Overweight and obesity among Indigenous children: Individual and social determinants

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Outline

1. Overweight and obesity in Indigenous children
2. The social determinant approach
3. The Longitudinal Study of Indigenous Children
4. Case study: soft drink consumption
5. Conclusions and policy implications
[1] BACKGROUND
Background: health disparity

- Health disparity between Indigenous and non-Indigenous Australians
  - Gap in average life expectancy ~ a decade
  - 2x as likely to die from coronary heart disease
  - 3x times as likely to have diabetes

Background: overweight and obesity

- Obesity is a major reason for this health disparity\(^a\)
  - Linked to conditions such as diabetes and heart disease
  - Increased rates of overweight and obesity among Indigenous people\(^b\)

\(^a\) Vos DT. 2003. \(^b\) Australian Bureau of Statistics.
Background: overweight and obesity

• Obesity is a major reason for this health disparity\(^a\)
  – Linked to conditions such as diabetes and heart disease
  – Increased rates of overweight and obesity among Indigenous people\(^b\)
  – The increased obesity rate is responsible for 1-3 years of the 10-year gap in life expectancy\(^a\)

Obesity among Indigenous and non-Indigenous females in 2011-2013

- **Australian Aboriginal and Torres Strait Islander Health Survey**
- **Australian Health Survey**

### Key Findings

- **50.7%** vs. **33.7%**

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>Indigenous Obesity</th>
<th>Non-Indigenous Obesity</th>
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<tbody>
<tr>
<td>2-14</td>
<td>10.6%</td>
<td>6.9%</td>
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<tr>
<td>15-17</td>
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<td>18-24</td>
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<td>25-34</td>
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<tr>
<td>35-44</td>
<td>50.7%</td>
<td>33.7%</td>
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<tr>
<td>45-54</td>
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<tr>
<td>55+</td>
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Background: overweight and obesity

• Increased rates of obesity as early as 2-14 years
• Gap increases with age
• Childhood = critical period
  – Opportunity to prevent the widening of the gap in obesity rates
  – “Obese-years” – duration and severity of obesity both matter
  – Preventing obesity in childhood could reduce the burden of disease in adulthood and help ‘Close the Gap’
• Rates of obesity in childhood might be increasing

Trends over time in childhood overweight and obesity in NSW

- Representative surveys of children aged 5-16 years in 1997, 2004, and 2010
- 18,983 children (507 Indigenous)
- Higher prevalence of overweight and obesity
- Faster increase in prevalence over time
- Serious implications for burden of disease in adulthood

Causes of obesity

• Complicated
  – Genetics, exposures during pregnancy
  – Individual traits and behaviours
  – Socioeconomic, cultural, and environmental factors
  – Historical and political context

• Direct cause: energy in > energy out
  – E.g. unhealthy diet
  – Shaped by the broader context
Example: economic factors influence diet

Relationship between the energy density and energy cost of foods at a remote community store

- **Energy dense (unhealthy)**
  - Oil
  - Margarine
  - Sugar
  - Rice and flour
  - 600 ml Coke
    - ~ 1000 KJ
    - ~ $3

- **Nutrient dense (healthy)**
  - White bread
  - Potato
  - Carrot
  - Apple
  - Orange
  - Broccoli
  - Cucumber
  - Vegetable
    - 1000 KJ ~ $10

- **Affordable Foods**
  - "Long-life"

- **Less expensive per energy provided**
- **Energy cost ($/energy)**
- **More expensive per energy provided**
Example: economic factors influence diet

- Financial strain supports the consumption of “long-life” foods
  - Prevent hunger; stored without refrigeration
- Supported by qualitative evidence
- Other social, cultural, and environmental factors also influence food choice
  - Limited quantitative evidence
  - Qualitative evidence – e.g. education

Example: education influences diet

*On buying Coke or lollies:*

It’s wasting money and is not good for them and there is too much sugar in them. I learned this at school.

-- *Young mother*

Mothers say ‘yes’ because they don’t have the full information on good food ... If she knows the story she can close her heart to this bad food ... Children need an education background before they have children.

-- *Grandmother*
[2] THE SOCIAL DETERMINANT APPROACH
The need for a new approach

- Childhood obesity is an important issue
- Obesity is caused by a complex set of factors
- Programs/policies focus on individual behaviours
  - Lifestyle modification
  - Limited success
The individual approach (lifestyle modification)

- Put blames on the individual: “altering ‘bad’ behaviours among ‘bad’ people”
- Ignores the broader context and how it shapes/constrains individual behaviour

Brown, A. New Zealand Obesity Society Annual Scientific Meeting. 2011.
The social determinant approach

Individual behaviours

Obesity
The social determinant approach

- Environmental factors
- Socioeconomic and cultural factors
- Individual behaviours
- Obesity

- Remoteness
- Area-level disadvantage
- Historical and political context

- Income
- Education
- Housing
- Culture
The social determinant approach

• Increasing attention to social determinants of health
  – 2008 World Health Organization Report

• As of 2013, Australia had not responded to the Report

• Parliamentary Inquiry – March 2013
  – Tri-partisan agreement to adopt social determinant approach (Labor Party, Liberal Party, Greens)
  – Little action since 2013
National Press Club (20 August 2014)

A Year of Nothing: Why Australian Governments need to respond to the social determinants of health
Why isn’t action being taken?

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Solution</th>
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<tbody>
<tr>
<td>No data</td>
<td><strong>Longitudinal Study of Indigenous Children</strong></td>
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<tr>
<td></td>
<td>• Publicly available; data on individual and broader factors</td>
</tr>
<tr>
<td></td>
<td>• Can investigate what factors lead to healthy behaviour</td>
</tr>
<tr>
<td></td>
<td>and positive outcomes</td>
</tr>
<tr>
<td>No capacity to analyse the data</td>
<td><strong>Multilevel modelling</strong></td>
</tr>
<tr>
<td>• Complex relationships</td>
<td>• Not yet common within Indigenous health research</td>
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<tr>
<td>• Distant causal pathways</td>
<td>• Enables analysis of individual and area-level factors</td>
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</table>
[3] THE LONGITUDINAL STUDY OF INDIGENOUS CHILDREN
The Longitudinal Study of Indigenous Children

• First **national** longitudinal study of Aboriginal and Torres Strait Islander children

• Over 1,000 children followed over time

• Data on individual health behaviours and health outcomes, as well as socioeconomic, cultural, and environmental factors

• Based on strong community partnerships and governance
The Longitudinal Study of Indigenous Children

2011 survey:
- Interviews with 1,282 children
- Aged 3-9 years

Not a representative study
Provides a picture of life for children living in diverse environments
[4] CASE STUDY
Case study

Purpose:
- To demonstrate that individual behaviours associated with obesity are shaped by the broader context
- Focusing on one behaviour: soft drink consumption
  - Many more relationships could be explored in LSIC

Question:
What is the association between the social determinants and the consumption of soft drink in LSIC?
Case study

Why soft drinks?
(soft drinks, cordial, sports drinks)

- High in calories, nutrient poor
- Often cheap, highly advertised
- Linked to obesity in children (+ dental caries)
- Rates of soft drink consumption are perceived as a concern in some Indigenous communities
- Lack of research examining factors associated with soft drink consumption
Soft drinks

From a focus group with Aboriginal families in Victoria:

“I try and buy heaps of fruit but it’s just that Coke always ends up at home. I’ll get a can and it’s... drunk by everyone else. It’s the Coke that’s a killer in our black kids.”

10 teaspoons sugar
16 teaspoons sugar
27 teaspoons sugar
Characteristics of LSIC children (2011)

• 51% had consumed soft drink the previous day
  – Children 3-9 years old
Characteristics of LSIC children (2011)

- Underweight: 4%
- Normal weight: 79%
- Overweight and obese: 17%
Multilevel model: results

- **Low maternal education**: odds 34% higher (vs high maternal education)
- **Unstable households**: odds 64% higher (than stable households)
- **Urban areas**: odds 2-3 times as high as in regional and remote areas
- **Disadvantaged neighbourhoods**: odds 2-3 times as high as in the most advantaged areas

Discussion

• Soft drink consumption is influenced by social determinants
  – Education (e.g. nutrition awareness, or indicator of higher SES)
  – Housing stability (e.g. ability to store and cook food; stress)
  – Neighbourhood disadvantage (e.g. low access to healthy foods)

• Uncovers a problem of increased soft drink consumption in urban areas (e.g. prominence of fast food stores and 24-hour shops)
[5] CONCLUSIONS AND POLICY IMPLICATIONS
Conclusions

Case study:

• Quantitative evidence that the social determinants are associated with individual behaviours related to obesity

• It’s not ‘too complicated’ to explore these issues

• One example
  – Potential for more research using LSIC to inform evidence-based policy
Policy implications

Childhood obesity:

• Programs and policies should not only focus on the individual
• Can’t change behaviour without addressing the context
• Need to target broader factors – education, housing, disadvantage
  – Work with communities to learn what programs might work
• This approach would require action across sectors
Aboriginal health policy: is nutrition the ‘gap’ in ‘Closing the Gap’?

Jennifer Browne,1,2 Rick Hayes,1 Deborah Gleeson1

- Searched all Aboriginal health policy documents 2000-2012
  - National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan, 2000–2010
- First and only national Aboriginal nutrition strategy
- Called for action on social determinants; action across multiple sectors
- Evaluation not published
- **Conclusion**: we need a national policy that is cross-sectoral and uses a social determinant approach to improve nutrition and ‘Close the Gap’
Acknowledgements

• The Aboriginal and Torres Strait Islander families who participated in the study, and the Elders of their communities

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• Professor Sharon Friel and Dr Nasser Bagheri from the Australian National University
Thank you!

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References


Reference slides
Study methods: multilevel modelling
<table>
<thead>
<tr>
<th>Interview sites</th>
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<tbody>
<tr>
<td>1. Western Sydney</td>
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<tr>
<td>2. NSW South Coast</td>
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<tr>
<td>3. Dubbo</td>
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<tr>
<td>4. Greater Shepparton</td>
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<tr>
<td>5. South East Qld</td>
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<tr>
<td>6. Mount Isa and remote Western Queensland</td>
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<td>7. Torres Strait Islands and Northern Peninsula Area</td>
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<tr>
<td>8. Kimberley region</td>
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<tr>
<td>9. Adelaide</td>
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<tr>
<td>10. Alice Springs</td>
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<td>11. NT Top End</td>
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Defining the neighbourhood level: Indigenous Areas

• Randomised Indigenous Areas codes
  – Medium-sized geographic units
  – Coded randomly in LSIC (to protect privacy)
  – Not possible to link individuals to their physical geographic location
  – Enables grouping of individuals living in the same Indigenous Area

• 141 of the 429 Indigenous Areas are represented in LSIC

• Between 1 and 112 LSIC children in each Area
Methods: multilevel modelling

1. Can account for the clustered study design
Multilevel model
Multilevel model

1. Can account for the clustered study design
2. Can examine factors acting at multiple levels
Multilevel model

Neighbourhood

Individual

Outcome

Area-level disadvantage

Parental education

Soft drink
Index of Relative Indigenous Socioeconomic Outcomes decile

- Value of 1 (lowest) to 10 (highest)
- Based on nine variables
  - 3 related to employment,
  - 3 related to education
  - 2 related to housing
  - 1 related to income.
- Calculated at the Indigenous Area level
- IRSEO is calculated specifically for Indigenous Australians
Policy context; Report on SDH
Policy context: promising?

Evidence is not sufficient for action without timely political support

1. 2013-2023 National Aboriginal and Torres Strait Islander Health Plan
   Advocates for a holistic, social determinants approach

2. Prime Minister Tony Abbott’s Closing the Gap Report, February 2014
   Alluded to the importance of the social determinants of health

3. Senator Fiona Nash (Assistant Minister for Health), implementation plan, 24 June 2014
   ‘The Government is updating the Health Plan to reflect the Coalition's approach and priorities in Indigenous affairs. In particular, the updated Plan will recognise the links between health and the key social determinants of education, employment and community safety.’

4. Action?
Policy context: constraints

Interviews with:
- Former and current ministers
- Senior policy makers
- Lobbyists
- Senior Policy Advisors

Do efforts to address the social determinants suit the Australian political context?

What evidence on the social determinants is most relevant to policy?
## Policy context: constraints

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<thead>
<tr>
<th>Objective</th>
<th>Policy constraint</th>
<th>Potential approach</th>
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<tbody>
<tr>
<td><strong>Cross-sectoral policies</strong></td>
<td>Government is siloed</td>
<td>Indigenous Affairs now together under PM&amp;C</td>
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<td></td>
<td>Large-scale action perceived as exceeding government’s capacity</td>
<td>Break down into (low-risk) pieces with identifiable solutions</td>
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<tr>
<td><strong>Political will</strong></td>
<td>Competing demands – not seen as a pressing issue</td>
<td>Use emotions and morals + evidence; build community demand for change</td>
</tr>
<tr>
<td></td>
<td>Need political will and no major opposition</td>
<td>Currently in a policy window?</td>
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Government departmentalism makes action difficult

“We run in silos, we’re trying to get cross-departmental stuff happening, but this is walking, talking, chewing gum – walking and talking in five languages – and chewing gum.”

-- Participant 1
Evidence is not as important as winning votes

“[Just because] something might be printed in the New England Journal of Medicine, or the Lancet or the BMJ … it wouldn’t get the time of day unless it was accompanied by market research that showed what the impact of that would be in marginal seats.”

-- Participant 5
Report: Taking action on the SDH

Moral/ethical arguments are at the core of policy making

“… not to de-couple [evidence and advocacy] … I think the approach is to critique the notion of evidence-based policymaking and to get behind the notion that public policymaking is about ethics and reality. The philosophical cannot be ignored and it cannot be circumnavigated by data and analysis.”

-- Participant 7
Previous Minsters’ perceptions of SDH

“Indigenous health was clearly an area where social determinants were far more important than any service the Health Department might or might not deliver. In the absence of really substantial investment in housing and infrastructure in the remote areas in particular there wasn’t going to be much improvement in the quality of peoples’ lives.”

-- Federal, ALP, 1990s