# Mediation of the association between sociodemographic characteristics and psychosocial well-being by food insecurity among Mexican and U.S. Mexican American adults in 2021

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## Background

- Food insecurity (FI) is a stressor that can cause feelings of isolation, negative social interactions, emotional turmoil, and undernutrition, affecting well-being[1]
- FI disproportionately affects households in Mexico and Hispanic households, especially Mexican immigrant households in the U.S.[2,3]
- Age[4], sex[5], household composition[6], income[7], educational attainment[8], acculturation[9], and Indigenous identity[10] are associated with FI, suggesting that associations between sociodemographic characteristics and psychosocial well-being may be partially due to FI

## Aim

This study aimed to determine whether FI mediated the association between sociodemographic characteristics and psychosocial well-being differently among Mexican and U.S. Mexican American adults

## Methods

### Assessing FI and well-being

- FI was assessed using the Household Food Security Survey Module, scored 0 (no FI) to 10
- Respondents were asked to describe the amount of stress in their lives, scored 1 (not at all stressful) to 5 (extremely stressful), and their mental health in general, scored 1 (poor) to 5 (excellent), to measure well-being

### Analysis in Stata (v.15.1)

- 5,958 Mexican and 3,566 Mexican American adults ≥ 18 years old participated in the International Food Policy Study online survey between Nov-Dec 2021
- Structural equation modeling (sem command) with full information maximum likelihood was used to estimate FI mediation
- Analyses were stratified by country, with sampling weights applied
- Analysis was run with each variable to check for mediation, following a model including all variables
- Regressed the stress and mental health variables on each sociodemographic characteristic, recoding the variables as needed to meet the linear assumption

### Calculating the percentage of mediation

- $\frac{indirect\ path\ coefficient}{(direct\ path\ coefficient + indirect\ path\ coefficient)} * 100$



**Sociodemographic Characteristics (X)**
- Age
- Sex
- Number of children in the home
- Income adequacy
- Educational attainment
- Indigenous identity (Mexican sample)
- Language preference (U.S. Mexican American sample)

**Mediator (M)**
- Food insecurity

**Indicators of Well-being (Y)**
- Stress
- Mental health
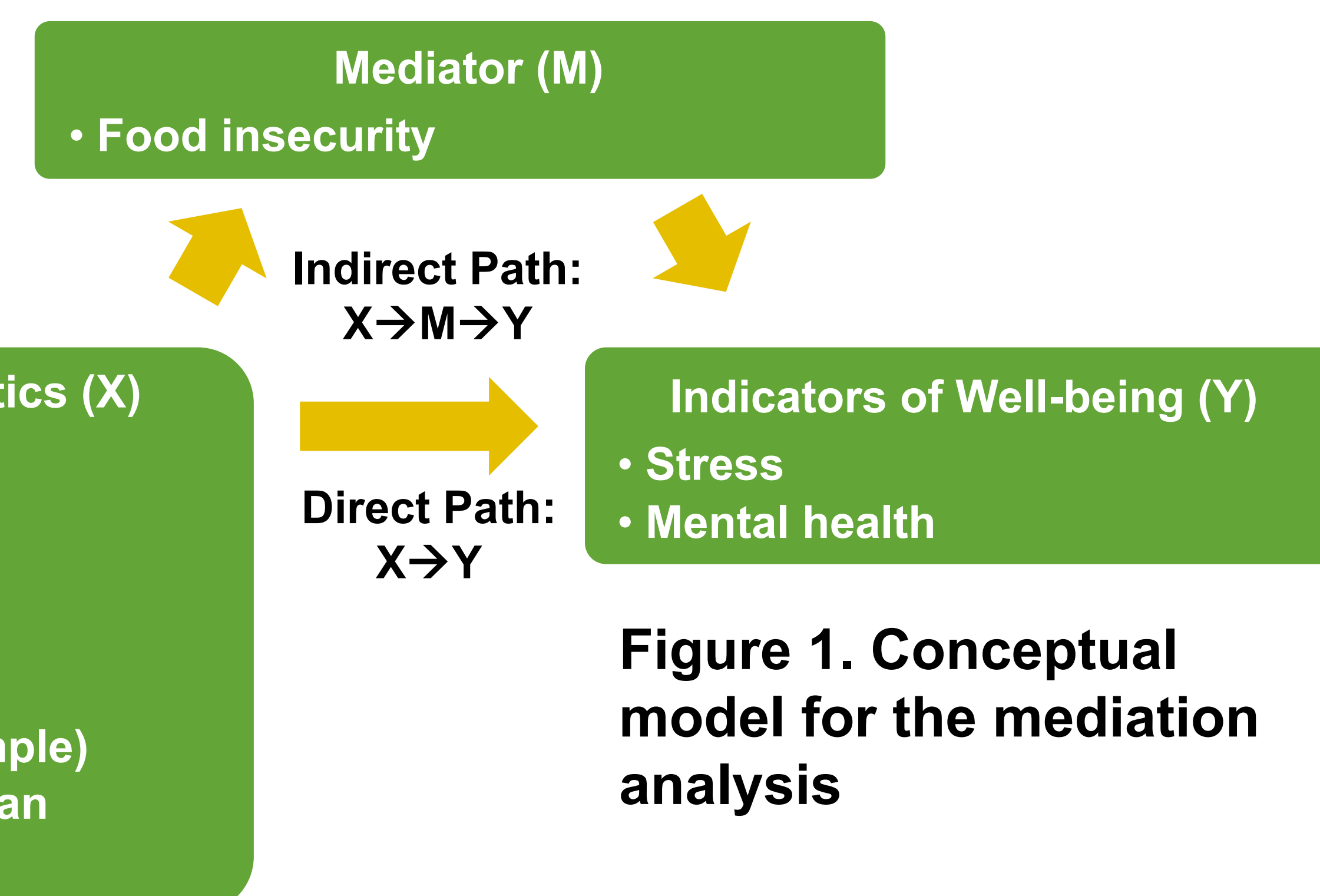
Indirect Path: X→M→Y

Direct Path: X→Y

Figure 1. Conceptual model for the mediation analysis

## Results

**Comparing FI scores**
- Mean FI score was similar between strata (3.04 Mexicans v. 3.31 Mexican Americans)

**Associations between the sociodemographic characteristics and FI**
- Younger adults, females, households with more children, individuals with lower income adequacy and educational attainment, Indigenous Mexicans, and U.S. Mexican Americans who chose to answer the survey in English experienced greater FI

**Table 1. Sample characteristics in the Mexico sample (n=5958) and Mexican American sample (n=3566)**

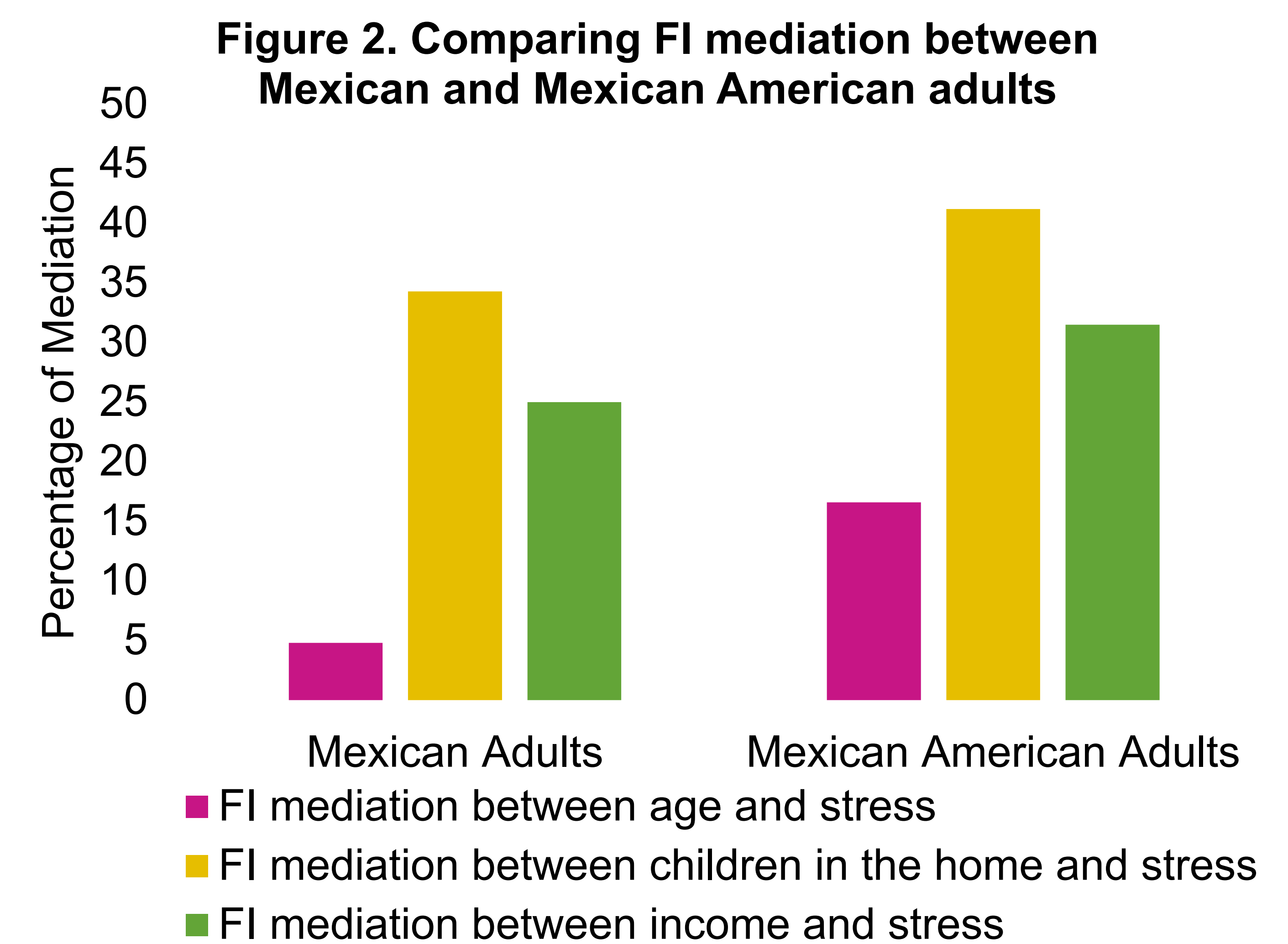| Sample Characteristics | Mexico Sample % | Mexican American Sample % |
|---|---|---|
| **Sociodemographic characteristics:** | | |
| **Age*** | 38.7 | 36.8 |
| **Sex** | | |
| Male | 50 | 45 |
| Female | 50 | 55 |
| **Number of children in the home** | | |
| Zero | 20 | 22 |
| One | 38 | 35 |
| Two | 31 | 27 |
| Three or more | 11 | 16 |
| **Income adequacy** | | |
| Very difficult | 11 | 11 |
| Difficult | 31 | 22 |
| Neither | 41 | 39 |
| Easy | 13 | 18 |
| Very easy | 4 | 10 |
| **Educational attainment** | | |
| Low | 42 | 51 |
| Medium | 12 | 24 |
| High | 46 | 25 |
| **Indigenous identity** | | |
| Non-Indigenous | 79 | --- |
| Indigenous | 21 | --- |
| **Language preference** | | |
| English | --- | 87 |
| Spanish | --- | 13 |
| **Indicators of well-being:** | | |
| **Stress** | | |
| Not at all stressful | 7 | 6 |
| Not very stressful | 28 | 20 |
| A bit stressful | 51 | 48 |
| Very stressful | 12 | 18 |
| Extremely stressful | 2 | 8 |
| **Mental health** | | |
| Poor | 4 | 10 |
| Fair | 15 | 25 |
| Good | 42 | 32 |
| Very good | 27 | 21 |
| Excellent | 12 | 12 |

*Mean for age

**Associations between FI and well-being**
- FI was positively associated with stress among Mexicans (0.039, p<0.001) and Mexican Americans (0.065, p<0.001)
- FI was negatively associated with mental health among Mexicans (-0.022, p=0.001)
- FI was not associated with mental health among Mexican Americans (-0.004, p=0.595)
  - FI was not a mediator among Mexican Americans when considering mental health

**FI mediation**
- FI mediated all associations between sociodemographic characteristics and stress in both strata and mental health among Mexicans only



Figure 2. Comparing FI mediation between Mexican and Mexican American adults

- FI mediation between age and stress
- FI mediation between children in the home and stress
- FI mediation between income and stress

## Implications

FI partially explained the association between sociodemographic characteristics and well-being, underscoring that actions to address FI may improve the well-being of Mexicans and Mexican Americans

## Acknowledgements

## References

1. Frongillo et al., (2019). J. Acad. Nutr. Diet; 2. CONEVAL, (2021). Comunicado No. 9. 2021; 3. Weigel & Armijos, (2019). J. Immigr. Minor. Health; 4. Walker et al., (2021). Popul. Health Manag.; 5. Broussard, (2019). Food Policy; 6. Sharkey et al., (2011). Int. J. Equity Health; 7. Frongillo et al., (2017). J. Nutr.; 8. Broussard, (2019). Food Policy; 9. Wallen et al., (2002). J. Immigr. Health; 10. Magaña-Lemus et al., (2016). Agric. Food Econ.