A SNAPSHOT OF NUTRITION AND PHYSICAL ACTIVITY ENVIRONMENTS IN RURAL SOUTH DAKOTA

VICTORIA BRITSON, PHD, CNP, FNP-BC, CNE; LINDA BURDETTE, PHD, RN; & SUZANNE STLUKA, MS, RD, LN

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OBJECTIVES

At the completion of the session, participants will be able to:

1. Discuss methods utilized to assess nutrition and physical activity environments in rural South Dakota.
   - Describe the background of the funded programming.
   - Identify processes utilized to accomplish environmental assessment in a rural context.

2. Discuss rural-specific assessment tools to subjectively and objectively measure nutrition and physical environments in rural areas.
   - Describe the HEAL MAPPS, NEMS, RALA, and RALPESS assessment tools.
   - Provide preliminary results in the context of rural environments.
ACKNOWLEDGEMENTS

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Additional Team Members:
Tara Shafrath, MS, EP-C, WMS; Shawn Burke, MS; Jessica Meendering, PhD, EP-C; Lacey Arneson McCormack, PhD, MPH, RD, LN, EP-C; Nikki Prosch, MS, EP-C, PAPHS; Rebecca Weathers MS, LPC, LAC. SDSU Extension Field Specialists.
BACKGROUND AND PURPOSE

- Six South Dakota (SD) counties report adult obesity prevalence at ≥40%.
- Four counties are located on or near American Indian reservations and two counties rank in the 10% of poorest counties in the nation.
- SD American Indian population is 10%, but makes up 46% of Supplemental Nutrition Assistance Program (SNAP-Ed) recipients.
- In 2013, only 10.3% of SD adults met recommendations for fruit intake and 6.8% for vegetable intake.
- A need for sustainable community wellness coalitions that implement research-based physical activity and nutrition interventions was identified.

**Purpose**: Engage one community in 11 counties and its residents, to identify environments that support or hinder healthy lifestyles.
RESEARCH METHOD

Population

- One community in 11 rural/frontier counties
- Eight communities located on American Indian Reservations
- Two communities in counties ranking in the 10% of poorest in the nation

Instruments

- Healthy Eating Active Living: Mapping Attributes using Participatory Photographic Survey (HEAL MAPPS™)
- Nutrition Environment Measurements Survey in Stores (NEMS-S)
- Rural Active Living Assessment (RALA)
- Rural Active Living Perceived Environmental Support Scale (RALPESS)
HEALTHY EATING ACTIVE LIVING: MAPPING ATTRIBUTES USING PARTICIPATORY PHOTOGRAPHIC SURVEYS (HEAL MAPPS™)

Step 1: Photomapping using camera-enabled GPS
- Utilized Garmin 650 Handheld GPS units.
- A total of 884 photos were taken.

Step 2: Focus Groups
- MAPPers Focus groups reviewed photos and came to consensus on the photos that best represented the community’s nutrition and physical activity attributes.

Step 3: Community Conversations
- Voiced experience of rural/frontier people as they navigate their community place.
Step 4: Community Reports

- Reports compiled for Wellness Coalitions & Community Stakeholders.
- Stages of Community Readiness calculated and major themes identified.
Grocery and convenience stores in each community were surveyed for availability, price, and quality.

17 measures: milk, fruits and vegetables, ground beef, hot dogs, frozen dinners, baked goods, beverages (soda/juice), whole grain bread, baked chips, cereal & other grains, tuna, packaged deli meats, & frozen pizza.

Traditional foods: antelope, bison, deer, duck, elk, pheasant, tripe, buffalo berries, chokecherries, morel mushrooms, & prairie turnips.
# NEMS-S FINDINGS

<table>
<thead>
<tr>
<th>Mean Composite Scores</th>
<th>Grocery (n=16)</th>
<th>Convenience (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Availability</td>
<td>32 (6.51)</td>
<td>9.19 (5.45)</td>
</tr>
<tr>
<td>Price</td>
<td>4.12 (3.89)</td>
<td>0.96 (1.50)</td>
</tr>
<tr>
<td>Quality</td>
<td>5.63 (1.5)</td>
<td>0.92 (1.99)</td>
</tr>
<tr>
<td>Total</td>
<td>41.8 (9.98)</td>
<td>11.0 (7.73)</td>
</tr>
</tbody>
</table>

Maximum composite score 80 points per store

- Availability subtotal 0 - 50 points
- Price subtotal -12 – 24 points
- Quality subtotal 0 - 6 points

*A higher score indicated higher quality, availability, or lower prices for healthier items.*
RURAL ACTIVE LIVING ASSESSMENT (RALA)

- Assesses the “friendliness” of a community for walking, biking, and being physically active.
- Two assessments
  - Town Wide
  - Policies and Programs
RURAL ACTIVE LIVING ASSESSMENT (RALA)

- **Town-wide Assessment:**
  - Town and County population, area in square miles, topography, street patterns, town center
  - Total score range 0 → 100
  - Sections scores:
    - School location
    - Trails (walking, hiking, & biking)
    - Parks/Playgrounds
    - Water Activities
    - Recreational Facilities
## RALA TOWN-WIDE ASSESSMENT RESULTS

<table>
<thead>
<tr>
<th>Domain (Possible Total Points)</th>
<th>Mean Score (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Score (100)</strong></td>
<td><strong>56.5 (15.78)</strong></td>
</tr>
<tr>
<td>School Location (15)</td>
<td>10.5 (7.25)</td>
</tr>
<tr>
<td>Trails (20)</td>
<td>6.1 (7.75)</td>
</tr>
<tr>
<td>Parks/Playgrounds (25)</td>
<td>19.1 (5.57)</td>
</tr>
<tr>
<td>Water Activities (10)</td>
<td>5.2 (3.33)</td>
</tr>
<tr>
<td>Recreation Facilities (30)</td>
<td>16.8 (8.04)</td>
</tr>
</tbody>
</table>
RURAL ACTIVE LIVING ASSESSMENT (RALA)

- Program & Policy Assessment:
  - Total score range 0→100
  - Section scores:
    - Town Policies
    - Town Programs
    - School Policies
    - School Programs
### RALA PROGRAM & POLICY ASSESSMENT RESULTS

<table>
<thead>
<tr>
<th>Domain (Possible Total Points)</th>
<th>Mean Score (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score (100)</td>
<td>43.82 (17.97)</td>
</tr>
<tr>
<td>Town Policies (10)</td>
<td>1.73 (3.07)</td>
</tr>
<tr>
<td>Town Programs (30)</td>
<td>13.45 (11.39)</td>
</tr>
<tr>
<td>School Policies (30)</td>
<td>19.09 (9.7)</td>
</tr>
<tr>
<td>School Programs (30)</td>
<td>10.45 (9.61)</td>
</tr>
</tbody>
</table>
**RURAL ACTIVE LIVING PERCEIVED ENVIRONMENTAL SUPPORT SCALE (RALPESS)**

- Determines perceived environmental support for and barriers to physical activity
- 33 item self report inventory
- Domains
  - Indoor Areas
  - Outdoor Areas
  - Town Center Physical Activity Resources,
  - Town Center Connectivity
  - Schools
  - Churches
  - Areas around Your Home
RURAL ACTIVE LIVING PERCEIVED ENVIRONMENTAL SUPPORT SCALE (RALPESS)

Sample Questions

- There are sidewalks on most of the road in the area around my home.
- Churches in my town encourage exercise or being physically active.
- The indoor exercise areas in my town are generally safe.
- Outdoor areas in my town have available restrooms.

strongly disagree (1) → strongly agree (4) → don’t know
NEXT STEPS

- Development of Community Action Plans by Wellness Coalitions
- Menu of Evidence-Based Community Interventions/Strategies developed by content experts in physical activity and nutrition
- Reassessment in Year 3
IMPLICATIONS FOR RURAL

- The use of infographics and HEAL MAPPS™ photos presented a visual snapshot of baseline data and assisted rural and frontier communities to better understand their nutrition and physical activity environments.

- Baseline findings were utilized to create community action plans and identify evidenced-based interventions to meet the unique needs of rural and frontier SD communities.

- Findings identified how attributes of residents interact with attributes of place to support healthy lifestyle behaviors.

- Geography contributed to the lack of access to healthy food and physical activity environments in rural and frontier SD.

- This methodology provided concise assessment information to objectively and subjectively measure physical and nutrition environments in rural and frontier SD.
REFERENCES


QUESTIONS?