Housing and Overcrowding in Remote Indigenous Communities: Impacts & Solutions from a Holistic perspective

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Mapping the Course

Why is Housing & Overcrowding an issue?

Energy Efficiency Project

Energy Consumption: Tropical climate, Indigenous Culture, House Design & Overcrowding

Impacts of House Design & Overcrowding: Holistic Perspective

Take Home Messages
Why is Housing & Overcrowding an Issue?

- Over 40,000 years before European colonisation → Australian Indigenous people experienced high levels of health and wellbeing
  
  (Dudgeon, Milroy & Walker, 2014; Griffith, 2015; Lawler, 1995; Purdie, Dudgeon & Walker, 2010)

- Today → Australian Indigenous people are experiencing significant health and social issues
  
  (Dudgeon, Milroy & Walker, 2014; Griffith, 2015; Lawler, 1995; Purdie, Dudgeon & Walker, 2010)
<table>
<thead>
<tr>
<th>Health &amp; Social Determinants</th>
<th>Comparison of Indigenous to non-Indigenous population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Health</strong></td>
<td></td>
</tr>
<tr>
<td>Hospitalisation for cardiovascular disease</td>
<td>67% higher</td>
</tr>
<tr>
<td>Rheumatic heart disease</td>
<td>9x higher</td>
</tr>
<tr>
<td>Diabetes</td>
<td>3x higher</td>
</tr>
<tr>
<td>Hospitalisation for diabetes</td>
<td>6x higher</td>
</tr>
<tr>
<td>End stage renal disease</td>
<td>8x higher</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Retention rate year 7/8 to 12</td>
<td>43% compared to 76%</td>
</tr>
<tr>
<td><strong>Safety &amp; Criminal Justice</strong></td>
<td></td>
</tr>
<tr>
<td>Victims of violence</td>
<td>2x more likely</td>
</tr>
<tr>
<td>Substantiated child protection notification</td>
<td>32/1000 versus 2/1000</td>
</tr>
<tr>
<td>Prison</td>
<td>13x more likely</td>
</tr>
<tr>
<td><strong>Mental illness</strong></td>
<td></td>
</tr>
<tr>
<td>related substance abuse</td>
<td>men hospitalised &gt; 4x more</td>
</tr>
<tr>
<td>rate for severe chronic mental illness</td>
<td>&gt; 2x more</td>
</tr>
<tr>
<td>death rates</td>
<td>12x for men &amp; 20x for women</td>
</tr>
<tr>
<td>suicide</td>
<td>3x more</td>
</tr>
<tr>
<td><strong>Employment &amp; income</strong></td>
<td>significantly less opportunities &amp; lower</td>
</tr>
<tr>
<td><strong>Racism</strong></td>
<td>widespread</td>
</tr>
<tr>
<td><strong>Poverty</strong></td>
<td>significant proportion live in absolute poverty</td>
</tr>
<tr>
<td>as defined by the UN = severe deprivation of basic</td>
<td></td>
</tr>
<tr>
<td>human needs (e.g., food, shelter, health, education)</td>
<td></td>
</tr>
<tr>
<td><strong>Stress levels</strong></td>
<td>significantly higher particularly in remote</td>
</tr>
<tr>
<td>(death, serious illness or disability,</td>
<td>communities</td>
</tr>
<tr>
<td>alcohol &amp; drug related problems, family</td>
<td></td>
</tr>
<tr>
<td>member in jail</td>
<td></td>
</tr>
<tr>
<td></td>
<td>52% &gt; 2 stressors over previous 12 months</td>
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<tr>
<td></td>
<td>27% &gt; 4 stressors over previous 12 months</td>
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<tr>
<td></td>
<td>significant number of children live in families that</td>
</tr>
<tr>
<td></td>
<td>experienced &gt; 7 stressors in previous 12 months</td>
</tr>
<tr>
<td></td>
<td>malignant grief</td>
</tr>
<tr>
<td><strong>Life expectancy</strong></td>
<td>~ 12 years less for males &amp; ~ 10 years less for</td>
</tr>
<tr>
<td>females</td>
<td></td>
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</tbody>
</table>
Why is Housing & Overcrowding an Issue?

- Housing & overcrowding are widespread problems especially in remote Indigenous communities → > 48% of adults live in overcrowded conditions in remote Indigenous communities

(ABS, 2008; Purdie, Dudgeon & Walker, 2010)
Energy Efficiency Project

Aims:

- Trialling energy efficiency education & technologies
- Identifying barriers & developing engagement model

Project

- $12.4 million consortia project over 3 years
- with 6 remote Indigenous communities in NT
- Community-based PAR
- Employed & educated:
  - over 80 Indigenous educators
  - 18 Indigenous co-researchers
Energy Efficiency Project

Quantitative Component
- taggle data loggers installed in > 600 houses
- thermal comfort study measured TC variables specific to tropical climates in 6 households over 6 months → heat index
- household surveys collected # of participants in house

Qualitative Component
- employed & educated 18 local Indigenous co-researchers across all 6 communities
- CoR → 129 (40/85) in-depth interviews in local languages across all communities
- non-Indigenous researcher → > 3 months living in communities & conducting 24 in-depth interviews with non-Indigenous community members
- interviews analysed using content, thematic & narrative analysis + checked by lead Indigenous CoR
Energy Consumption: Tropical climate, Indigenous Culture, House Design & Overcrowding

- **tropical monsoonal climate**
  - dry season May – Oct cooler: >30 degrees but lower humidity 60-65%
  - wet season Nov - April experienced as very hot: >30 degrees and humidity of up to 80%; 45 to 0 degrees celsius

- **before European colonialisation** ➔ Yolŋu skillful in designing and building a variety of temporary houses adapted to their culture & monsoonal climate

- **now** ➔ Yolŋu experience thermal discomfort & need to use mechanical cooling appliances to experience thermal comfort
Number of People living in Houses

- Quantitative data → on average 9 people live in a house
- Qualitative data → actual tenancy commonly higher especially during ceremonies

Correlation power consumption per household & number of occupants

↑ people live in a house = ↑ household energy consumption but ↓ energy consumption per person
1st glance → overcrowding = means to conserve power consumption
Only valid from narrow short-term focus → masking complex ways in which house design & overcrowding contribute to:
  • increasing power usage
  • amplifying health & social issues

2nd glance → housing design might be one of the largest levers for increasing household energy efficiency
Impacts of House Design & Overcrowding: Holistic Perspective

House Design

- inappropriate for tropical climate and culture & poor quality
- typically heat up above typical thermal comfort zone & take long time to cool down → some Yolŋu leave air conditioners on when nobody is in the house and when they are away for a long time
- Yolŋu typically prefer cooking outside, sitting outside in the shade and sleeping outside → outdoor living spaces that are sheltered from rain, are secure & allow using fire safely would enable Yolŋu to spend more time outside & sleep outside even while raining or cool
- living more outside using traditional ways of living
- would increase Indigenous health and wellbeing

(Griffith, 2014; Lawler, 1992; Purdie et al., 2010)
Overcrowding & Impacts – examples

- many Yolŋu from different generations have to sleep in one room → necessitating
  - increased use of air conditioning or heat stress
  - distress → mental & physical health issues
  - impair sleep quality & duration → too tired to attend school or work

- Many Yolŋu are sleeping outside or in tents → increases the risk of being bitten by dogs or snakes & of women being harmed
Responsibility Diffusion $\rightarrow$ less motivation to use power efficiently, conflicts among householders, dependency on welfare & distress

- unemployed & younger house tenants rely on people who work to pay for power based on the practice of reciprocity
- tenants observing other household members using a lot of power
- neighbours who run out of credit on their power cards using their power via power cords and/or using their washing machines

Washing Clothes Challenge $\rightarrow$ Employment & School Attendance

- washing machine running constantly $\rightarrow$ frequent break downs & can’t wash
- children less likely to attend school & adults less likely to go to work

Disconnections
- amplification of ALL issues
- medication storage, food storage and thus diet, sleep quality, hygiene, and washing of clothes are all under threat $\rightarrow$ distress
Impacts on energy use, health/well-being, employment & education

- life experienced as hard & stressful
- reduces sleep quality & duration
- reduce mental health
- reduce energy levels
- increase of prevalence of chronic disease & spread of disease
- to cope increase alcohol & drug use
- impact especially pronounced for sick & disabled (big concern)

- children not attending school, adults not working & people being sick
  → more householders stay at home = increasing power consumption
  → using more power for devices they need to manage their disease
  → reducing employment chances & welfare dependency
  → Increase in health costs
  → not being able to live on and care for country
Take Home Messages

House design, energy usage, overcrowding, physical & mental health, employment, welfare dependency & education interact over time → interdependent

Inappropriate & insufficient housing is a key contributor
Key lever → designing & building houses suitable for the specific
- climatic conditions
- local Indigenous culture and society

merging traditional and local Indigenous knowledges and skills AND Western knowledges, technologies and skills

- indigenous house designs outperform modern designs in energy efficiency
- sustainable architecture utilizes local traditional materials, designs and technologies

(Bay, Joo-Hwa & Boon-Lay Ong, 2006; Gupta, 1984; Stang & Hawthorne; 2005)
central position of housing in web of disadvantage → worldwide governments now focus on improving housing for Indigenous people

(Dillon, 2007; Henry, 2007; Purdie et al., 2010; Social Health Reference Group, 2004)

- more holistic perspective → issues could be addressed more effectively
- possibility of governments as whole, rather than different departments, accomplishing effective outcomes cost-effectively
Thank you

Full paper:


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