Territories and Health:

Feeding the city for health & wellbeing

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Kerri Farnsworth,
Founding Director, 360º Cityshapers

*PhD candidate in Spatial Planning & Territorial Engineering, IST-University of Lisbon*
What do we mean by ‘health’ and ‘wellbeing’?

‘Health’: a state of being encompassing physical, mental and emotional health, and not merely the absence of disease or infirmity. Good health is an ultimate goal of human life.

‘Wellbeing’: the dynamic process of living a healthy and fulfilling lifestyle, which the state of health can either enhance or diminish.

(after WHO, 2006)
Role of food & nutrition in health and wellbeing

Maslow's hierarchy of needs:

Self-actualization
Desire to become the most that one can be

Esteem
Respect, self-esteem, status, recognition, strength, freedom

Love and belonging
Friendship, intimacy, family, sense of connection

Safety needs
Personal security, employment, resources, health, property

Physiological needs
Air, water, food, shelter, sleep, clothing, reproduction

Social Determinants of Health

All of Us Research Program

360° CITYSHAPERS
How does food & nutrition impact health and wellbeing?

Direct impacts:
- weight
- coordination
- chronic illness risks
- stamina
- immunity
- development
- concentration
- fertility
- focus & recall
- homeostasis

Indirect impacts:
- depression
- anxiety
- stress
- socialisation
- self-esteem
- inclusion
- employment & educational attainment
Food security and Nutrition security

Food security:  having sufficient food to live an active healthy life

Nutrition security:  having consistent access to food which is affordable & available, and promotes wellbeing and prevents or alleviates disease *(USDA, 1990s)*

It is possible to be food secure, but also be nutrition insecure at the same time.
Current global levels of food insecurity

- 29.3% of global population experience food insecurity, with highest levels in developing countries, esp. Africa (FAO, “State of Food Security 2022”)

- not just an issue for developing economies:
  - 12.5% of households in USA (USDA, 2021)
  - 15.5% of households in UK (YouGov/Food Foundation, 2021)
  - 7% of households in EU (Eurostat, 2021)
  - EAPN Poverty Watch Report 2022 for Portugal: “increased evidence post-pandemic of food insecurity, and inability to eat healthy balanced diets” (i.e. nutrition insecurity)

*current food inflation (EU av. 18.1%) means levels of food insecurity + nutrition insecurity are likely to rise in 2023*
Current global levels of nutrition insecurity

- It isn’t monitored universally, and is harder to identify & measure
- Some measures eg. US ‘Healthy Eating Index’ (2005-2015), which surveyed US eating habits against recommended dietary guidelines. US average score in 2015 was 58 out of 100
- Lots of research evidence of impact of nutrition insecurity, eg. (eg. Abosy et al, 2022)

Nutrition insecurity is a direct cause of increased risk of:-

- Severe health outcomes & chronic diseases eg. diabetes, cardiovascular disease, asthma, hypertension, chronic obstructive pulmonary disease (COPD) and kidney disease
- Obesity & associated health problems eg. diabetes, CV disease, etc.
- Contracting infectious diseases eg. Hepatitis C, HIV, etc.
- Mental health issues eg. stress, depression, anxiety, compulsive behaviours

City leaders & policymakers need to better understand occurrence nutrition insecurity in their city, and its impacts on health & wellbeing
Who is at risk of nutrition insecurity in cities?

- low income areas - especially important in current context of high fuel costs & inflation, which reduce ability to prepare and/or cook fresh food or use healthier cooking methods

- groups with lower educational attainment, and/or reduced knowledge of nutrition & healthy food preparation

- unstable parental history eg. absence of one or both, incarceration, etc

- those facing housing instability and/or living in poor quality housing

- groups with pre-existing mental health issues, or are socially-isolated

- areas with limited provision of affordable fresh food outlets, or with low car ownership + poor public transport access to such outlets
Nutrition insecurity is not just about solid foods

**Dehydration**
- reduces optimal functioning of the brain
- being hydrated protects tissues, joints & spinal cord
  - 1% dehydration reduces productivity by 12%
  - 2% dehydration raises heart rate by 5% and can impair performance in tasks that require attention, psychomotor and immediate memory skills
  - 3% dehydration reduces cardiac output by 20%
  - 10% dehydration causes risk of death

**Demographic risks: elevated in:-**
- Elderly, due to lack of thirst sensation and changes in the water & sodium balance that naturally occur as people age.
- Children <2 years old due to greater body surface area to mass
- Hotter climates or heatwaves

https://hydrationhealth.com/pages/hard-workers
What is the cost of poor food & nutrition security?

**USA** *(Center For American Progress/Feeding America, 2019)*
- Related illness costs = US $130.5bn
- Lost value due to poorer educational outcomes and lower lifetime earnings = US $19.2bn
- Lost opportunity investment in contributions to food aid & welfare charities = US $17.8bn

**Europe** *(WHO / European Observatory for Health, 2017)*
- Costs to the state in France, Germany, Italy, Spain & UK combine of Type 2 diabetes due poor diet & inactive lifestyles = €883m
- Up to 7% of national health budgets in EU states spent on diseases linked to obesity each year (FAO, 2019)
- 70–80% of EU health care budgets (€700bn annually) spent treating chronic diseases due to poor diet & lifestyle

### Table: Cost of Unhealthy Diets

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimated annual economic costs of unhealthy diets (per capita*)</th>
<th>Definition of unhealthy diets</th>
<th>Perspective of cost estimation</th>
<th>Population base</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>€1.4 billion ($63)</td>
<td>Low levels of dairy consumption</td>
<td>Direct health care costs, not specified</td>
<td>General population</td>
<td>Doidge et al. (2012)</td>
</tr>
<tr>
<td>China</td>
<td>€4.5 billion ($3.5)</td>
<td>Diet high in saturated and trans-fat, low in fruit, vegetables and whole grains plus heavy alcohol drinking</td>
<td>Direct health care costs, not specified</td>
<td>General population</td>
<td>Popkin et al. (2006)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>€8.5 billion ($143)</td>
<td>Not defined</td>
<td>Direct health care costs, not specified</td>
<td>General population</td>
<td>Rayner &amp; Scarborough (2005)</td>
</tr>
<tr>
<td></td>
<td>€9.5 billion ($156)</td>
<td>Not defined</td>
<td>Direct health care costs, not specified</td>
<td>General population</td>
<td>Scarborough et al. (2011)</td>
</tr>
</tbody>
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*Note: * per capita costs calculated using United Nations population data (United Nations, 2015).
Global urbanisation: impact on food & farming

- declining ratio of food producers to consumers, not yet offset by intensification

- high levels of food insecurity in urban areas, esp. in developing world

- globalisation of food supply chains has increased in many parts of the world - **BUT**

  *COVID-19, military conflict, climate change events etc, have highlighted structural weaknesses and susceptibility to systemic shocks.*

  *SDG2 ‘Zero Hunger by 2030’: progress to 2019 has been undone, and global measures are now worse than in 2015*

- increased popular interest in environmental impact of food chains, sustainability, biodiversity, provenance of food, food miles, etc (*‘localisation’*)
Food availability challenges in cities today

**Food Deserts**
- Urban areas that lack sufficient facilities to buy healthy or fresh food, or rural areas with limited accessibility to do same
- Particular impacts neighbourhoods with high levels of poverty and high levels of ethnic minority residents

**Food Swamps**
- Areas with an oversupply or dominance of junk food/fast food outlets offering food of poor nutritional value eg. high levels of sugar & saturated fats, low nutrient levels, etc
- Very strong predictor of high levels of obesity and associated diseases eg. diabetes
What is the role of urban food systems in promoting health & wellbeing in cities?
The ideal urban food system: characteristics

- can accommodate natural system stresses (e.g., floods, drought) and is resilient to sudden shocks e.g., COVID-19, supply chain ruptures, etc.
- is affordable and equally accessible to all geographies and all socio-demographic groups
- promotes diverse & healthy nutritional intake
- encourages minimisation of food waste and promotes circular economies

30% of global human food produced is lost or wasted; food waste alone generates 8%-10% of global greenhouse gas emissions, more than every individual country except USA and China (FAO, 2022)

- minimises environmental impact e.g., in production, food miles, supports & increases biodiversity, etc
- increases awareness & skills in food preparation & cooking; cultivation; provenance; ethics; local culture
- enables social inclusion, community engagement & bonding, and reverses existing social inequalities
- facilitates high levels of food biosecurity
- provides year-round local economic development and employment opportunities
A model urban food system
Use of existing toolkits and best practice

e.g. “Food Urbanism”
Craig Verzone & Cristina Woods (2021)

1 of 5 projects chosen by Swiss National Science Foundation to “research & evidence innovative ways to achieve urban development, redevelopment and planning in Switzerland” over a 10-year timeframe.
A typology-based classification system to create a toolkit to guide urban food production

nature of sites  rooftops, streets, parks, balconies, collective housing, water-edges, industrial/former industrial sites

type of grower  households, children, retirees, guerilla gardeners, community activists

scale of food production  by size

nature of production  individual (eg. individual: container, balcony, garden, allotment), collective or professional

motivations  financial, wellbeing, self-sufficiency, environmental, social, pedagogical, etc

urban forms  transition space, landmark, corridor, productive pocket, viewpoint, etc
“Food Urbanism” case study: Parc Agro-Urbain, Bernex, Geneva

Europe’s first designated urban agriculture park

- 114ha site on W peri-urban edge of Geneva
- Identified as a new sustainable neighbourhood for 16,000 people
- 8ha multi-functional park combines leisure, agricultural & sport uses, with a public square, play areas, seating & shaded areas
- Diversity of agricultural uses, including orchards, grazing, small-scale cultivation, community allotments, a small urban farm (huerta), etc
- Construction started mid-2019, due to open 2023
Parc Agro-Urbain, Bernex, Geneva

- a place of exchange & reconciliation between urban and rural activities
- seasonality a key landscape strategy to encourage interactivity
- 1st element built was tramway link to the city
- strong community engagement support eg. produce grown onsite can be sold at the shop in the onsite urban farm

Treelines will act as a natural barrier between the park and the adjacent busy road
Use existing research evidence

“What are the health and well-being impacts of community gardening for adults and children?”, Lovell et al (2014)

Direct impacts
- ↑ individual nutritional status
- ↑ fresh fruit & vegetables intake
- ↑ awareness & knowledge of healthy eating
- ↑ physical activity
- ↓ food insecurity
- ↓ poverty

Indirect impacts
- ↑ mental health
- ↑ sense of achievement, community value & belonging
- ↑ social inclusion and community participation
- ↓ stress

DOI: https://doi.org/10.1186/2047-2382-3-20
Use existing city exemplars eg. Nantes, France

- thriving mercantile & shipping city up to 20th Century, and historical European centre for food processing & canning industries
- significant industrial decline in 1970s-1980s led to high rates of unemployment, poverty & socio-economic exclusion
- metropolitan region still 60% rural, so remained key to local food supply chains
- 1990s: new strategy to regenerate city by modernising pre-existing agricultural strengths, and for region to be 95% self-sufficient by 2030
Nantes, France

Actions

- Significant investment in R&D in agri-tech eg. food biosecurity, new processing & preservation techniques
- Neighbourhood-level urban acupuncture: residential allotments, peri-urban huertas, pop-up gardens, educational initiatives, communal food recycling & composting - esp. focus of turning previous ‘wastelands’ into food-producing land
- Integrated communal planting/landscaping strategy to increase biodiversity & climate change resilience
- Strengthening of food chain sustainability and local resilience eg. investment in professional agricultural training & skills

Outcomes to date

- 451ha of wasteland now food-producing; 30 existing peri-urban farms supported/created; 18% increase in organic farming land
- Nantes Agropolia agri-food cluster created 2,300 jobs up to 2021; increased av. wages and reduced seasonality of employment
- Ranked best city in France for social cohesion and 1st or 2nd French Quality of Life city rankings since 2014
- 85% of households believe that the way they eat influences their state of health
- New 180ha agri-eco urban extension (Doulon-Gohards): 2500 new homes, 3 urban farms with min.15ha organic-only, 6 agri-parks
- New BSc in Urban Agriculture at Nantes Université
Les Jardins des Fonderies industrial re-use

Le potager du Cantine, Ile de Nantes

retrofit residential container gardening

urban mini-farm, Quai de la Loire

new residential allotments
Les Jardins des Plants children’s ‘edu-play’ area, Nantes Museum Quarter
Summary

- Poor food & nutrition cost billions in additional state / private health costs, reduced productivity & educational attainment and lost opportunity costs.
- Recent system shocks (COVID-19, Ukraine war) demonstrate how secure healthy urban food systems are essential to create sustainable resilient cities.
- Cities need to identify & intervene in nutrition insecurity as well as food insecurity.
- There is substantial existing research evidence, toolkits, case studies, exemplar cities, etc., to analyse & develop bespoke intervention frameworks in neighbourhoods, cities, etc.
- Success requires a long-term commitment to a multi-dimensional strategy which addresses all aspects of the urban food system, in particular community ‘behavioural nudges’ and economic interventions.
Obrigada!

Kerri Farnsworth, 360º Cityshapers
e: kerri@360cityshapers.com
www.360cityshapers.com