Pediatric Refugees in Rhode Island: BMI Changes following Resettlement

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BACKGROUND

Limited evidence exists to describe the changing medical needs of pediatric refugees following resettlement in the U.S., especially in regards to obesity.

In American children and adolescents:
- Rate of obesity (body mass index (BMI) >95th percentile for age and sex): ~17%
- Rate of overweight (BMI 85th to <95th percentile) and obese: ~31.7%

Risk factors for obesity in pediatric refugees:
- Food insecurity
- Loss of cultural and social context
- Trauma related to the migration process
- Economic difficulties
- Change in diet from high fruit and vegetable content towards one with more meat, cream, and butter
- Increased physical inactivity as traditional chores no longer necessary

METHODS

Setting and Participants:
- Retrospective chart review of pediatric refugee patients undergoing initial health assessment at Hasbro Children’s Hospital from 10/2007 to 3/2012: n = 181.
- Hasbro Children’s Hospital works in conjunction with the Dorcas International Institute of RI to coordinate care of newly-resettled pediatric refugees and provides ongoing primary care after the initial intake evaluation.

Analysis

Primary outcome: within person change in BMI percentile from the time of initial visit to each subsequent year following.

RESULTS

- Of the 181 children included in the study, 156 (86.2%) met inclusion criteria.
- Immigrated from 17 different countries across the continents of Africa and Asia, with most coming from Burundi, Iraq, Eritrea, Liberia, Nepal, Bhutan, Myanmar, Somalia, and the Democratic Republic of Congo.

Table 1: Baseline and Follow-up Characteristics of Pediatric Refugees Attending the Pediatric Refugee Health Program, 2007-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Initial visit</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI percentile</td>
<td>(n=156)</td>
<td>(n=143)</td>
<td>(n=136)</td>
<td>(n=130)</td>
</tr>
<tr>
<td>Underweight</td>
<td>12 (7.7)</td>
<td>11 (7.7)</td>
<td>12 (8.8)</td>
<td>11 (8.5)</td>
</tr>
<tr>
<td>Normal</td>
<td>90 (57.4)</td>
<td>85 (59.4)</td>
<td>90 (66.7)</td>
<td>85 (64.6)</td>
</tr>
<tr>
<td>Overweight</td>
<td>34 (21.6)</td>
<td>31 (21.4)</td>
<td>34 (25.4)</td>
<td>31 (23.8)</td>
</tr>
<tr>
<td>Obese</td>
<td>10 (6.4)</td>
<td>8 (5.6)</td>
<td>9 (6.6)</td>
<td>8 (6.2)</td>
</tr>
</tbody>
</table>

Table 2: Mean Within Person Change in BMI Percentile at Years 1-3 Post-Resettlement

- Significant lost post-resettlement
- BMI percentile at years 1, 2, and 3

Figure 1: Prevalence of Overweight and Obese Among Refugees Attending the Pediatric Refugee Health Program at Hasbro Children’s Hospital, 2007-2012

- Initial visit: 10.0%
- Year 1: 15.6%
- Year 2: 15.4%
- Year 3: 14.8%

DISCUSSION

- Refugee children resettling in the U.S. do not initially have the same prevalence of overweight and obesity as do American-born children. There was a significant increase in prevalence to approximate that of American-born children within 1 year post-resettlement and to surpass that of American-born children within 3 years post-resettlement.
- Only 5.7% of children in our cohort were underweight at baseline; removing this group from analyses did not materially alter the mean change in BMI nor the confidence intervals (which still did not include 0 for the non-underweight arrivals).

- Primary endpoint results confirm a significant mean within person increase in BMI percentile at years 1, 2, and 3.

- These results, which confirm that length of stay in the United States is associated with increased BMI percentile, mirror those published about adult immigrant populations and are consistent with one small prior study involving refugee children.
- Given that significant changes in BMI percentile occur as early as the first year following resettlement and continue at each year thereafter, focused interventions should be designed to counsel patients and their families on nutrition and healthy eating at intake and each subsequent visit.
- These interventions should firmly root resettling refugee families within the patient-centered medical home, utilizing the expertise of community health workers, who can guide and educate providers as to the cultural context of food for a particular culture or individual families.
- Limitations:
  - Significant lost-to-follow-up at 1 year: secondary migration for employment/joining a more established anchor community versus unfamiliarity to primary health care services in this country.
  - Results limited by the accuracy of data abstracted from charts, especially in regards to birth date, which is not always known and is instead frequently estimated upon arrival.
- Further research is still needed, including following a larger number of participants over a longer period of time as well as evaluating interventions designed to help this at-risk population. Qualitative studies regarding nutritional health literacy and attitudes about American foods are also urgently needed.

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REFERENCES