Introducing the Double Burden of Malnutrition

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Current Status and Response to the Global Obesity Pandemic
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Overview of Double Burden of Malnutrition

• What, where and why?
• Drivers and reasons for double burden
• Costs of double burden
• Responses – the notion of “double-duty”
• Challenges and research issues
Double burden: the what?

• **DBM**: simultaneous undernutrition (one or all of stunting, waste, micronutrient deficiencies) and overweight/obesity in household

• Number of people affected by undernutrition (~800 million) vastly < number affected by ow/obesity (>2 billion roughly)

• **Malnutrition in all its Forms** – Second International Congress on Nutrition (ICN2) in 2014 institutionalized a broad vision of malnutrition at WHO and FAO
Double burden of malnutrition: the where?
Based on two alternate measures for all countries using the most recent data for low- and middle-income countries

a. Current Double burden countries according to weight/height data: at least 1 wasted/stunted/thin and 1 overweight/obese child, adolescent, or adult in household

b. Double burden countries (anemic/wasted/stunted and overweight/obese in household), based on most recent year

Criteria, any two: child with wasting ≥15%, stunting ≥30%, wasting and stunting both ≥35%, or overweight ≥15%; woman with overweight ≥40% or thinness ≥20%.

Criteria, any 2: Child with wasting ≥15%, stunting ≥30%, wasting and stunting both ≥35%, overweight ≥15%, and/or severe anemia ≥40%; woman with overweight ≥40%, thinness ≥20%, and/or severe anemia ≥40%.

Source: Popkin, Corvalan et al, Lancet forthcoming
Double Burden: the why? Drivers and Conditions: Stages of Modern Global Agricultural and Food System Development

Trends in total retail + food service sales volumes for sugar-sweetened beverages (SSBs) and junk foods, 2003-2016

Malaysia

South Africa

Chile

Popkin, Corvalan et al, Lancet forthcoming

Source: Euromonitor Passport, 2017
Costs of DBM
Economic literature to date: double burden

- Only two studies have looked at economic costs of both under-nutrition and overweight and obesity (ECLAC 2016 and Popkin 2001)

<table>
<thead>
<tr>
<th>ECLAC 2016: Methods and results</th>
<th>Popkin BM, et al. (2001): Methods and results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measured:</strong> undernutrition through multiple pathways; (risk of disease, educational attainment, lifetime earnings). Overweight and obesity impacts are medical costs and productivity losses.</td>
<td><strong>Measures:</strong> undernutrition and diet related NCDs in China and India</td>
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<td><strong>Methods:</strong> projected over 65 years with undernutrition and obesity measured separately and combined</td>
<td><strong>Methods:</strong> uses epidemiological models for the years 1995 and 2025, combined with the best available information on costs</td>
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<td><strong>Results:</strong> range from a total cost of 0.2% of GDP in Chile (all obesity) to 4.3% of GDP in Ecuador (2.6% from undernutrition and 1.7% from obesity).</td>
<td><strong>Results:</strong> in 1993, diet related NCDs from under and over nutrition amounted to 2.1% of GDP in China and 1.1% of GDP in India. These estimates were updated for China, showing that in 2000, these costs were 4% of GDP and projected to reach 9% of GDP by 2025 (Popkin et al 2006).</td>
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Interventions
## Possible “double-duty” interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Supporting evidence</th>
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</thead>
<tbody>
<tr>
<td>Advertising regulations and healthy food marketing to children</td>
<td>1, 3</td>
</tr>
<tr>
<td>Breastfeeding promotion</td>
<td>1</td>
</tr>
<tr>
<td>Complementary feeding practices</td>
<td>1</td>
</tr>
<tr>
<td>Improve food transportation and trade to reduce food loss and improve diet</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition counseling in health care settings</td>
<td>2, 3</td>
</tr>
<tr>
<td>Offer healthy food and set standards in public institutions</td>
<td>2, 3</td>
</tr>
<tr>
<td>Reformulation of food products to fortify with nutritious ingredients</td>
<td>3</td>
</tr>
<tr>
<td>School nutrition and physical activity programs</td>
<td>1, 3</td>
</tr>
<tr>
<td>Supplementation programs (folic acid and iron) and antenatal care</td>
<td>1, 2</td>
</tr>
<tr>
<td>Support healthy food production through price support to agriculture and consumers</td>
<td>3</td>
</tr>
</tbody>
</table>

**Intervention sources:**

Interventions selected for analysis

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Undernutrition</th>
<th>Overweight and obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breastfeeding promotion</td>
<td>Breastmilk contains vital nutrients during early development that help stimulate growth</td>
<td>Breastmilk provides the perfect amount of calories to the infant and helps mothers lose weight</td>
</tr>
<tr>
<td>School nutrition programs</td>
<td>Provides regular and nutrient-dense meals to improve growth</td>
<td>Healthy food options changes tastes and behaviors away from high fat and low nutrient foods</td>
</tr>
<tr>
<td>Food advertising</td>
<td>Increases desire to consume healthy, nutritious foods</td>
<td>Reduces desire to consume unhealthy foods</td>
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</tbody>
</table>
Challenges to research on DBM
Challenges

• Complex set of drivers and conditions
• Uneven and non-comparable data sources on forms of malnutrition
• Intergenerational factors that are both epigenetic and environmental
• Different impacts are important across the life cycle. For u/w, it will be physical and cognitive losses. For o/w, it will be productivity, social disadvantages
• Domains use different outcomes measures (undernutrition = linear growth, overweight/obesity = BMI)
• Most important is lack of evidence from double-duty interventions and programs (see eg, Ruel et al 2017, Hawkes forthcoming Lancet 2018)
Key Literature


Thank You

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