Research Stream

LiLACS NZ
- People in advanced age, a rural perspective

Professor Ngaire Kerse
LiLACS NZ – People in advanced age, a rural perspective

Ngaire Kerse, FRNZCGP, PhD, MBChB
School of Population Health
7-8 year disparity in longevity

Te Puāwaitanga o Ngā Tapuwae Kia Ora Tonu-LiLACS NZ

*Establish predictors of successful ageing*

- Bay of Plenty and Lakes DHBs
- Equal explanatory power Māori and non-Māori
- Recruited **421 out 766 Māori** 80-90 years (56%)
- **Non Māori 516 out of 870** (59%)
- Visit every year until death

**Measures – Core and Full**

- Diagnoses
- Nutritional intake
- Mental health
- Health
  - Quality of life – SF-12
  - Mortality
**LiLACS NZ**

**Health behaviours**
- Alcohol
- Smoking
- Physical activity
- Social activities

**Multi-morbidity**
- Diagnoses
- Mortality
- Hospitalisations

**Nutritional intake**
- Macronutrients
- Food sources

**Regional differences**
- Functional change
<table>
<thead>
<tr>
<th></th>
<th>Māori</th>
<th>Non-Māori</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>254/421</td>
<td>400/516</td>
<td>654/937</td>
</tr>
<tr>
<td>Age (sd)</td>
<td>82.7 (2.8)</td>
<td>84.6 (0.5)</td>
<td>83.8 (2.1)</td>
</tr>
<tr>
<td>Gender Men</td>
<td>176 (42%)</td>
<td>237 (46%)</td>
<td>413 (44%)</td>
</tr>
<tr>
<td>Residential Care</td>
<td>30 (7%)</td>
<td>44 (9%)</td>
<td>74 (8%)</td>
</tr>
<tr>
<td>Lives alone</td>
<td>110 (41%)</td>
<td>195 (48%)</td>
<td>305 (46%)</td>
</tr>
<tr>
<td>Deprivation</td>
<td>7.6 (2.3)</td>
<td>6.4 (2.3)</td>
<td>6.9 (2.4)</td>
</tr>
<tr>
<td>Smoking current</td>
<td>43 (11%)</td>
<td>24 (5%)</td>
<td>67 (7.4%)</td>
</tr>
<tr>
<td>Smoking ever</td>
<td>188 (46%)</td>
<td>225 (44%)</td>
<td>413 (45%)</td>
</tr>
<tr>
<td>Physical activity</td>
<td>111 (81)</td>
<td>99 (66)</td>
<td>104 (73)</td>
</tr>
<tr>
<td>Alcohol use in last month Never</td>
<td>120 (47%)</td>
<td>105 (26%)</td>
<td>225 (35%)</td>
</tr>
<tr>
<td></td>
<td><strong>Rural living</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>73 (29%)</td>
<td>15 (4%)</td>
<td>88 (13%)</td>
</tr>
<tr>
<td>Disability 0-14/22 NEADL</td>
<td>44 (17%)</td>
<td>63 (16%)</td>
<td>107 (16%)</td>
</tr>
<tr>
<td>N meds</td>
<td>5.0 (3.3)</td>
<td>5.4 (3.5)</td>
<td>5.2 (3.4)</td>
</tr>
<tr>
<td>Comorbidity score</td>
<td>4.7 (2.5)</td>
<td>4.9 (2.2)</td>
<td>4.8 (2.3)</td>
</tr>
<tr>
<td>Mortality</td>
<td>100 (24%)</td>
<td>109 (21%)</td>
<td>209 (22%)</td>
</tr>
</tbody>
</table>
Deprivation index

Māori

NonMāori

Count

Least

Most

Gender

Male

Female

Count

Least

Most
NZDep

Rural

Māori

Non-Māori

Urban

Māori

Non-Māori
Education

Māori

Non Māori

Māori

Gender

male

female

Percent

0.0%

10.0%

20.0%

30.0%

40.0%

50.0%

Primary

secondary

completed secondary

trade

tertiary

Education

nonMāori

Gender

male

female

Percent

0.0%

10.0%

20.0%

30.0%

40.0%

50.0%

Primary

secondary

completed secondary

trade

tertiary

Education
Figure 2 Living arrangement, by sex and ethnic group.

Source: LiLACS NZ first wave of data collection
Note: living with spouse included partners
physical health related QOL

![Chart showing physical health related QOL for non-Māori and Māori, with gender comparison for men and women.](chart_image)
mental health related QOL

[Bar chart showing mean NEMC MENTAL HEALTH T-SCORE for Non-Māori and Māori, comparing men and women.]
All things considered, how satisfied are you with your life as a whole these days?
Alcohol use and mortality

How often do you have a drink containing alcohol

Mortality proportion

NS
Smoking and mortality

<table>
<thead>
<tr>
<th></th>
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<th>nonMāori</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>0.08</td>
<td>0.0000</td>
</tr>
<tr>
<td>Gender</td>
<td>0.06</td>
<td>0.001</td>
</tr>
<tr>
<td>Health,dep</td>
<td>0.12</td>
<td>0.001</td>
</tr>
</tbody>
</table>

N condition, n meds, deprivation index
Physical activity and mortality

<table>
<thead>
<tr>
<th></th>
<th>Māori</th>
<th>nonMāori</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>0.032</td>
<td>0.035</td>
</tr>
<tr>
<td>Gender</td>
<td>0.000</td>
<td>0.018</td>
</tr>
<tr>
<td>Health,dep</td>
<td>0.008</td>
<td>0.80</td>
</tr>
</tbody>
</table>

*N condition, n meds, deprivation index, residential care*
Social engagement

- Self-reported activities
- Grouped into mental, physical, social, and productive* if participation in 1+ activity in that group and at least monthly
- Mental activities
  - reading newspapers/books, writing, painting/drawing, doing puzzles/Sudoku/board games
- Physical activities
  - walking, gymnastics, swimming, yoga, dancing, golf, cycling, Kendo
- Social activities
  - attending the theatre/concerts/art exhibitions, travelling, playing cards/games, participating in social groups/organisation for older people
- Productive activities
  - gardening, housekeeping, cooking, working for pay, doing volunteer work, sewing/knitting/crocheting/weaving

Social activities

Māori  nonMāori

P  0.013  0.22
Gender  0.022  0.086
Health,dep  0.060  0.332

N condition, n meds, deprivation index, residential care
Nutrition

- Detailed recall of food over last 24 hours
  - MPR24 hours x 2
- Coded and entered FOODFiles
- Aggregated all nutrients
- Macronutrients – CHO, Fat, Protein
- Total energy
- Food groups
# Macronutrient intake

<table>
<thead>
<tr>
<th></th>
<th>Māori</th>
<th>Non-Māori</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Number</td>
<td>92</td>
<td>124</td>
</tr>
<tr>
<td>Age (years)</td>
<td>82</td>
<td>83.5</td>
</tr>
<tr>
<td>Energy intake (kcal/kg)</td>
<td>50.2</td>
<td>41.9*</td>
</tr>
<tr>
<td>CHO intake (g/kg/day)</td>
<td>2.7</td>
<td>2.3*</td>
</tr>
<tr>
<td>% Energy CHO</td>
<td>43.0</td>
<td>43.5*</td>
</tr>
<tr>
<td>Protein intake (g/kg/day)</td>
<td>1.05</td>
<td>0.87</td>
</tr>
<tr>
<td>% Energy protein</td>
<td>16.3</td>
<td>16.3</td>
</tr>
<tr>
<td>Fat intake (g/kg/day)</td>
<td>1.07</td>
<td>0.92</td>
</tr>
<tr>
<td>% Energy fat</td>
<td>38.3</td>
<td>38.7</td>
</tr>
</tbody>
</table>
Total energy Māori
Total energy non-Māori

[Bar charts showing calorie intake for different categories for non-Māori men and women.]
Health behaviours differ between ethnic groups

Physical and social activity more important for Māori, smoking more important for non-Māori

Nutritional intake differs

Bread, potatoes, milk, important
Diabetes

![Bar graph showing diabetes prevalence by urban/rural residence, gender, and ethnicity.](image-url)
Multimorbidity

Agglomerative hierarchical cluster analysis

Agglomerative clustering starts with each case forming its own singleton cluster, and iteratively merges pairs of clusters that are closest to one another, until one cluster is formed

- Euclidean distances between each participant compared using Ward’s clustering algorithm
- Cluster structure is represented by dendrogram
- Decision on the numbers of clusters:
  - Visualise dendrogram
  - Changes of the coefficients with each additional number of clusters
- Clusters validated and named
Dendrogram

Maori

Non-Maori
Multi-morbidity

- Well, 19
- CHF & AF, 15
- Arthritis, 12
- CVD, respiratory and mental health, 25
- Diabetes, 20
- Complex multi-morbidity, 9
multimorbidity

Â Individualised care is needed
Â Cardiovascular disease morbidity and mortality differs depending on the combinations
Â Depression also varies in its cluster partners
Regional differences
Regular support services - Maori

- 44.8% of participants living in Tauranga
- 33.9% of participants living in Rotorua
- 50.8% of participants living in other areas (Whakatane and Opotiki)

<table>
<thead>
<tr>
<th>Service (all areas)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any meal service</td>
<td>9 (3.63)</td>
</tr>
<tr>
<td>Home help (cleaning)</td>
<td>78 (31.45)</td>
</tr>
<tr>
<td>Home help (shopping)</td>
<td>14 (5.65)</td>
</tr>
<tr>
<td>Home help (gardening)</td>
<td>31 (12.50)</td>
</tr>
<tr>
<td>Personal care (bathing, dressing etc.)</td>
<td>13 (5.24)</td>
</tr>
</tbody>
</table>
Regular support services – non Maori

- 56.4% of participants living in Tauranga
- 27.1% of participants living in Rotorua
- 53.3% of participants living in other areas (Whakatane and Opotiki)

<table>
<thead>
<tr>
<th>Service (all areas)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any meal service</td>
<td>15 (3.74)</td>
</tr>
<tr>
<td>Home help (cleaning)</td>
<td>180 (44.89)</td>
</tr>
<tr>
<td>Home help (shopping)</td>
<td>14 (3.49)</td>
</tr>
<tr>
<td>Home help (gardening)</td>
<td>95 (23.69)</td>
</tr>
<tr>
<td>Personal care (bathing, dressing etc.)</td>
<td>18 (4.49)</td>
</tr>
</tbody>
</table>
Care need for Māori and non-Māori

- Maori: 7 Critical, 10 Short, 40 Long, 43 Independent
- Non-Māori: 7 Critical, 8 Short, 52 Long, 33 Independent

Legend:
- Critical
- Short
- Long
- Independent
Critical Short Long

Level of care and receipt of services

Proportion

Māori ResCare
Māori Support Services
non-Māori ResCare
non-Māori Support Services

Critical Short Long
Change over time
Depressive symptoms

- All 647
  - 73 died (8%)
  - 42 ill (4.5%)
  - 93 chose (10%)
  - 47 other (6%)
  - 28% attrition

- Depr 80 (12%)
  - 593
  - 62 died (9%)
  - 20 ill (2.9%)
  - 36 chose (5%)
  - 5 other (1%)
  - 18% attrition

- 476
  - 476
Māori change

**Quality of Life W2-W1**

- Male:
  - Decrease: 54%
  - Same: 24%
  - Increase: 22%

- Female:
  - Decrease: 38%
  - Same: 19%
  - Increase: 24%

**Function W2-W1**

- Male:
  - Decrease: 65%
  - Same: 15%
  - Increase: 21%

- Female:
  - Decrease: 23%
  - Same: 29%
  - Increase: 23%
NonMāori change

Quality of Life W2-W1

- Male:
  - Decrease: 37%
  - Same: 18%
  - Increase: 44%

- Female:
  - Decrease: 38%
  - Same: 15%
  - Increase: 47%

Function W2-W1

- Male:
  - Decrease: 61%
  - Same: 18%
  - Increase: 22%

- Female:
  - Decrease: 51%
  - Same: 28%
  - Increase: 21%
Conclusions

• Just the beginning for this cohort
• Health behaviours important to longevity but ethnic specific
• Nutritional intake varies by gender and ethnic group
• Services are offered less in Lakes DHB area and residential care less often used by Māori
• Function and depression vary over the years rather than universally decline
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Ko ngaa poupou o roto he maahoe, he patatee
Ko te taahuhu he hiinau"

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