Tools for Assessing Home Obesogenic Environments: From Development to Real World Applications

SNEB Symposium

July 23, 2017, 12:45-2:15
Moderator

- Marilyn Townsend, PhD, RD
  University of California at Davis
Learning Objectives

- Participants will list 3 concepts to consider when developing obesity prevention tools.
- Participants will understand different methods of validation appropriate for obesity prevention tools.
- Participants will view 5 examples of ‘real world applications’ of valid obesity prevention tools.
Speakers

- Marilyn Townsend, University of California, Davis
- Karina Diaz Rios, University of California, Merced
- Lenna Ontai, University of California, Davis
- Louise Lanoue, University of California, Davis
- Mical Kay Shilts, CSU Sacramento
- Gregory Welk, Iowa State University
Healthy Kids overview

Marilyn Townsend
Foundation

Evidence analysis literature reviews

Cognitive interviews.
Face validity established.

Content validity established
Types of data in HK study

Subjective [i.e. parent report]
- 24-hour diet recalls for child: 9 times
- 24-hour diet recalls for parent: 3
- Food behavior checklist for parent: 1
- Fruit & Vegetable Inventory: 1
- Activity logs for sleep, PA, TV, video: 9

Objective
- Measured heights, weights, waist, hip: 4
- Body temperature, blood pressure: 3
- Blood sample: 3
- Videotaping the family meal: 1
### Healthy Kids valid tools*

<table>
<thead>
<tr>
<th>Name</th>
<th>Target</th>
<th>Validation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Kids</td>
<td>3-5 years old</td>
<td>BMI, blood values</td>
</tr>
<tr>
<td>My Child at Meal Time</td>
<td>3-5 years old</td>
<td>Videotaping dinner</td>
</tr>
<tr>
<td>Focus on Veggies</td>
<td>3-5 years old</td>
<td>Recalls, blood values</td>
</tr>
<tr>
<td>Focus on Sweet Drinks</td>
<td>2-5 years old</td>
<td>Recalls, parent behaviors, blood values</td>
</tr>
<tr>
<td>Focus on Activity</td>
<td>3-5 years old</td>
<td>Activity logs</td>
</tr>
<tr>
<td>Focus on Fats &amp; Sweets</td>
<td>3-5 years old</td>
<td>Recalls</td>
</tr>
<tr>
<td>My Veggies</td>
<td>Adult</td>
<td>Recalls</td>
</tr>
</tbody>
</table>

*for low-come families, federal nutrition programs
Features of new tools

- Easy to administer in a group setting for the educator
- Self-administered by the participant
- Low-literacy with Readability Indices grades 1-2
- Low respondent burden
- Multiple types of validation with different types of data
Healthy Kids

Funding

Healthy Kids papers


- Sutter C, Ontai L, Shilts MS, Lanoue LL, Townsend MS. Associations between school readiness, obesity-related biomarkers and inflammation in low-income preschoolers within the Healthy Kids Study. Submitted.
Introductions

- Dr. Diaz Rios will now share with you how we adapted this Healthy Kids tool with low-income Spanish speakers.
- Dr. Ontai will then follow with results for the parenting behaviors tool, *My Child at Mealtime*. 
- Dr. Lanoue will share analyses from the blood values.
- Dr. Shilts will focus on their real world applications.
- Dr. Welk will share a new tool for 6-12 year olds and real world applications.
Cultural Adaptation
Karina Díaz Rios, PhD, RD
CE Specialist in Nutrition
Learning Objectives

**Audience:** Cultural Background

- List 3 concepts to consider when developing obesity prevention tools

**Face Validity**

- Understand different methods of validation appropriate for obesity prevention tools

**Content Validity**

- View 5 examples of ‘real world applications’ of valid obesity prevention tools
Race / Ethnicity Distribution

- United States:
  - Mexican: 64%
  - Caribbean: 16%
  - Central American: 9%

- California:
  - Mexican: 83%
  - Caribbean: 9%
  - Central American: 2%

Country of Origin

U.S. Census Bureau, 2011-2015, American Community Survey 5-Year Estimates
Language Spoken at Home in the U.S.

- Only English: 79%
- Spanish: 13%
- Indo-European: 3.7%
- Asian: 3.4%
- Other: 1%

Ability to Speak English less than very well

U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates
Childhood Obesity Prevalence
Youth aged 2-19 years (2011-2014)

- Non-Hispanic White: 14.7%
- Non-Hispanic Black: 19.5%
- Non-Hispanic Asian: 8.6%
- Hispanic or Latino: 21.9%

Adaptation Process

1. **forward translation**
   - Native speakers, bilingual, bicultural researchers

2. **equivalence verification**
   - Examination by subject-matter experts for conceptual integrity assurance. Involves back-translation

3. **cognitive interviewing**
   - Appraisal of respondents’ comprehension & congruence with intended meaning

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[**interview domains**]

- **Comprehension**
  - ability to respond/react to item

- **Clarity**
  - of words and syntax

- **Relevance**
  - real-life situations connection

- **Appropriateness**
  - of language & meaning

- **Visuals**
  - suitability & usefulness

- **Bilingual**
  - equivalence of versions

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**Adaptation Process**

1. **cognitive interviewing**
   - Appraisal of clarity, relevance, suitability, and appropriateness to target respondent

2. **relevance verification**
   - Subject-matter expert examination of nutritional & cultural relevance

3. **cognitive interviewing**
   - Final version

[**interview domains**]
- **Clarity**: Can you tell me what food is represented in this picture?
- **Relevance**: Do you eat this vegetable?
- **Suitability**: Is the vegetable well represented by these pictures?
- **Appropriateness**: What pictures would better represent this vegetable?
Examples

I buy fruit

Yo Compro frutas

- casi nunca
- a veces
- con frecuencia
- con mucha frecuencia
- siempre

I eat fruit [ ] times a day

Yo Como frutas [ ] veces al día
Examples

“Yes, he eats fruit”

I eat fruit ___ times a day

Yo como frutas ___ veces al día
Examples

My child eats a **snack** at about the same time everyday

Mi niño(a) se come un **snack** casi a la misma hora todos los días

- nunca / rara vez
- a veces
- seguido
- muy seguido

Snack

**Bocadillo**
**Refrigerio**
**Merienda**
**Entre comidas**
**Aperitivo**
...
Examples

“I don’t like to freeze things”

I plan my meals

Planeo mis comidas

- nunca / rara vez
- a veces
- seguido
- muy seguido

“Planeo mis comidas”

- nunca / rara vez
- a veces
- seguido
- muy seguido

Relevance
Examples

"We only eat out once or twice a month"

I eat out [ ] times a week

Como fuera [ ] veces a la semana

¿Cuántas veces a la semana come fuera?

[ ] 1  [ ] 2  [ ] 3  [ ] 4  [ ] 5  [ ] 6  [ ] 7  [ ] 8 o más

¿Cuántas veces al mes come fuera?

[ ] 1  [ ] 2  [ ] 3  [ ] 4  [ ] 5  [ ] 6  [ ] 7  [ ] 8 o más
Validating Parent Responses with Observed Behaviors at Mealtime

Lenna Ontai, PhD

University of California, Davis
Child Obesity

Evidence of intervention viability

- A 2011 review\(^1\) identified 7 intervention studies.
- A 2015 review\(^2\) identified an additional 8
- Evidence across the majority of studies for a moderate effect of parenting interventions to prevent obesity risk.
- Better results when parenting education is delivered with lifestyle education
- Some evidence that approach works best with young children
  - Parents have a lot of control
  - Children’s dietary preferences not set (ages 3 to 8)

\(^1\)Gerards et al. (2011). Interventions addressing general parenting to prevent or treat childhood obesity. Intl J Ped Obesity, 6, e28-e45.
MEALTIME BEHAVIOR
MEALTIME BEHAVIORS

2.4 avg Flesh-Kincaid
27 items
Average time to complete: 5 mins
Parent-Centered & Child-Centered Scores
MEALTIME BEHAVIORS

- 60 families with a preschool aged child
  - Recruited through WIC and Head Start
- Completed the My Child at Mealtime tool
- Completed the Parenting Dimensions Inventory (measure of general parenting quality)
- Videotaped mealtime at their home
  - Routine mealtime that happens regularly
  - Most of the family members participate on a regular basis throughout the week
Mealtime Behaviors

- **Coded behaviors**
  - **Child Centered Behaviors:**
    - Eating with child
    - Positive statements
    - Assisting with eating
  - **Parent Centered Behaviors:**
    - Physical manipulation
    - Verbal directives/demands to eat
    - Bargaining
Mealtime Behaviors

- Child Centered Behaviors:
  - Eating with child
  - Positive statements
  - Assisting with eating
Mealtime Behaviors

- Parent Centered Behaviors:
  - Physical manipulation
Mealtime Behaviors

- Parent Centered Behaviors:
  - Verbal directives/demands to eat
  - Bargaining
## DO THEY DO WHAT THEY SAY?

### Associations with observed parent behaviors during mealtime (N=60)

<table>
<thead>
<tr>
<th>Parent Centered Items</th>
<th>Physical manipulation</th>
<th>Verbal directive/demand</th>
<th>Bargaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>I tell my child she will get a treat for eating.</td>
<td>.243</td>
<td>.303*</td>
<td>.379**</td>
</tr>
<tr>
<td>I remind my child to keep eating her food.</td>
<td>.304*</td>
<td>.287*</td>
<td>.277*</td>
</tr>
<tr>
<td>I tell my child he will get in trouble for not eating.</td>
<td>.037</td>
<td>.192</td>
<td>.335**</td>
</tr>
<tr>
<td>I struggle with my child to get her to eat.</td>
<td>.048</td>
<td>.260*</td>
<td>.219</td>
</tr>
<tr>
<td>I warn my child he will not get a treat if he does not eat.</td>
<td>.242</td>
<td>.247</td>
<td>.301*</td>
</tr>
<tr>
<td>I hand-feed my child to get her to eat.</td>
<td>.259*</td>
<td>.047</td>
<td>.289*</td>
</tr>
<tr>
<td>I say to my child, “Hurry up and eat your food.”</td>
<td>.140</td>
<td>.082</td>
<td>-.097</td>
</tr>
<tr>
<td>I tell my child that she needs to eat an item on her plate.</td>
<td>-.008</td>
<td>-.009</td>
<td>.159</td>
</tr>
<tr>
<td>I tell my child I do not like that he is not eating.</td>
<td>.084</td>
<td>.083</td>
<td>.331**</td>
</tr>
<tr>
<td>I tell my child that I will reward her for eating with TV, playtime, or videogames.</td>
<td>.057</td>
<td>.231</td>
<td>.234</td>
</tr>
<tr>
<td>My child skips meals.</td>
<td>.041</td>
<td>.003</td>
<td>-.136</td>
</tr>
<tr>
<td>I beg my child to eat his food.</td>
<td>-.036</td>
<td>-.076</td>
<td>.168</td>
</tr>
</tbody>
</table>
DO THEY DO WHAT THEY SAY?

Associations with observed parent behaviors during mealtime (N=60)

<table>
<thead>
<tr>
<th>Child Centered Items</th>
<th>Positive Statement</th>
<th>Eating with Child</th>
<th>Assisting with Eating</th>
</tr>
</thead>
<tbody>
<tr>
<td>I get my child to eat by explaining that the food is good for him.</td>
<td>.087</td>
<td>.066</td>
<td>-.1791</td>
</tr>
<tr>
<td>My child sits and eats with an adult.</td>
<td>-.216</td>
<td>-.008</td>
<td>.132</td>
</tr>
<tr>
<td>I plan meals.</td>
<td>-.296*</td>
<td>-.100</td>
<td>-.298*</td>
</tr>
<tr>
<td>I ask my child to try a little bit of a new food.</td>
<td>.088</td>
<td>.006</td>
<td>-.020</td>
</tr>
<tr>
<td>I prepare at least one food that I know my child will eat.</td>
<td>.077</td>
<td>.116</td>
<td>-.154</td>
</tr>
<tr>
<td>I praise my child for eating.</td>
<td>-.039</td>
<td>-.220</td>
<td>-.198</td>
</tr>
<tr>
<td>I help my child with eating.</td>
<td>.022</td>
<td>.086</td>
<td>-.035</td>
</tr>
<tr>
<td>I get my child to eat by making food fun.</td>
<td>.166</td>
<td>-.067</td>
<td>-.080</td>
</tr>
<tr>
<td>My child eats a snack at about the same time everyday.</td>
<td>-.025</td>
<td>.021</td>
<td>-.041</td>
</tr>
<tr>
<td>My child eats dinner about the same time everyday.</td>
<td>-.121</td>
<td>-.251</td>
<td>.029</td>
</tr>
<tr>
<td>I say good things about the food my child is eating.</td>
<td>-.187</td>
<td>-.067</td>
<td>-.079</td>
</tr>
<tr>
<td>I ask my child to pick from foods already cooked.</td>
<td>-.077</td>
<td>-.244</td>
<td>-.072</td>
</tr>
<tr>
<td>I ask my child questions about the food she is eating.</td>
<td>-.209</td>
<td>-.045</td>
<td>-.062</td>
</tr>
<tr>
<td>I let my child serve himself.</td>
<td>.003</td>
<td>-.059</td>
<td>.078</td>
</tr>
<tr>
<td></td>
<td>Parent Centered</td>
<td>Child Centered</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td><strong>Observed Parent Centered Behaviors</strong></td>
<td>.258*</td>
<td>-.214</td>
<td></td>
</tr>
<tr>
<td><strong>Observed Child Centered Behaviors</strong></td>
<td>.130</td>
<td>.074</td>
<td></td>
</tr>
<tr>
<td><strong>Nurturance</strong></td>
<td>-.108</td>
<td>.440***</td>
<td></td>
</tr>
<tr>
<td><strong>Inconsistency</strong></td>
<td>.547***</td>
<td>-.048</td>
<td></td>
</tr>
</tbody>
</table>

- Constellations of observed behaviors corresponded to the My Child at Mealtime scores for parent-centered feeding.
- Self-reports of general parenting corresponded to their My Child at Mealtime scores
CONCLUSIONS

- Parent responses to MCMT items correspond to their use of parent-centered behaviors during mealtimes.
- Positive parent feeding behaviors are more difficult to capture during a single mealtime.
- Observations of mealtimes are valuable tools to help understand how these behaviors may operate during feeding interactions.
- MCMT can be a valuable resource for programs aiming to build parenting skills to improve the mealtime environment.
Using Biomarkers to Validate Healthy Kids Obesity Assessment Tools

Louise Lanoue, Ph.D.
Department of Nutrition/University of California, Davis
Learning Objectives

At the end of the session,

- the participant will list 3 concepts to consider when developing obesity prevention tools.
- the participant will understand different methods of validation appropriate for obesity prevention tools.
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Why Biomarkers?

OBESITY DETERMINANTS & BEHAVIORS

- Income
- Housing
- Community

Education
- Culture-Ethnicity
- Resources

Genes - Gender

Biomarkers

Type 2 Diabetes
- Heart Diseases
- Cancer - etc.
ADVANTAGES:

COMPARSED TO SELF-REPORT ASSESSMENTS (24h recall, FFQ etc) THAT CAN BE SUBJECTIVE & BIAS, BIOMARKERS (& ANTHROPOMETRICS) ARE OBJECTIVE MEASUREMENTS

LIMITATIONS:

BIOMARKERS’ COLLECTION & ANALYSES ARE COMPLEX; REQUIRE COLLABORATORS & MONEY
Biomarkers of obesity in 2-5 yr old

Scientific literature of 2-5 yr old & obesity:
- Anthropometric data most often reported
- Few studies include biomarkers
- Few biomarkers reported

1997-2017 = limited number of research papers using biomarkers & 2-5 yr-old obesity

- LIPIDS
- GLUCOSE
- INSULIN
- LEPTIN
- CRP, TNFα
Obesity can result in inflammation

Obesity is characterized by the accumulation of fat in the abdominal cavity (visceral adipose tissue (VAT)).

VAT is composed of fat cells but also includes reactive immune cells.

Obesity = Excess VAT = Excess reactive cells = Increased production and secretion of compounds (adipokines) in blood.

Some of these adipokines have inflammatory properties and can predispose to other metabolic diseases such as diabetes.

Children obesity & biomarkers: few studies have measured these adipokines
Biomarkers in the Healthy Kids Study
Healthy Kids Study Timeline

- **Target Participants:**
  - 144 Parent/child pairs from WIC & Head Start
  - Ethnically diverse (2-5yr)

- **Data Collected:**
  - 13 time points/≈2yrs
  - Self-Reported (food/sleep/screen/activity) + Healthy Kids (HK)
  - Anthropometrics (4)
  - Blood draws (BD) (3)

- **Biomarkers:**
  - > 25 blood biomarkers
  - Grouped into 6 indices:
    - PRO-INFLAMMATORY
    - ANTI-INFLAMMATORY
    - LIPIDS
    - METABOLIC
    - FAT
    - CAROTENE
Biomarkers Analyses

- Blood samples
- USDA-WHNRC
  - Adipokines
    - Adiponectin/Leptin
    - Insulin
  - Lipid Panel
    - Glucose
- UCD-Med Center
  - Vitamin A (retinol)
  - Carotenoids
  - Vitamin E (tocopherols)
- HPLC
  - Multiplex Immunoassay
  - Enzymatic assay
**Predictive validity** = ability to predict BMI.

A better score at baseline predicts children with lower BMI-for-age percentile 2 years later \( p = .02 \).
Validation...Healthy Kids

**Predictive validity** = ability to predict health.

A better score at baseline predicts children with better Vitamin A status 1 year later [p=.0008].
Validation...Focus on Veggies

**Indicative validity** = Focus on Veggies is a powerful indicator of kids’ health as validated by concurrent biomarkers & diet recalls.

Higher scores on Focus on Veggies: children with less inflammation \( p = .034 \).

Higher scores on Focus on Veggies: better dietary recall: greater cup equivalents \( p < .05 \); more vitamin A \( p < .001 \), more B-carotene \( p < .001 \) & other nutrients.
Validation...Focus on Sweet Drinks

**Indicative validity** = Focus on Sweet Drink, 3-item tool is a powerful indicator of kids’ health as validated by concurrent biomarkers & diet recalls.

Higher scores (lower consumption) on Focus on Sweet Drinks: children with higher levels of anti-inflammation markers [p= .026].

Higher scores on tool: parent reported less sugar in child’ diet [p<.05] and parents drinking less sweet beverages [p<.0001].
Lessons Learned

Be prepared/Sample Collection Requires:
- Material (tubes, labels, gauzes, syringes, etc)
- Confidentiality (IRB approval, Labels)
- Child is healthy (fasted, hydrated & no fever)
- Sterility (during collection & disposal)
- Ice (during collection & transport)
- Lab for recovery, storage & analyses of blood

Ensure child well-being:
- GOOD PHLEBOTOMIST!
- Private space
- Importance of parents (prep call)
- Snacks & Juices available
- Prizes!!
Take Home

Use of Biomarkers in Childhood Obesity Study:

- Complex at different levels: selection of biomarkers, collection, analyses & interpretation.
- Results indicate: need of a large sample size (>100) for statistical significance.
- Ability to measure a large number of different markers (obesity, cardiac health, diabetes risk, etc).
- Can be used as predictors and indicators.
- Can be used to validate self-report tools.

VALIDATION of the HEALTHY KID TOOLS
Learning Objectives

At the end of the session,

- the participant will list 3 concepts to consider when developing obesity prevention tools.
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Outline

- Website
  - Photographic Tailoring
  - Goal setting
- Education
  - Traditional
  - Medical Clinic
    - Kiosk
- Mini-tools

Real World Applications
Healthy Kids Website

PARENTS
Want to keep your child healthy?
Take the survey and have goals created just for you and your child!

Click a survey to begin

Educators
Are you using these surveys with your classes? Healthy Kids or My Child at Meal Time?
Begin here to quickly enter completed surveys for an entire class. Create personal goal sheets for each participant.

Login Here
New User? Create an account here.

Directors
Want to use these surveys with your program? Register and open an account to have access to these tools.
Download the current Healthy Kids or My Child at Meal Time surveys or create photo-customized versions tailored to your target audience.

Login Here
New User? Create an account here.
Healthy Kids Website-Tailoring Images

- The Photobank gives you up to 4 additional photos for each HK & MCMT question
  - Asian
  - Black
  - White
  - Hispanic/Latino ethnicity
Guided Goal Setting

Goals are Tailored to Parent Responses

My Child at Meal Time

These questions are about your 5-year-old child in your care.

1. I got my child to eat by explaining that the food is good for him/her.
   - always
   - sometimes
   - never

   - always
   - sometimes
   - never

3. I help my child eat a meal for eating.
   - always
   - sometimes
   - never

Healthy Kids

These questions are about the 5-8-year-old child in your care.

1. My child eats vegetables.
   - often
   - sometimes
   - never

2. My child goes to bed around.
   - 6 PM
   - 7 PM
   - 8 PM
   - 9 PM

3. My child gets up around.
   - 6 AM
   - 7 AM
   - 8 AM
   - 9 AM

YOUR NUTRITION Quiz Results

Thank you Danielle for taking the time to complete the Healthy Kids quiz. We hope you find feedback will help you and your family make healthy food and activity choices.

Good job! You serve dairy and calcium foods.

Check one major goal you would like to work on. Then choose one of the minor goals beneath it to work on this week.

Major Goal

☐ You may want to work on helping your child be more physically active.
  3 ways to do this would be:

  □ Play outside with your child 3 days a week.
  □ Keep your child’s screen time below 2 hours.
  □ Take your child to the park at least 4 times this week.

Minor Goals

☐ Offer your family 2 vegetables every day.

OR

Major Goal

☐ You may want to add more fruits and snacks.
  3 ways to do this would be:

  □ Fix a fruit or vegetable snack with your family.
  □ Offer your family 2 vegetables every day.
  □ Let your child choose a fruit and snack from the store this week.

Minor Goals

☐ Fix a fruit or vegetable snack with your family.

GOALS FOR HEALTHY KIDS

PERSONALIZED ASSESSMENT

GOAL CONTRACT what you need to succeed

GOAL TRACKING

BARRIERS what’s getting in your way?

CUES set yourself up for success

REWARDS road map for success
Healthy Kids Website-Guided Goal Setting

- Select a tool

- Answer questions

- Print individualized goal sheets
Healthy Kids Website-Guided Goal Setting

- Educators can enter participant data easily
- Print multiple goal sheets at once

**YOUR NUTRITION Quiz Results**

Thank you Mary for taking the time to complete the Healthy Kids quiz. We hope this feedback will help you and your family make healthy living choices.

Good job! You are serving dairy and calcium foods at your family’s meals.

Check one major goal. Then choose one of the minor goals.

**Major Goal**

- You may want to choose foods low in fat.
- 3 ways to do this would be:
  - Trim fat from meat or remove skin from chicken 3 times this week.
  - Instead of whole milk, serve reduced-fat or fat-free milk at your main meal 3 times this week.
  - Instead of eating out this week, plan a meal where your family is involved in the preparation.

**Minor Goals**

- Keep your child’s screen time 1½ hours, 3 days this week.
- Remove TVs/videos/games from your child’s room this week.
- Play games with your child for 1 hour, 2 times this week when he or she usually watches TV.

**OR Major Goal**

- You may want to work on limiting your child’s screen time.
- 3 ways to do this would be:
  - Keep your child’s screen time 1½ hours, 3 days this week.
  - Remove TVs/videos/games from your child’s room this week.
  - Play games with your child for 1 hour, 2 times this week when he or she usually watches TV.

**Minor Goals**

- Minor Goal
  - You may want to choose foods low in fat.
  - 3 ways to do this would be:
    - Trim fat from meat or remove skin from chicken 3 times this week.
    - Instead of whole milk, serve reduced-fat or fat-free milk at your main meal 3 times this week.
    - Instead of eating out this week, plan a meal where your family is involved in the preparation.

- Minor Goal
  - Keep your child’s screen time 1½ hours, 3 days this week.
  - Remove TVs/videos/games from your child’s room this week.
  - Play games with your child for 1 hour, 2 times this week when he or she usually watches TV.

Name*

- Bypass Question

1. My child is outside _____ hours a day. *
   - 0
   - 1
   - 2
   - 3
   - 4
   - 5 or more

- Bypass Question

2. My child eats vegetables. *
   - rarely
   - some days
   - most days
   - almost every day
   - every day

- Bypass Question

3. My child goes to bed around _____ pm. *

- Bypass Question

4. My child gets up around _____ am. *

- Bypass Question

5. My child plays outside _____ days a week. *
   - 0
   - 1
   - 2
   - 3
Guided Goal Setting

- Parents reported a high level of goal effort and goal achievement.
- Parents reported preference for goal personalization & goal options.
Community Education Setting

- HK evaluation tool
  - Pre and post intervention
  - 6-week parent education intervention
- Guided goal setting
- Significant difference in the HK 12-item energy density scale $p < .01$, HK 8-item vegetable scale $p < .05$ and 12-item snacking scale $p < .10$
Community Education Setting

- MCMT evaluation tool
  - Pre and post intervention
  - 6-week parent education intervention
- Control group
- Guided goal setting
- Significant difference in the MCMT Responsiveness scale \( p < .05 \)
Medical Clinic Setting

- HK & MCMT evaluation tools in English and Spanish
  - Pre and post intervention
  - 8-week EFENP parent education intervention
- Guided goal setting
- Parents (n=22) report that goal setting activities (88%) were liked very much.
- 65% of parents stated that the physician referral was an important reason for enrolling.
Medical Clinic Kiosk

- Content based on HK and MCMT
- Placed in pediatric clinic waiting room
- To facilitate pediatric obesity risk communication between parents & pediatricians.
- To increase referrals to the EFNEP intervention.
- Meetings with clinic staff and physicians indicated kiosk needed to be:
  - small, mobile and have a printer attached
Medical Center Kiosk

- Pilot testing
  - 22-item kiosk survey took parents ~3 minutes to complete
- All parents (n=6) reported that it was “very easy” or “easy” to complete the survey
- Feasibility testing is ongoing
Mini Tools

For Parents of Preschoolers
Thank you

shiltsm@csus.edu
Application of the Family Nutrition and Physical Activity (FNPA) screening tool for evaluating and impacting home obesogenic environments

Greg Welk
Iowa State University
Contributors, Collaborators and Colleagues

• Michelle Ihmels, Ph.D.
• Rachel Johnson, M.S.
• Karissa Peyer, Ph.D.
• Lisa Bailey-Davis, D.Ed., RD
• Amy Christison, Ph.D.
• Lorraine Lanningham-Foster, Ph.D.
• Maren Wolff, MS, RD, LD
Development and Utility of Online Family Nutrition and Physical Activity (FNPA) Screening Tool

www.adaf.eatright-fnpa.org
Overview of Process for the Development of the FNPA Tool

- Concept evolved through partnership with the Academy of Nutrition and Dietetics (AND)

- Interdisciplinary research team completed formal Evidence Analyses (EA) on childhood obesity w/AND:
  - Esther Meyers – AND
  - Pat Crawford – UC-Berkeley
  - Lorraine Ritchie – UC-Berkeley
  - Karen Peterson – Harvard
  - Greg Welk – Iowa State
  - Michelle Ihmels – Iowa State

- Constructs identified in the Evidence Analyses as being predictive of childhood obesity were the basis for FNPA items
10 Key Domains were identified in Evidence Analyses

| 1. Breakfast and Family Meal | Domains were selected based on consistency and strength of associations in predicting childhood obesity. |
| 2. Modeling of Nutrition | These 10 factors had a grade of II or III |
| 3. Nutrient Dense Foods |
| 4. High Calorie Beverages |
| 5. Restriction and Reward |
| 6. Parent Modeling Physical Activity |
| 7. Child’s Physical Activity |
| 8. Screen Time |
| 9. TV in Bedroom |
| 10. Sleep and Schedule |
2 Questions were Developed for each Construct (n=20)

The FPNA tool is designed to allow you to evaluate your home environment and parenting practices related to your child’s risk for overweight and obesity.

For each question, please select the answer that best represents your child/family:

1. My child eats breakfast...
2. Our family eats meals together...
3. Our family eats while watching TV...
4. Our family eats fast food...
5. Our family uses microwave or ready-to-eat foods...
6. My child eats fruits and vegetables at meals or snacks...
7. My child drinks soda pop or sugar drinks...
8. My child drinks low fat milk at meals or snacks...
9. Our family limits eating of chips, cookies, and candy...
10. Our family uses candy as a reward for good behavior...
11. My child spends less than 2 hours on TV/game/computer per day.
12. Our family limits the amount of TV our child watches...
13. Our family allows our child to watch TV in their bedroom...
14. Our family provides opportunities for physical activity...
15. Our family encourages our child to be active every day...
16. Our family finds ways to be physically active together...
17. My child does physical activity during freer time...
18. My child is involved in sports or activities with a coach or leader...
19. Our family has a daily routine for our child’s bedtime...
20. My child gets 6 hours of sleep a night...

Score: Add up scores for each scale (items should be scored 1, 2, 3, 4 from left to right except for items that are reverse-coded 3, 4, 5, 6, 7, 8, 9, and 10. These should be scored 1, 2, 3, 4 from left to right. See back for feedback.

Family Meal Patterns

Family Eating Habits

Food Choices

Snack Time

Restriction/Reward

Screen Time/Behavior Monitoring

Healthy Environment

Family Activity Involvement

Child Activity Involvement

Family Routine

Total Score

Self-scoring rubric and summary of recommended practices promotes awareness
Construct Validity: Cross Sectional Analyses
(Ihmels et al., 2009 - IJBNPA)

- Factor analyses revealed that the items loaded on a single factor (alpha reliability = 0.70)
- Logistic regression revealed that children with a total score in the lowest tertile (high risk family environment) had a greater likelihood of being overweight (odds ratio = 1.7).
Predictive Validity: Longitudinal Analyses
(Ihmels et al., 2009 - Annals of Behavioral Medicine)

FNPA was a significant predictor of 1 year change in BMI after taking into account multiple variables

- Baseline BMI
- Parent BMI
- Parent SES

Prediction of BMI Change in Young Children with the Family Nutrition and Physical Activity (FNPA) Screening Tool

Michelle A. Ihmels, Ph.D. · Gregory J. Welk, Ph.D. · Joey C. Eisenmann, Ph.D. · Sarah M. Nusser, Ph.D. · Esther F. Myers, Ph.D., R.D.

Features of Online FNPA Tool

- Easy to use (and FREE) online tool
- Customizable interface for specific projects
- Quick data entry for parents
- Personalized feedback with links to Kids Eat Right
Primary Care Provider Role

- Universal prevention
- Promotion of healthy lifestyle for patients and families
- Have a clear understanding of the complex and interconnected factors of weight gain
- Screening, identification and treatment of obesity-related comorbidities
- Use best available evidence
- Tailored counseling
- Advocacy
Universal Guidelines for Assessment, Prevention, and Treatment

1. Identification
   Calculate and plot BMI at every well-child visit

   BMI 5th-84th percentile
   - Child history & exam
   - Child growth
   - Parental obesity
   - Family history
   - Laboratory, as needed

2. Assessment
   Medical Risk
   - Sedentary time
   - Eating
   - Physical activity
   Behavior Risk
   - Family and patient concern and motivation
   Attitudes

3. Prevention
   - Target behavior
     - Identify problem behaviors
     - If no problem behaviors, praise current practice
   - Patient/family counseling
     - Review any risks (e.g., DM)
     - Use patient-directed techniques to encourage behavior change (see algorithm/table)

   (No evidence of health risk)
   (Evidence of health risk)

   Intervention for Treatment
   (Advance through stages based on age and BMI)

   Stage 1 Prevention Plus
   Primary care office

   Stage 2 Structured Weight Management
   Primary care office with support

   Stage 3 Comprehensive Multidisciplinary Intervention
   Pediatric weight management center

   Stage 4 Tertiary Care Intervention (select patients)
   Tertiary care center

Implementation Gap that FNPA Can Fill

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Barlow, S. E. et al. Pediatrics 2007
Recent Applications of the FNPA Tool for Clinical Applications

- The FNPA has been used in several clinical studies to facilitate parent education and family based counseling on obesity prevention
- Studies were in 3 different medical systems
  - Illinois (Chistison et al.)
  - Pennsylvania (Bailey-Davis et al.)
  - Iowa (Wolff et al.)
Paired Motivational Interviewing with a Nutrition and Physical Activity Assessment and Counseling Tool in Pediatric Clinical Practice: A Pilot Study

Amy L. Christison, MD,1 Brendan M. Daley, MD,1 Carl V. Asche, PhD,2,3 Jinma Ren, PhD,2,3 Jean C. Aldag, PhD,2,3 Adolfo J. Ariza, MD,4–6 and Kelly W. Lowry, PhD7,8

Provider incorporates Family Nutrition and Physical Activity Assessment into Coaching tool

Follow-up at 1 and 6 months

Figure 1. FNPA coaching tool. FNPA, the Family Nutrition and Physical Activity Screening Tool.
PREVENT Study
Geisinger Health Systems
(Lisa Bailey-Davis)

Parent educational material

Parent: Immediate feedback. Discuss with physician today?

YES:
Which 3 topics?

NO:

Physician Clinical Decision Support: EHR alert, FNPA Risk Assessment, Parent attitude (topic preference), talking points

FNPA and Parent Attitude Assessment Integrated into Well Child Visits:

Parent educational materials
Blank Healthy Kids: My Health, My Way!
(BlankProject - Wolff/Lanningham-Foster)

START

Meet with Dr. Gross
Decide if the My Health, My Way! program is a good fit for your family.

- Meet with Health Coach (In-person - 1 hour)
- Fill out survey about your health and family
- Talk about personal goals for the program
- Schedule next visit

MONTH 1

Talk with Health Coach (Phone - 20 minutes or less)

MONTH 2

Talk with Health Coach (Phone - 20 minutes or less)

MONTH 3

Meet with Dr. Grooss & Health Coach (In-person - 30 minutes)

You are showing signs of meeting your goals

- You need some extra support and help with meeting your goals

MONTH 4

Talk with Health Coach (Phone)

- Talk with Health Coach (Phone)

MONTH 5

Talk with Health Coach (Phone)

- Talk with Health Coach (Phone)

MONTH 6

Meet with Dr. Grooss

- Fill out survey about your health and family
- Talk about personal goals after the program
- Schedule next visit with Dr. Grooss

My Health, My Way!

Goal #1:

My Health, My Way!

Sun Mon Tue

Fruits and Veggies

Screen Time

Physical Activity

Sugary Drinks

The Blank Healthy Kids: My Health, My Way! program is a research study being conducted in the Blank Children’s Health Clinic with patients ages 5-12 who see Dr. Jennifer Grooss.

We are always looking for ways to improve children’s health. One way we can do this is through wellness coaching. A wellness coach helps families identify what healthy habits they would like to improve and helps the family set goals to improve those habits.

Research has shown that some health indicators like Body Mass Index are associated with increased health risks.

These risks can be lessened by improving health habits related to nutrition, physical activity, sleep, and screen time. We are piloting a program of wellness coaching in our clinic to see if it can be successfully implemented. We are also wanting to know if working with a wellness coach shows more improvement of health habits related to Body Mass Index than not working with a wellness coach.

Dr. Grooss will visit with you more about this study during your visit today to tell you more about it and to see if you are interested in participating. You do not have to participate if you or your child do not want to.

Blank Children’s Hospital
UnityPoint Health

This graphic is adapted from Let's Go! www.letsgo.org
Conclusions

- The FNPA has demonstrated utility for assessing home obesogenic environments and promoting parent awareness about weight issues.

- Clinical studies demonstrate the feasibility and utility of the FNPA when integrated into standard pediatric well child visits.
Thanks

Visit [www.myfnpa](http://www.myfnpa) for information or to join the FNPA User Group or contact Greg Welk ([gwelk@iastate.edu](mailto:gwelk@iastate.edu))

Look for a future symposium on the FNPA at FNCE in the Fall (Karissa Peyer and Lisa Bailey Davis)
Closing
7 Potential uses

- Screening
- Obesity risk assessment / prediction
- Evaluation [pre post]
- Program needs assessment
- Intervention tailoring
- Designing personalized messages, clinical setting
- Goal generator for participants
Learning Objectives

- Participants will list 3 concepts to consider when developing obesity prevention tools.
  - Literacy level, cultural background, language preference, SES, age, setting

- Participants will understand different methods of validation appropriate for obesity prevention tools.
  - Content, face, concurrent, criterion, predictive validity

- Participants will view 5 examples of ‘real world applications’ of valid obesity prevention tools.
  - Pediatric medical practice
  - Family medicine at university hospital
  - Community agency
  - Photographic tailoring on website
  - Goal setting on website
FUNDING SOURCES
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Add Greg #
Application & How to order?

- http://Townsendlab.UCDavis.edu
- http://HealthyKids.UCDavis.edu
- www.adaf.eatright-fnpa.org
- UC Davis Reprographics
- Reprographics Store - Coming Soon
- http://repro-ecommerce.ucdavis.edu/
Tools for Assessing Home Obesogenic Environments: From Development to Real World Applications

Questions

SNEB Symposium
July 23, 2017, 1:00-2:30