

# **Hunger, food insecurity & obesity: A connection?**



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**Child Obesity Conference**

# Today...

Share what we know from our studies at UC Davis about a possible positive relationship between food insecurity and body weight status.



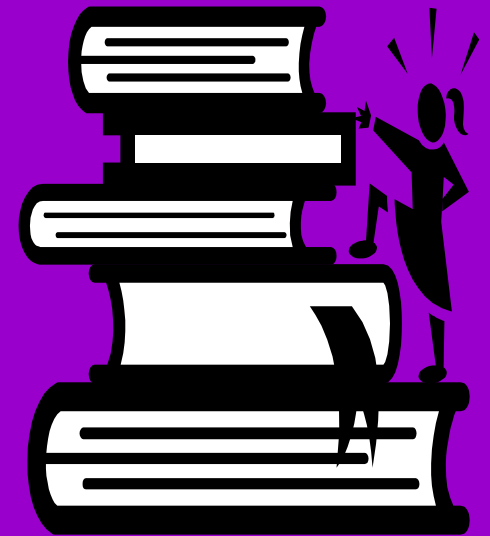
# Today's outline

- Background
- Results of our studies
- What did we learn?
- Take home messages



# Traditional thinking

- **Hunger and food insecurity are associated with underweight.**

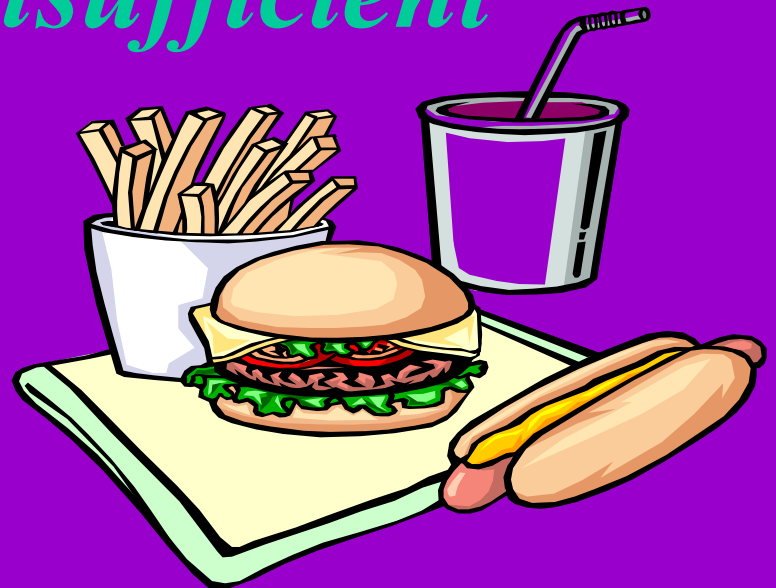


# We would expect...

- **people with insufficient food to be thin or less likely to be overweight.**

# New thinking

- Some are suggesting we consider the possibility of a new paradigm---  
*overweight* and *insufficient food* are linked.



We already know that

Poverty and obesity  
are connected.



Many studies support

So...

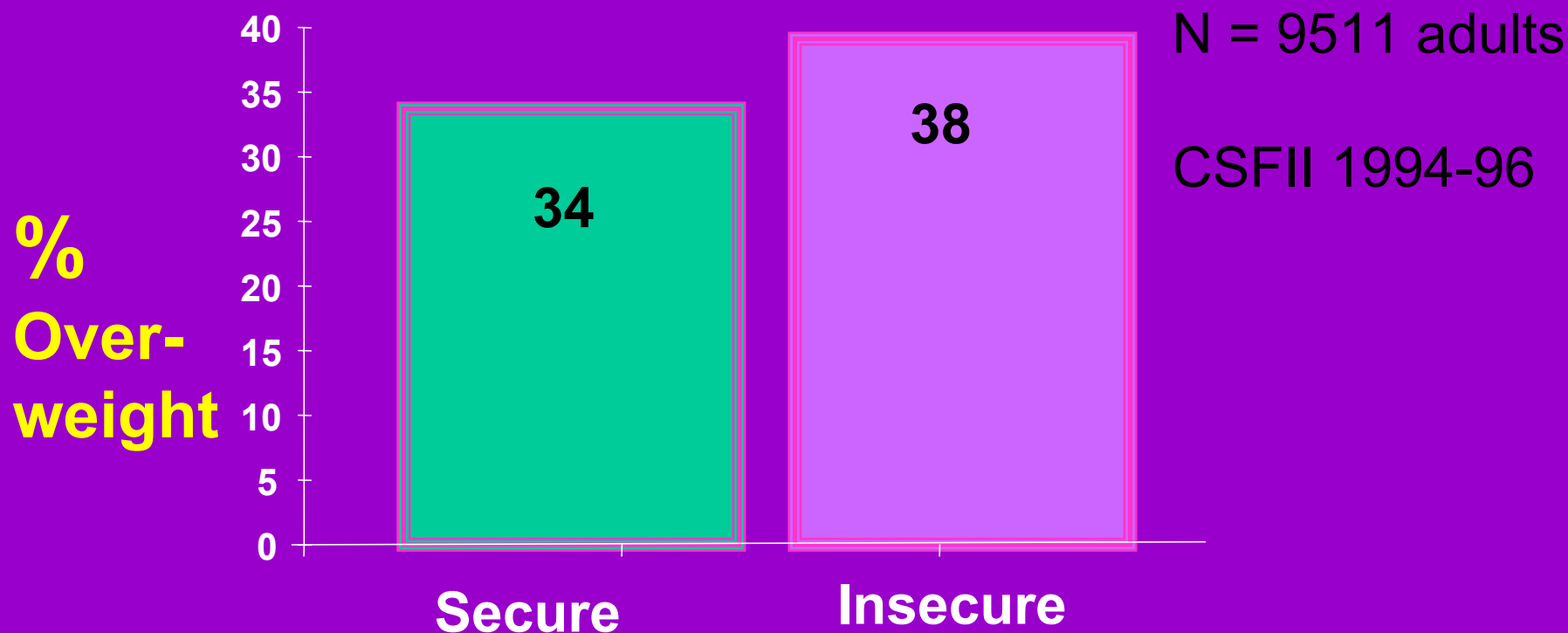
Are food insecurity and  
obesity are connected?

# 1st study



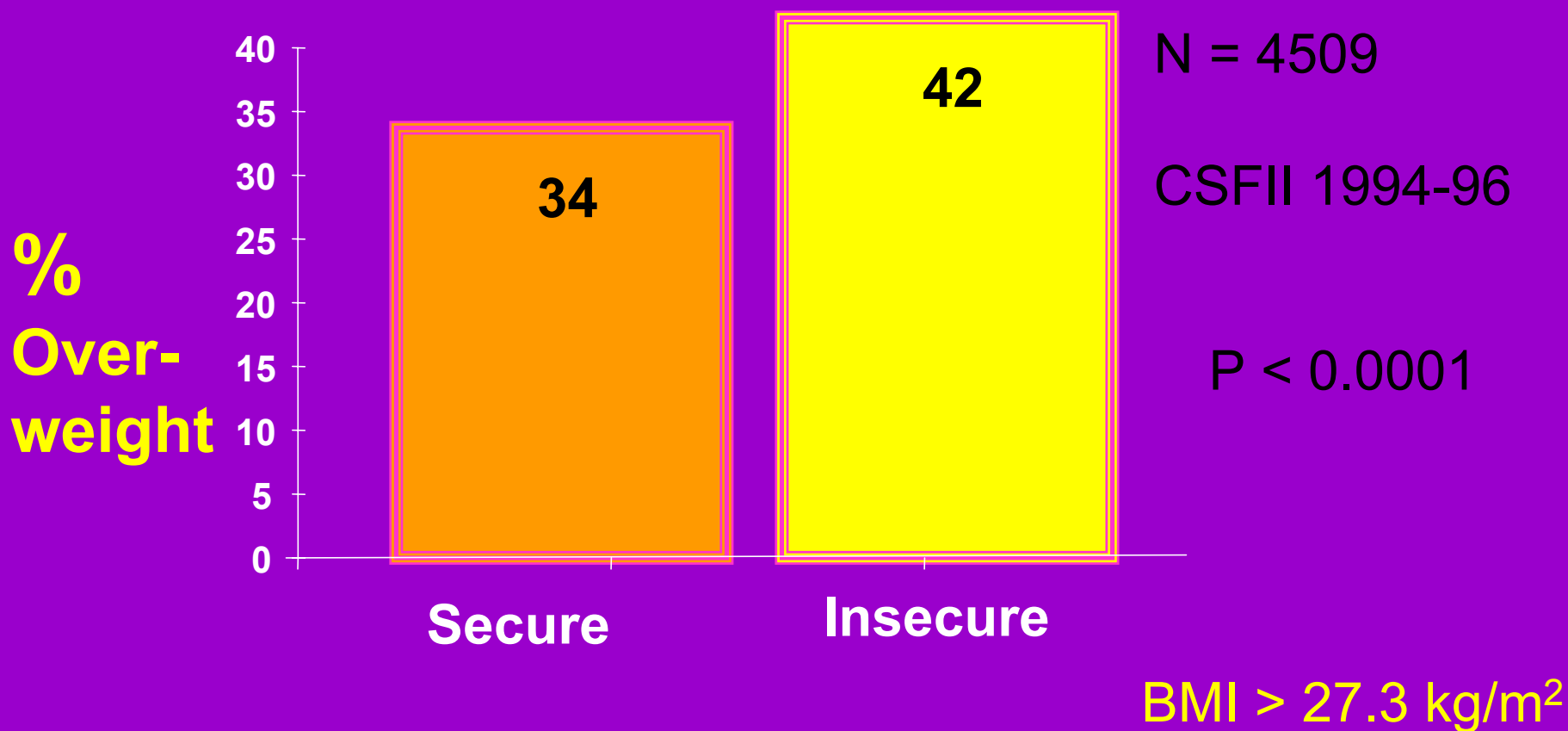
- 9000 US adults
- 20 – 74 years
- whites, blacks, Hispanics
- removed people on special diets; with serious health conditions; pregnant or breastfeeding.

# Overweight by food insecurity in *US adults*

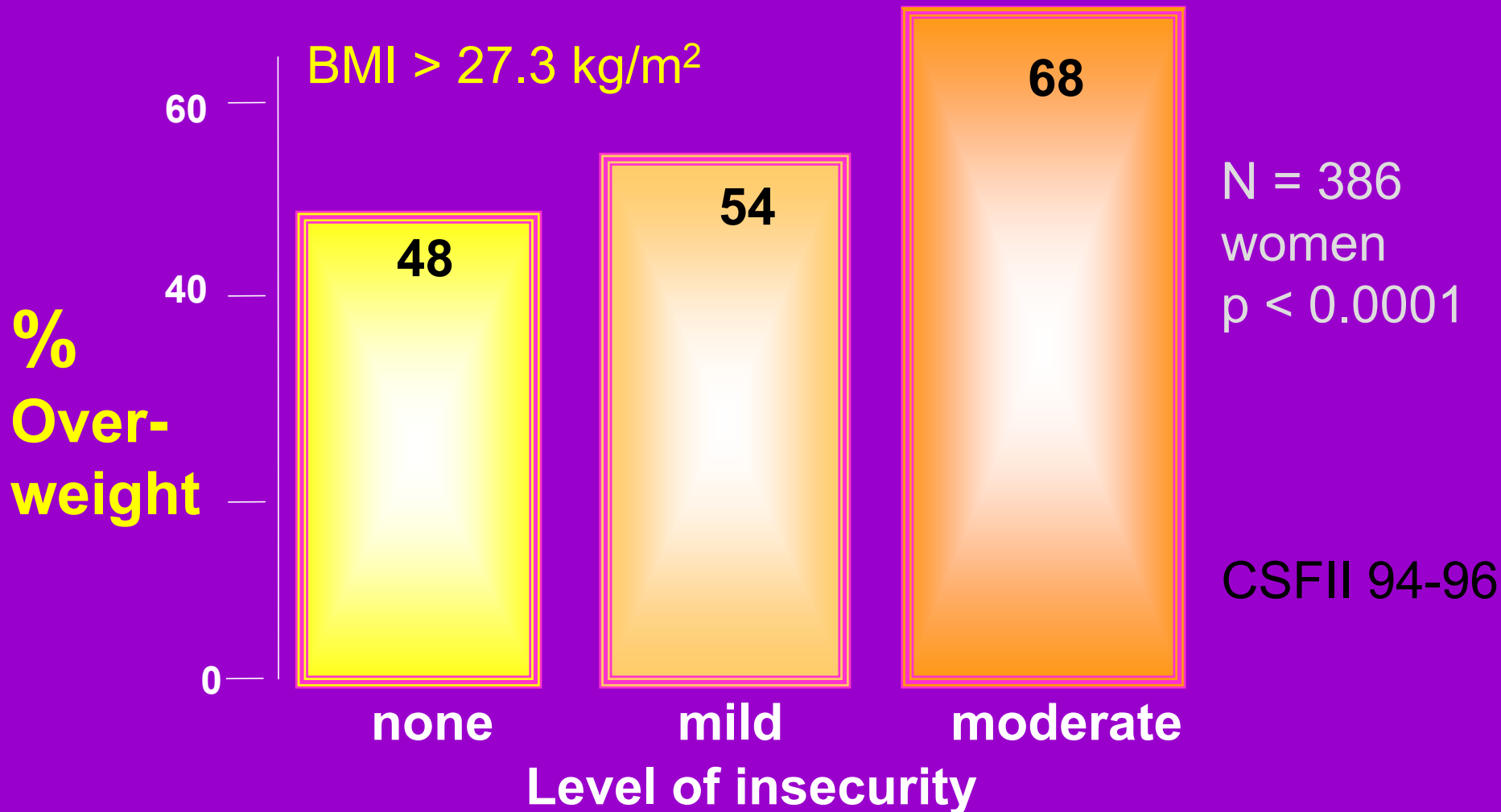


BMI > 27.3 and 27.8 kg/m<sup>2</sup>

# Overweight by food insecurity in *US women*



# Overweight by food insecurity in *food stamp recipients*



# Results study #1

- ) **Mean BMI's were higher for the food insecure compared to the secure ( $p < 0.0001$ ).**
- ) **Food insecurity remained a significant predictor of OW, after adjusting for demographic & lifestyle variables ( $p < 0.01$ )**

Townsend et al., J Nutrition 131: 1738-1745, 2001

# What did we learn?

- ) OW & obesity exist among the food insecure and at all levels of insecurity.**
- ) Rate is higher among the insecure than secure for all women, low-income women and food stamp recipients.**

# Next ....

- We decided to study a subset of California's population—a transient group not likely to be adequately represented in a national survey.
- UC Cooperative Extension study with UC Davis & UC Berkeley

# 2nd study



- **Low-income immigrant Latino families**
- **561 mothers and their preschool children**
- **Sacramento, Tulare, Stanislaus, San Benito, San Joaquin, Contra Costa**

**And...**



- **Bilingual, bicultural staff interviewed in English and Spanish.**
- **18-item Food Security Scale, 16-item Demographic Record,**
- **Measured heights and weights of mothers and children.**

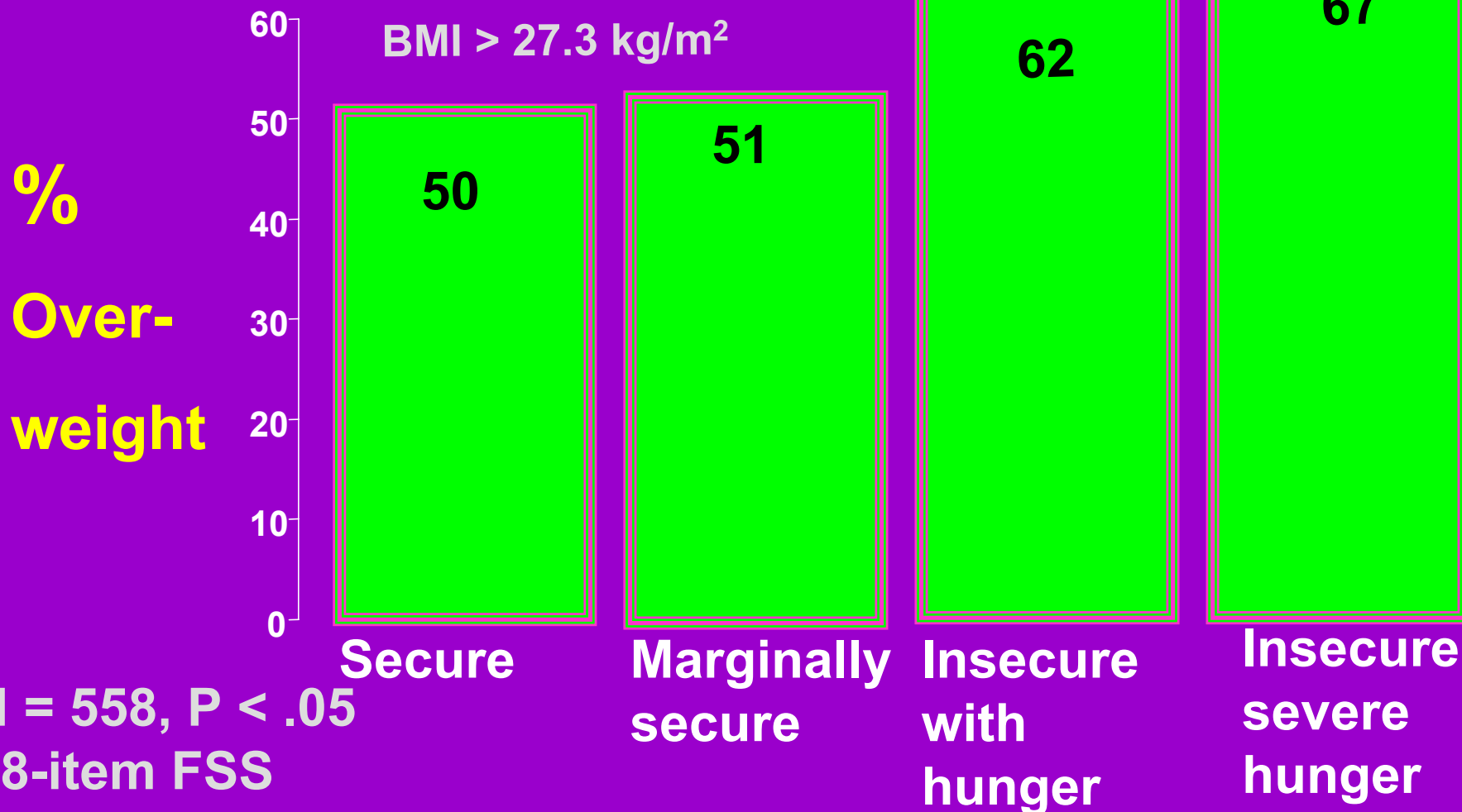
**And...**



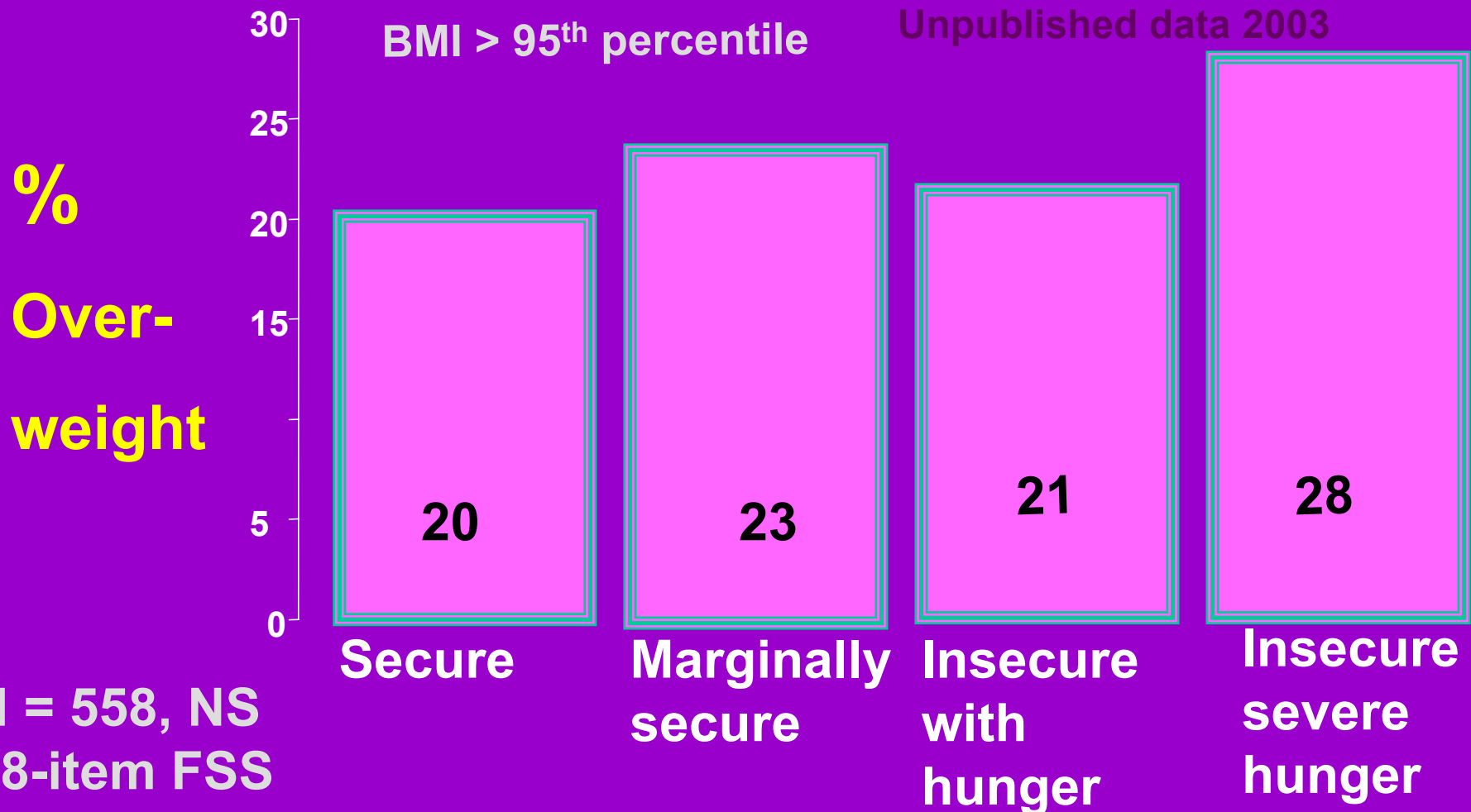
- **Cooperative Extension staff worked with WIC, Head Start and Health Centers to collect this data.**

# Mother's Overweight was related to food insecurity

Unpublished data 2003



# Child's Overweight was not related to food insecurity



# Results study #2



- **Prevalence of children's BMI  $\geq$  95<sup>th</sup> percentile higher than expected (22%)**
- **Likelihood of being overweight was significantly greater for mothers who were food insecure compared to food secure**
- **No significant association between family food security and prevalence of overweight for children**

Unpublished data 2003

# Next...

- We wanted to examine a large sample of *children*.
- Several small studies completed. No relationship found.

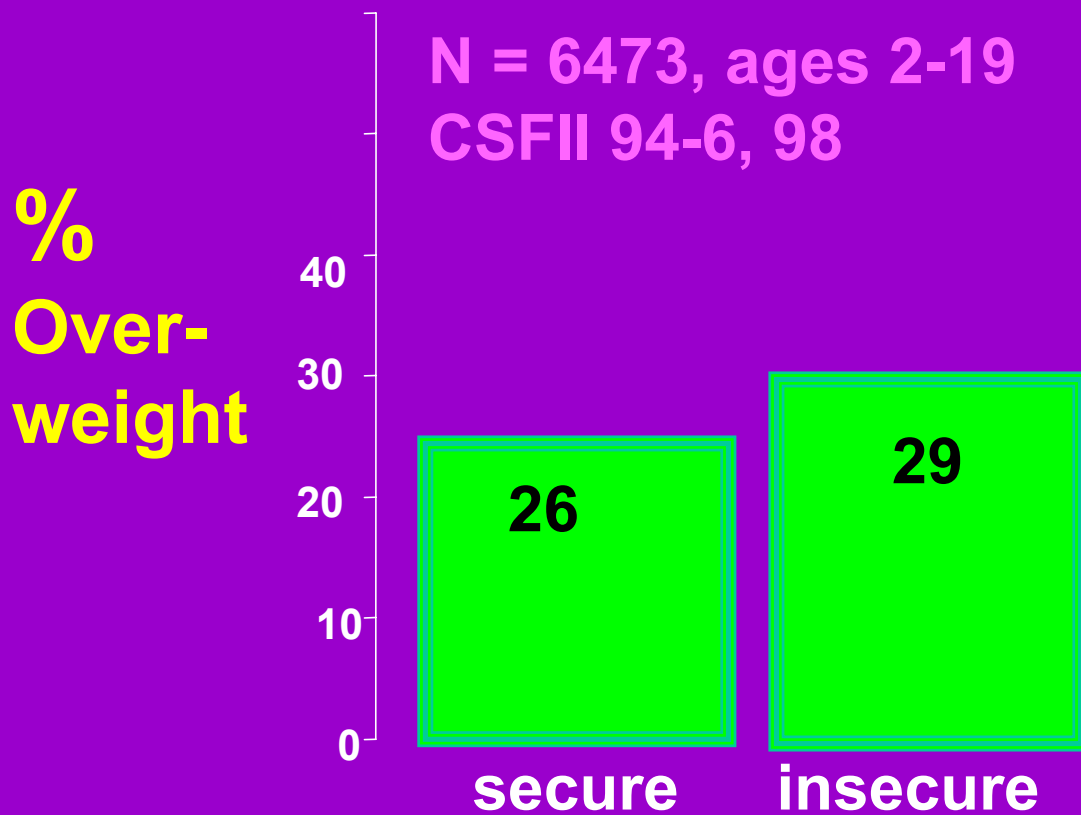


# 3rd study



- about 6,000 children
- boys & girls
- 2–5, 6–11, 12–15, 16–19 yrs
- whites, blacks, Mexican-Americans
- analyses for 24 groups

# Overweight by food insecurity in US children



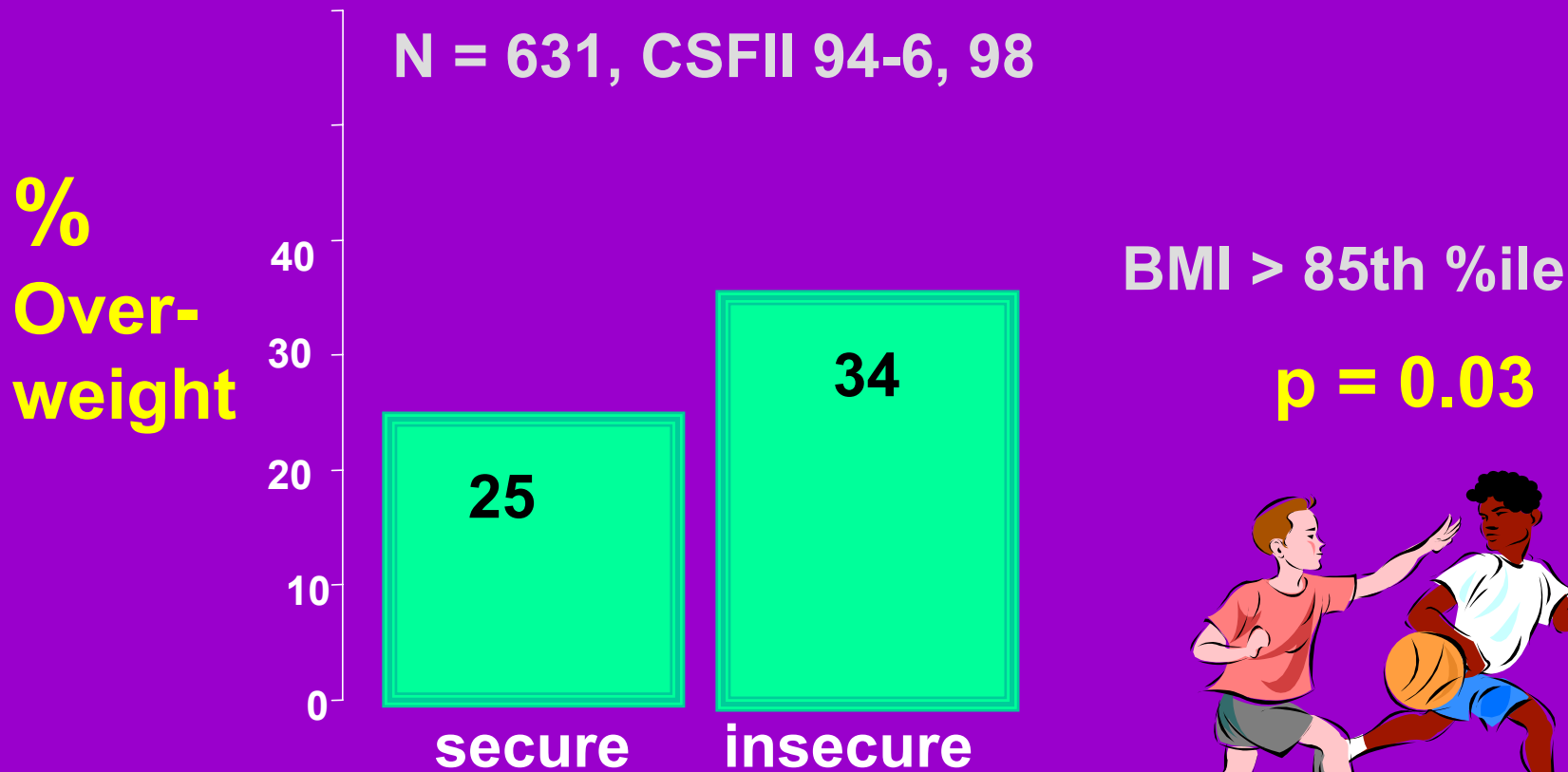
85th %ile

$p = 0.08$

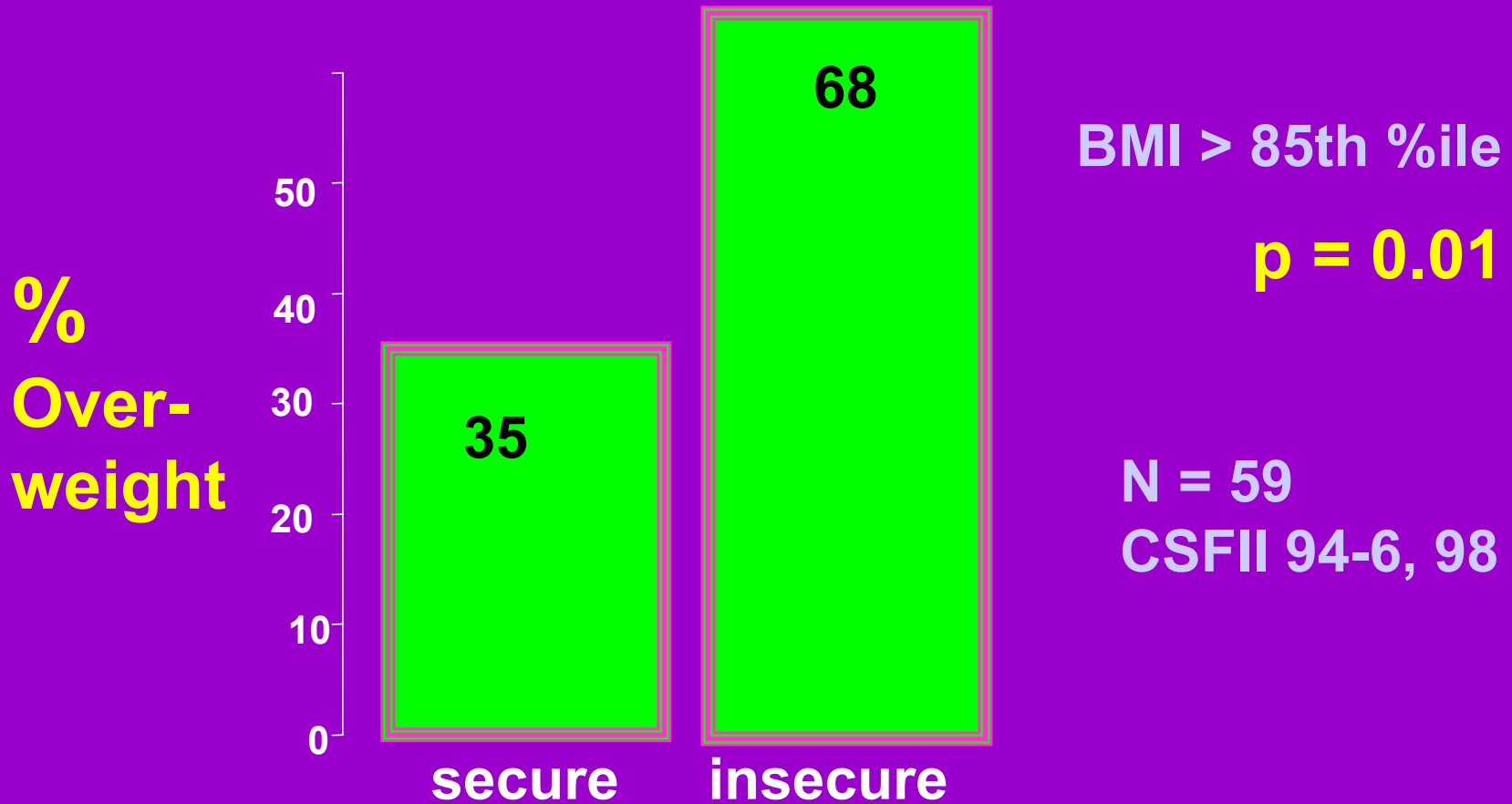


Unpublished data 2003

# Overweight by food insecurity in US 12-15 year olds



# Overweight by food insecurity in US black 12-15 year old girls



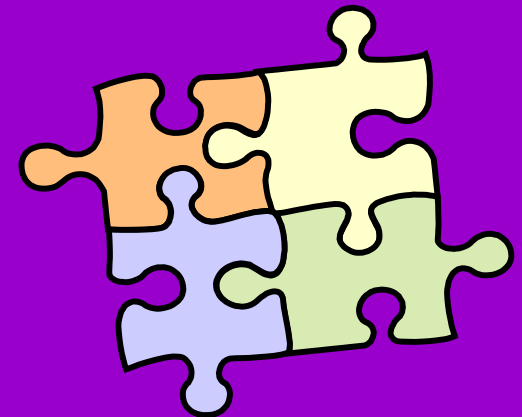
# Results study #3

- We found no relationship for whites for any age, boys or girls.
- The relationships tended to be among minority children, girls more than boys, adolescents.
- Among black adolescents (12-15 y), those who were food insecure were 4 times more likely to be overweight.  
(OR=4.04 (1.5, 11.2))

Unpublished data 2003

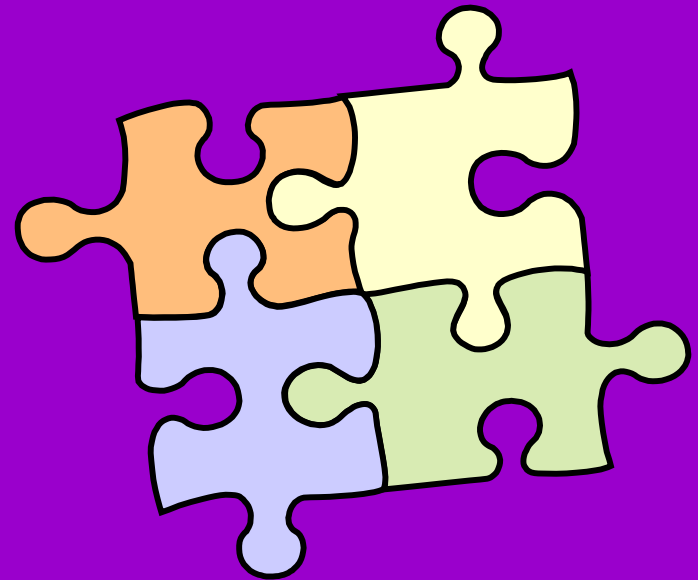
# What could be happening with the food stamp women, Latina mothers and adolescents?

- Abundant food supplies available the first 3 weeks of month, followed by a week without food stamps or money when food selection is limited.
- Then, when money and food stamps are restored, the cycle repeats.



# What could be happening?

- **Feast and famine**
- **Overeating of highly palatable and rich foods at beginning of month.**
- **Synchronize with food stamp distribution.**
- **A pattern leading to gradual weight gain over time.**



# Limitations

- **The 3 studies are cross-sectional design. Relationships are described. We cannot say that food insecurity causes obesity.**
- **Food security status is determined by person's perception.**
- **Samples sizes for some groups were small.**



# Messages for health care providers & WIC



- **Do not assume overweight children are food secure.**
- **Food insecure children are just as likely to be OW as food secure children.**
- **Among some adolescents, the food insecure are more likely to be OW.**

# A parting thought for practitioners.....

- **Can we treat obesity in food insecure families without first removing the food insecurity???**