Perceptions of Walking and Cycling to School amongst Rural Adolescents in Otago, New Zealand

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Physical Activity in Adolescents

- The WHO recommends adolescents get 60 minutes of physical activity every day.

- “Report Card” Internationally: D avg / 27-33% of adolescents meet WHO guidelines.

- “Report Card” for New Zealand: D- / 20-26%.

Aubert et al, Global Matrix 3.0 Physical Activity Report Card Grades for Children and Youth: Results and Analysis From 49 Countries
Maddison et al, Results from New Zealand’s 2016 Report Card on Physical Activity for Children and Youth
Physical Activity in Adolescents

- Poor prevalence of physical activity globally
- Physical activity declines with age in adolescents

Support for and encouragement of increasing everyday physical activity needs to be focused on secondary school students

How can we achieve this?

Aubert et al, Global Matrix 3.0 Physical Activity Report Card Grades for Children and Youth: Results and Analysis From 49 Countries
Active Transport to School

- Active transport to school (ATS)
  - Convenient part of daily routine
  - Sustainable and eco-friendly
  - Provides social and personal benefits
Active Transport to School

NZ Ministry of Transport Household Survey

1989/1990
Driven: 21%
Walking: 26%
Cycling: 19%

2010-2014
Driven: 32%
Walking: 27%
Cycling: 3%

Active Transport to School

NZ Ministry of Transport Household Survey

1989/1990
- Driven: 21%
- Walking: 26%
- Cycling: 19%
- ATS: 45%

2010-2014
- Driven: 32%
- Walking: 27%
- Cycling: 3%
- ATS: 30%

Figure 17: Travel to school – mode share – ages 13-17 years

Active Transport to School

Commonly reported perceptions

- Distance to school
- Trip duration
- Social opportunities
- Safety considerations
- Built environment and infrastructure
BEATS: Built Environment and Active Transport to School

- Cross-sectional study examining ATS in adolescents in Dunedin (2014-2017)

- Investigates transport to school habits and perceptions, the neighbourhood environment, and physical activity of Otago secondary school students
BEATS: Active Transport to School

30.4% walking
1.5% cycling
BEATS-R: Rural Study

- Rural settings have their own communal “make-up” compared to cityscapes.

- Little reported on rates and perceptions of ATS in rural areas.
BEATS-R: My Research Questions

- What are the rates of walking and cycling to school in rural adolescents?

- What are rural adolescents’ perceptions of walking and cycling to school?
Methodology

11 Secondary Schools from Rural Otago

1,015 total student participants

BEATS-R Student Survey
Methodology

BEATS-R Student Survey

Live ≤4.8 km from school
Methodology

11 Secondary Schools from Rural Otago

1,015 total student participants

427 student participants included for analysis

Lived ≤4.8km from school
Not a boarding student
Completed survey consents
Complete and valid surveys
Distance to school and walking/cycling data
Methodology

Descriptive Statistics
Chi-square test
Paired t-test

427 student participants included for analysis

p-value < 0.001
Results

Average distance to school: 1.5 km

Most adolescents believe ATS is a great way to get exercise
Walking: 92.7%
Cycling: 86.9%
Results

Average distance to school: 1.5 km

Most adolescents believe ATS is a great way to get exercise
- Walking: 92.7%
- Cycling: 86.9%

48.2% walk to school
16.4% cycle to school
85.9% of adolescents have at least one bicycle at home
Results: Attitudes

Compared to cycling, walking to school is perceived as...

<table>
<thead>
<tr>
<th></th>
<th>More pleasant</th>
<th>Better social opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>62.3*</td>
<td>57.4*</td>
</tr>
<tr>
<td>Cycling</td>
<td>44.3</td>
<td>25.5</td>
</tr>
</tbody>
</table>

* p<0.001 for walking vs cycling
Results: Behaviours

Compared to cycling, adolescents reported having more positive behavioural intentions to walk to school.

<table>
<thead>
<tr>
<th></th>
<th>Confidence</th>
<th>Desire</th>
<th>Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>89.5*</td>
<td>46.4*</td>
<td>52.2*</td>
</tr>
<tr>
<td>Cycling</td>
<td>72.8</td>
<td>21.5</td>
<td>19.7</td>
</tr>
</tbody>
</table>

* p<0.001 for walking vs cycling
Results: Logistics

Compared to cycling, walking to school is perceived as having less logistical barriers:

<table>
<thead>
<tr>
<th></th>
<th>Walking</th>
<th>Cycling</th>
<th>p=0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involves too much planning ahead</td>
<td>14.1*</td>
<td>20.6</td>
<td></td>
</tr>
<tr>
<td>Getting too hot and sweaty</td>
<td>21.5*</td>
<td>34.0</td>
<td></td>
</tr>
<tr>
<td>Having too much to carry</td>
<td>36.5</td>
<td>44.0</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.001 for walking vs cycling
## Results: Social Support

Compared to cycling, walking to school is perceived as having greater support from...

<table>
<thead>
<tr>
<th></th>
<th>Parents</th>
<th>Peers</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>70.7*</td>
<td>60.7*</td>
<td>37.0*</td>
</tr>
<tr>
<td>Cycling</td>
<td>39.8</td>
<td>28.6</td>
<td>25.3</td>
</tr>
</tbody>
</table>

* p<0.001 for walking vs cycling
## Results: Social Support

Compared to cycling, walking to school is perceived as having greater support from...

<table>
<thead>
<tr>
<th></th>
<th>Parents</th>
<th>Peers</th>
<th>School</th>
<th>“Cool”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>70.7*</td>
<td>60.7*</td>
<td>37.0*</td>
<td>90.6*</td>
</tr>
<tr>
<td>Cycling</td>
<td>39.8</td>
<td>28.6</td>
<td>25.3</td>
<td>78.0</td>
</tr>
</tbody>
</table>

* p<0.001 for walking vs cycling
Results: Environment

Compared to cycling, walking to school is perceived as... 

<table>
<thead>
<tr>
<th></th>
<th>Having better infrastructure</th>
<th>Safer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>85.2*</td>
<td>92.7*</td>
</tr>
<tr>
<td>Cycling</td>
<td>43.3</td>
<td>80.3</td>
</tr>
</tbody>
</table>

* p<0.001 for walking vs cycling
### Results: Barriers

Greater perceived barriers for walking to school are...

<table>
<thead>
<tr>
<th></th>
<th>Feeling too tired</th>
<th>Complete control in ATS decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>44.3*</td>
<td>71.4*</td>
</tr>
<tr>
<td>Cycling</td>
<td>37.7</td>
<td>77.0</td>
</tr>
</tbody>
</table>

* p<0.001 for walking vs cycling
## Results: Barriers

Greater perceived **barriers** for walking to school are...

<table>
<thead>
<tr>
<th>Trip Duration</th>
<th>Distance to school</th>
<th>Cold, wet weather</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Walking</strong></td>
<td>42.2*</td>
<td>18.3*</td>
</tr>
<tr>
<td><strong>Cycling</strong></td>
<td>12.9</td>
<td>6.8</td>
</tr>
</tbody>
</table>

* p<0.001 for walking vs cycling
Summary: Research Questions

- What are the rates of walking and cycling to school in rural adolescents?
  - Walking: 48.2%
  - Cycling: 16.4%

- What are rural adolescents’ perceptions of walking and cycling to school?
Summary: Walking vs Cycling

- More confident
- Greater desire
- Greater intention
- Less logistical barriers
- Socialise with friends
- Amount to carry?
Summary: Walking vs Cycling

More confident
Greater desire
Cool
Socialise with friends
Amount to carry?

Personal

Greater intention
Less logistical barriers

Environmental

Supported by peers
Supported by parents
Supported by schools

ATS Decision

Social
Summary: Walking vs Cycling

- More confident
- Greater desire
- Socialise with friends
- Cool
- Supported by peers
- Supported by parents
- Supported by schools
- Less logistical barriers
- Safer
- More infrastructure in place

*Personal Decision*
Summary

- Average distance to school: 1.5 km
- Most adolescents have at least 1 bicycle
- ATS has a positive social perception
Summary and Conclusions

• Walking to school is more popular than cycling, perceived as safer, has less logistical barriers, and has more social and infrastructure support.

• Walking barriers - unalterable $\rightarrow$ promotions for walking to school will need to be directed towards social and built environment factors.
Conclusions

Perceptions greatly influence the use and mode of ATS to school in rural Otago

→ Different approaches and distinct interventions are required to promote walking and cycling to school
Looking Ahead

Compare urban vs rural rates and perceptions
BEATS vs BEATS-R

Disseminate findings to rural schools
Questions? Comments?

Thank you!