Prevalence of food insecurity, %

Year of data collection

Region
- West
- Midwest
- South
- Northeast
- Mixed

Quality
- USDA tool + Random/census sample
- USDA tool
- Random/census sample

Weighted mean: 45.7% (SD 4.1)
Mean: 37.5% (SD 15.4)

N= 33,934

Nazmi, Martinez, Byrd, et al. (under review)
Prevalence of food insecurity, %

Year of data collection

Weighted mean: 48.0% (SD 8.4)
Mean: 43.3% (SD 11.6)

Region
- West
- Midwest
- South
- Northeast
- Mixed

Quality
- USDA tool +
- Random/census sample

Nazmi, Martinez, Byrd, et al. (under review)
OBJECTIVES

• Key concepts in college food insecurity research
• Critically evaluate approaches to:
  • Study design
  • Assessment methods
• Describe best practices
• Suggest needs & avenues for innovation
• Case studies
HAVE YOU EVER WONDERED…

• “What are the best food insecurity survey questions?”
• “How do I design a good quality study?”
• “When reading a study, how do I know if it’s good?”
• “How can I sound like I know what I’m talking about at the reception tonight?”
I. STUDY DESIGN: LOW-HANGING FRUIT

• **Cross-sectional (prevalence) studies** are the most common!
  + Easy, cheap, relatively quick
  + Provides fundamental knowledge
  + Can inform agenda
    - Difficult to ensure representative sampling (i.e. who participates?)
    - Can’t answer the chicken or the egg?

• Can help answer:
  • How many CSU students experience food insecurity? 42%
  • Which students might be at risk?
1. STUDY DESIGN: LOOKING UP

• **Longitudinal (observational) studies** can follow students and their risk **over time**
  + Can assess dynamics of collegiate economics, jobs, internships, housing, term vs. break issues, social factors / relationships
  + Need to ask the right questions, in the right ways to monitor change (see Assessment Methods)
  - Expensive

• Can help answer:
  • When / how does risk begin? Among whom?
  • How does food insecurity impact academics / graduation?
  • Where can we intervene? Which types of interventions may be most effective?
### 1. STUDY DESIGN: LONGITUDINAL POSSIBILITIES

<table>
<thead>
<tr>
<th>Exposures</th>
<th>Outcomes</th>
<th>Other relevant factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food spending/life on a budget</td>
<td>Cognition, ability to learn</td>
<td>Family SES</td>
</tr>
<tr>
<td>Existing, previous risk</td>
<td>Physical health: Diet, weight</td>
<td>Race/ethnicity/gender identify</td>
</tr>
<tr>
<td>Jobs &amp; internships: Time/money</td>
<td>Mental health: Depression, anxiety</td>
<td>Economic skills</td>
</tr>
<tr>
<td>Social support, resources</td>
<td>Academic outcomes, graduation</td>
<td>Coping strategies</td>
</tr>
<tr>
<td>Impact of extra-curriculars</td>
<td>Employment after college</td>
<td>Food, shopping, cooking skills</td>
</tr>
<tr>
<td>Timing of risk factors, e.g. economic shock</td>
<td>Longer-term economic consequences</td>
<td>University resources</td>
</tr>
</tbody>
</table>
I. STUDY DESIGN: IDENTIFYING WHAT’S EFFECTIVE

• **Experimental studies** (including quasi-/natural) are more powerful
  - Allows you to test the effect of interventions and programs
  - Randomized & controlled when possible (Ethical quandary?)
  - Expensive

• Can help answer:
  - What is the impact of interventions? (Pantry use / CalFresh / other programs)
    - How did intervention groups differ from controls?
  - Did students receiving this program do better compared to those who did not?
  - Relative impact of food vs. academic vs. social or economic factors?
2. ASSESSMENT METHODS: CURRENT BEST PRACTICE

- USDA ERS survey tools (10- and 6-item)
  - Standardized & validated at the household level
  - Can ask about the past 12 months or past 30 days
    - 12-month rate > 30-day rate

- Survey questions
  - May be reasonable for college populations (not validated or standardized)
  - Timing: Students operate academic year calendar
    - Tuition fees, aid disbursements, housing, jobs/internships, work study
    - How can we account for this?*
### USDA ERS QUESTIONS: 10 VS 6 ITEM

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<tr>
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<tbody>
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<td>Worry about food running out</td>
<td><em>(Marginal food security missed)</em></td>
</tr>
<tr>
<td>Food didn’t last</td>
<td>Food didn’t last</td>
</tr>
<tr>
<td>Couldn’t afford balanced meals</td>
<td>Couldn’t afford balanced meals</td>
</tr>
<tr>
<td>Cut size of or skip meals (+ how often)</td>
<td>Cut size of or skip meals (+ how often)</td>
</tr>
<tr>
<td>Eat less than you should</td>
<td>Eat less than you should</td>
</tr>
<tr>
<td>Were you ever hungry</td>
<td>Were you ever hungry</td>
</tr>
<tr>
<td>Did you lose weight</td>
<td><em>(Very low food security missed)</em></td>
</tr>
<tr>
<td>Not eat for a whole day (+ how often)</td>
<td><em>(Very low food security missed)</em></td>
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2. ASSESSMENT METHODS: ALTERNATIVES

- Adapted USDA versions & others
  - 4-item: e.g. CUNY used ‘worry’, ‘skip meals’, balanced meals’, and ‘hungry’ items (45%, 12m)
  - 2-item: e.g. UC used ‘worry’ and ‘food didn’t last’ items (44%, Undergrad, 12m)
  - 1-item: e.g. CCEAL used ‘have you ever experienced hunger?’ to intentionally capture acute situations (12.2%, 2y)

  + Good: Yields some quantitative data, easy to implement, but...
  - Bad: Not validated, may yield low precision, cannot differentiate ranges or extremes (i.e. all food insecurity categories lumped together)
2. (FUTURE) ASSESSMENT METHODS

• Do we need an assessment tool specific to colleges?

• USDA includes only a ‘food’ module
  • Additional modules may be helpful in contextualizing the college student experience
  • Academic year timing, housing, meal plans, financial aid, barriers, transportation, economics, social factors, resource availability & utilization, 2-yr vs. 4-yr colleges
2. (NOVEL) ASSESSMENT METHODS: EXAMPLE

- Ongoing RCT at Cal Poly, SLO
- 6-item USDA survey, plus
  - How many years in college
  - Lifetime & current CalFresh use & benefit amount
  - Utilization of campus pantry, food vouchers, campus emergency grants, food bank, others
  - Academic year & timing of food access problems (breaks vs. during term)
  - Post-hoc possibilities: GPA, graduation status
FOOD INSECURITY DATA & COMMUNICATING

• Data collection
  • Quantitative data is necessary
  • Qualitative data adds context, emotion

• How do you talk about college food insecurity?
  • Sensitive & stigmatized topic
  • Emphasize impact on students (devastating)
  • Depends on audience (University leadership, colleagues, elected officials, press, donors, grant agencies, students)

“I would get bananas and I will cut it in half. I’d eat only half in the morning, and then I would wait five hours, then eat the other half, just so I have something in my stomach consistently... I would struggle to concentrate for sure, because sometimes that’s all I could think about was where was my next meal going to come from. At the same time, I would always push myself to just keep going, just keep going."

Susan CSUDH
## CASE STUDY: UC STUDIES

### Cross-sectional results from 3 surveys

<table>
<thead>
<tr>
<th></th>
<th>Student Food Access &amp; Security Survey</th>
<th>UC Undergrad Experience Survey</th>
<th>Graduate Well-Being Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Undergrad, graduate</td>
<td>Undergrad</td>
<td>Graduate</td>
</tr>
<tr>
<td>Sampling</td>
<td>Random</td>
<td>Census</td>
<td>Census</td>
</tr>
<tr>
<td># Responses</td>
<td>8,932</td>
<td>63,132</td>
<td>6,764</td>
</tr>
<tr>
<td>Response rate</td>
<td>14%</td>
<td>33%</td>
<td>50%</td>
</tr>
<tr>
<td>Food Insecurity tool</td>
<td>6-item</td>
<td>2-item</td>
<td>2-item</td>
</tr>
<tr>
<td>Food Insecurity</td>
<td>48% UG 25% Grad 42% Total</td>
<td>44%</td>
<td>25%</td>
</tr>
</tbody>
</table>
## CSU & UC Studies

<table>
<thead>
<tr>
<th>Study design</th>
<th>CSU Study (23-campus)</th>
<th>UC Study (11-campus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling strategy</td>
<td>Cross-sectional</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Response rate</td>
<td>6%</td>
<td>14%</td>
</tr>
<tr>
<td>N students</td>
<td>24,537</td>
<td>8,932</td>
</tr>
<tr>
<td>Fl assessment tool</td>
<td>10-item (30 day)</td>
<td>6-item (12 month)</td>
</tr>
<tr>
<td>Other variables measured</td>
<td>Qualitative data (n=213), demographics, first gen status, homelessness, physical &amp; mental health, GPA, ‘academic concerns’</td>
<td>Barriers, consequences, childhood history of food insecurity, mental health, GPA, diet, receiving financial aid</td>
</tr>
<tr>
<td>Prevalence rate</td>
<td>42%</td>
<td>42%</td>
</tr>
</tbody>
</table>
ACTIVITY!

Designing ‘modules’ & questions for college food insecurity research surveys

• How do we contextualize college food insecurity?
• What do we need to know about students’ lives and experiences to adequately investigate and address this problem?
• Which questions would you ask and Why?