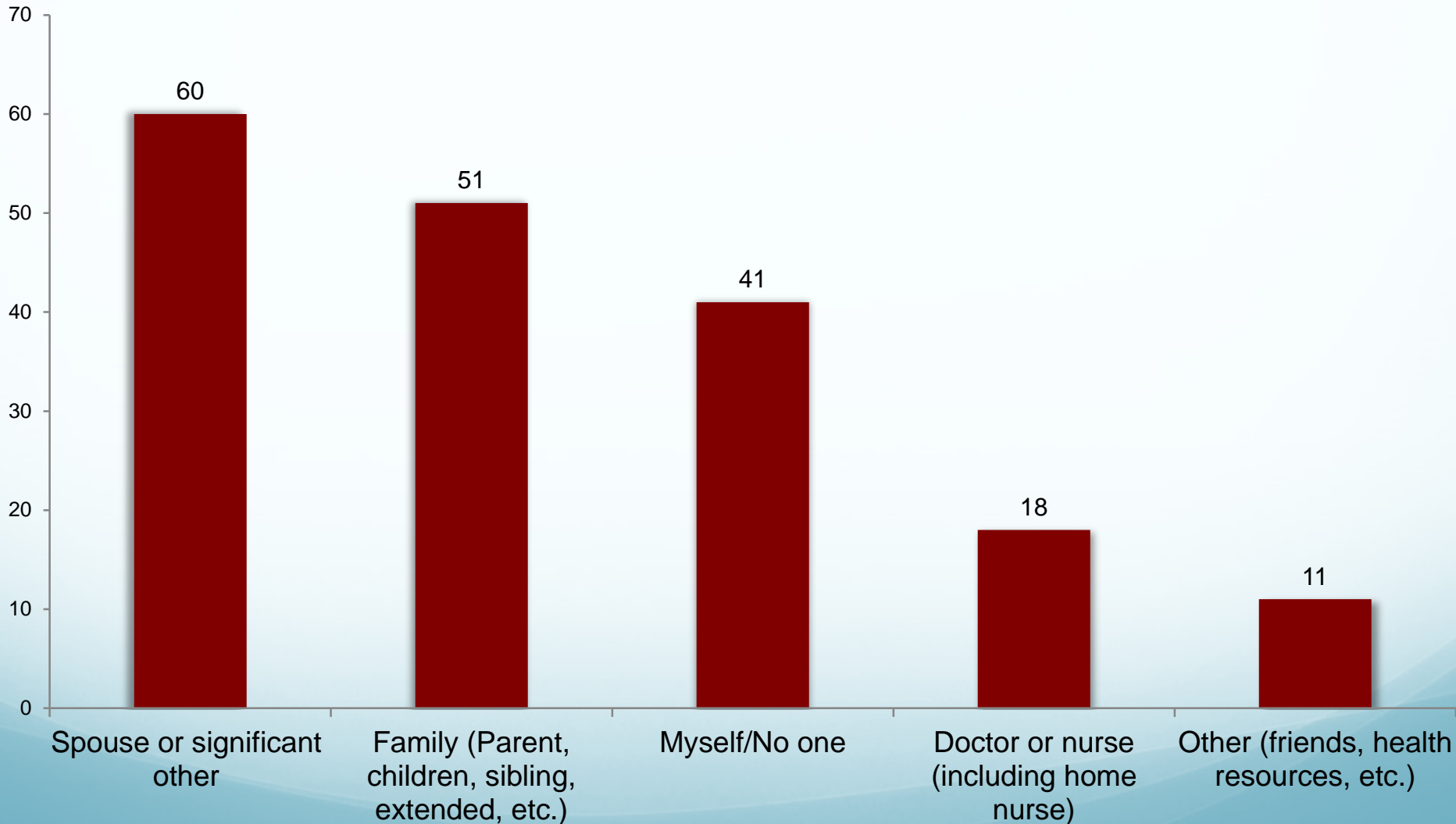
Other Family

My Doctor, Nurse,  
or Provider

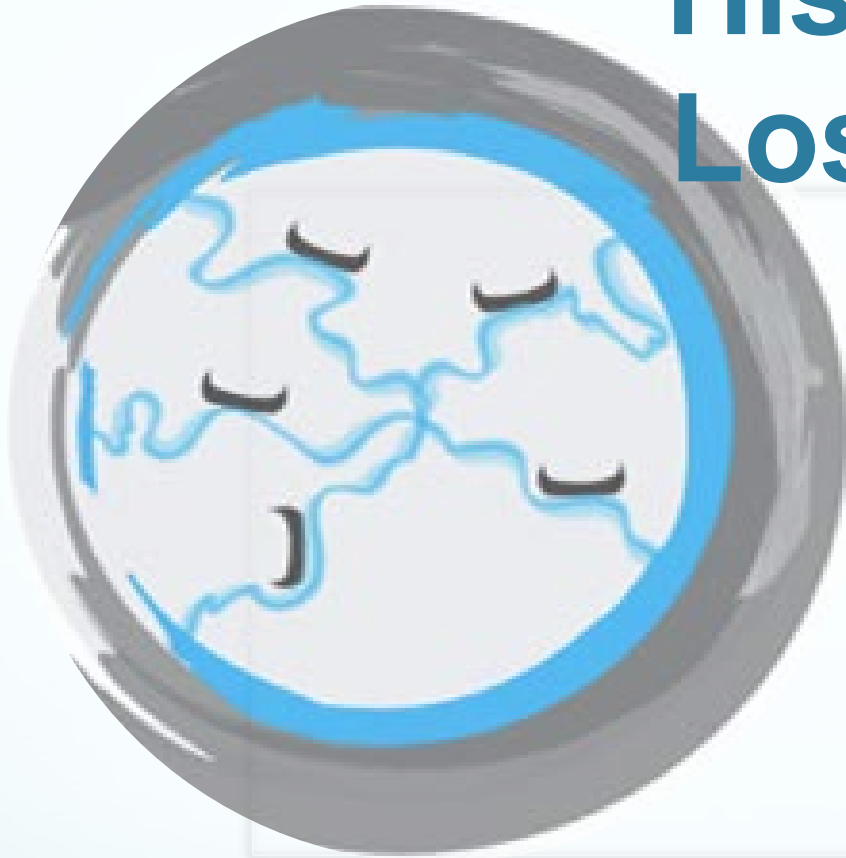
No-one

Other

# Who Supports Participants the Most (Wave 1)?



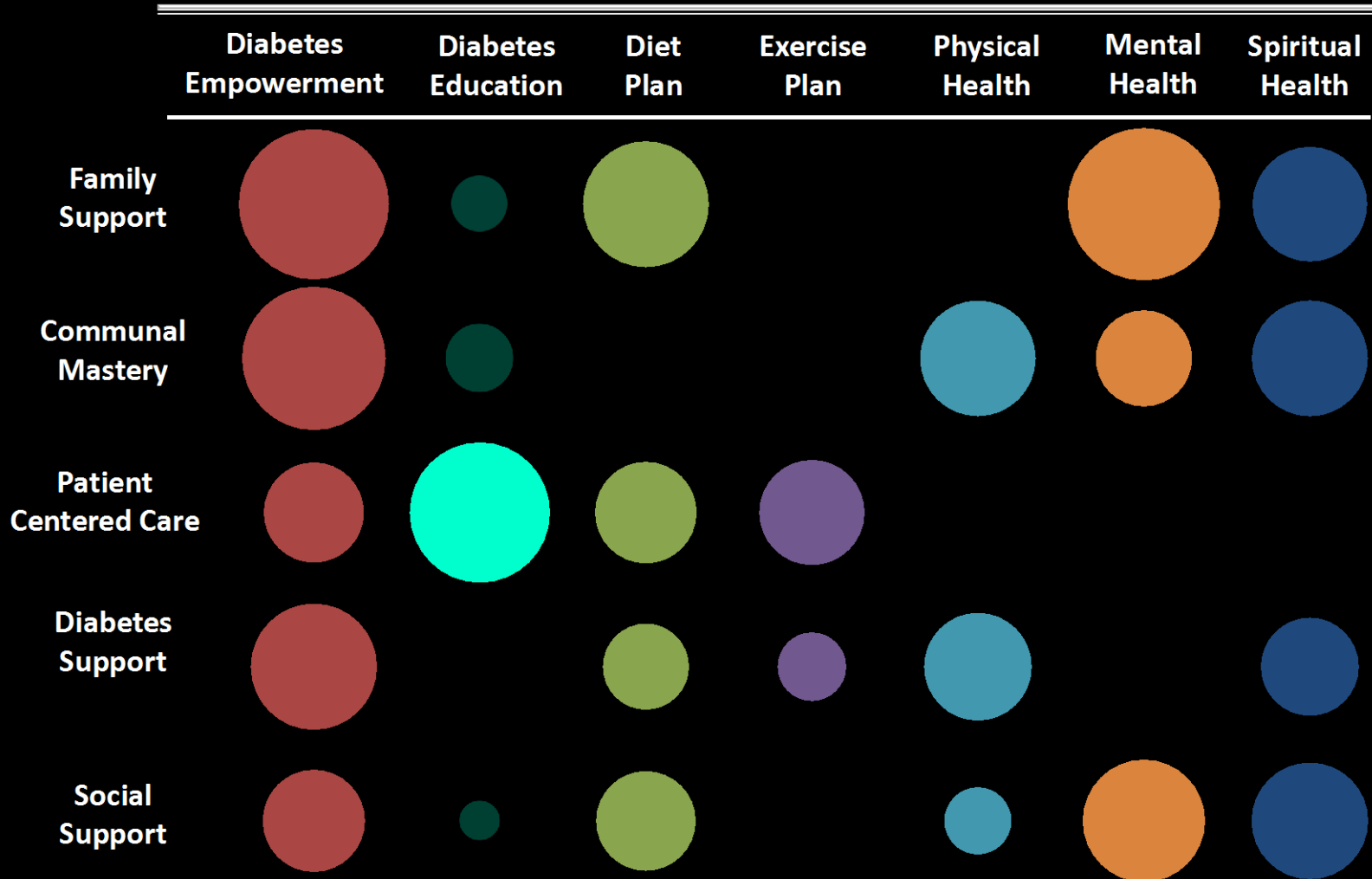
# Historical Trauma & Loss of Community

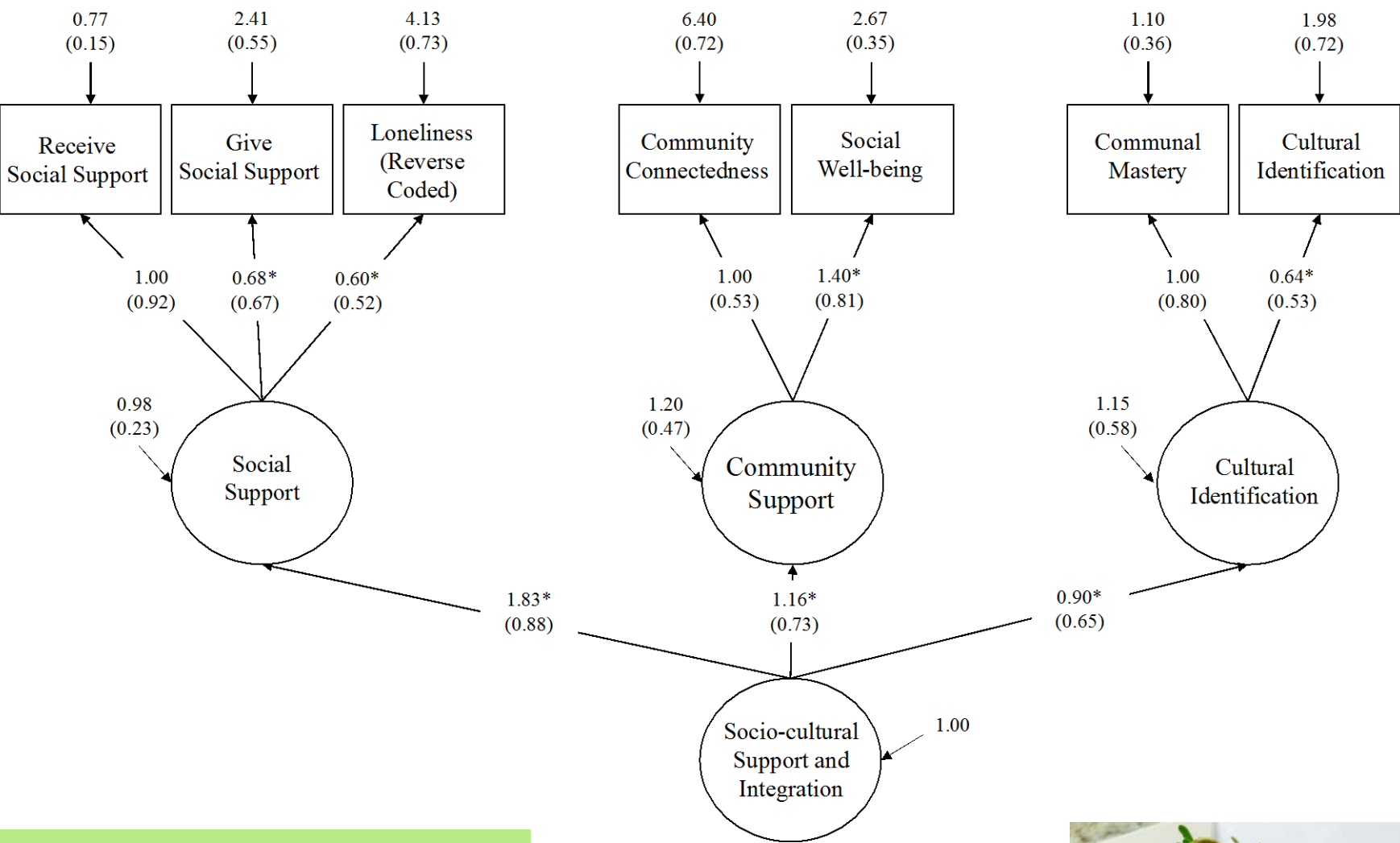


**How often do you think about damages to our sense of community?**

	<b>%</b>	<b>N</b>
Never	16.4	31
Yearly or only at special times	14.8	28
Monthly	21.7	41
Weekly	19.6	37
Daily	22.2	42
Several times a day	5.3	10
Total:	100	189

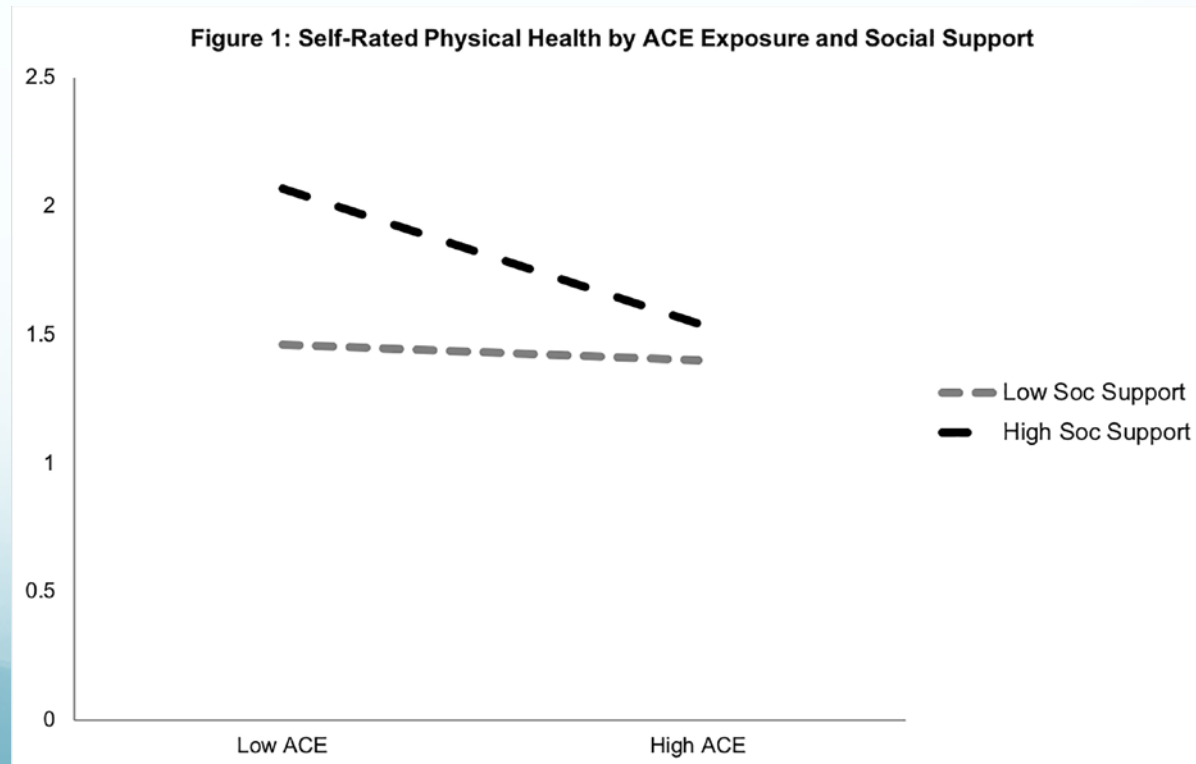
# Results of OLS Regression Analyses: Standardized Coefficient Effect Sizes Adjusted for Age, Gender, and Income





# Examples of Stress-Buffering Effects Observed in this Study:

- Diabetes Support Mediates (Reduces) the Harmful Impacts of Role Strains on Diet & Diabetes Empowerment
- Diabetes Support Mediated (Reduces) the Negative Impact of Money Shortage (for Food) on Healthy Diet





# Next Steps



# Miigwech



# Reflection

**THINK\*PAIR\*SHARE**

- 1) What surprised you?**
- 2) What will you most remember?**
- 3) How could you use this information personally?  
Professionally? In your family?**