The misfits:
students who should use ATS, but don’t

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Conceptual framework for environmental determinants of active travel by youth

Panter, J.R. et al. IJBNPA. 2008:5:34
Multivariate correlates of walking to school

Positive correlates

- Parental encouragement
- Peers walking to school
- Opportunity to socialize with friends
- Walking to school perceived as interesting
- Low neighbourhood traffic speed/volume
- Uninteresting route to school

Taking into account distance and time constraints, beliefs about walking to school and transport safety were important. Positive peer and parental support are needed.

Negative correlates

- Distance to school
- Convenience of being driven to school
- Walking takes too much time
- Need for planning
- After-school schedule
- Lack of interest

Mandic et al. (2016) Abstract accepted to ISPAH. (Related)

n=1,090
Introduction

• The logistic regression model reported previously in this symposium does not perfectly predict who will use ATS (no statistical model predicts perfectly)

<table>
<thead>
<tr>
<th>Predicted</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MT</td>
</tr>
<tr>
<td>MT</td>
<td>735</td>
</tr>
<tr>
<td>AT</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

• Of the 308 students who were predicted to use AT, 41 (13%) did not

• An 87% “hit rate” is very good, and the overall model is outstanding by conventional terminology
Research question

Sometimes the errors in statistical models are random (they are designed this way), but sometimes they are not, so the question is:

Are there any systematic differences between students who were correctly predicted to use AT, and those who “should” use AT, but do not?
**Methods**

**Data**
- Sample: the 308 students who were predicted to use ATS
- No boarders
- Live ≤ 4 km from school
- Use only one mode of travel

**Analysis**
- DV: correct vs. incorrect classification (ATS vs MTS)
- IVs: all variables that were originally considered as correlates (but some were eliminated)
- Student’s $t$ and, Mann-Whitney-Wilcoxon $U$ (distributional assumption & interval vs ordinal)
- Cohen’s $d$ as measure of effect size
## Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>means</th>
<th>p value</th>
<th>effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATS</td>
<td>MTS</td>
<td>t</td>
</tr>
<tr>
<td>Distance (km)</td>
<td>1.2</td>
<td>1.8</td>
<td>0.000</td>
</tr>
<tr>
<td>Parents think unsafe</td>
<td>1.2</td>
<td>1.5</td>
<td>0.007</td>
</tr>
<tr>
<td>Takes too much time</td>
<td>1.6</td>
<td>2.1</td>
<td>0.002</td>
</tr>
<tr>
<td>It is too far</td>
<td>1.2</td>
<td>1.6</td>
<td>0.007</td>
</tr>
<tr>
<td>It is on the way</td>
<td>1.7</td>
<td>2.2</td>
<td>0.005</td>
</tr>
<tr>
<td>Friends say I should</td>
<td>5.6</td>
<td>4.8</td>
<td>0.004</td>
</tr>
<tr>
<td>I can’t be bothered</td>
<td>1.8</td>
<td>2.2</td>
<td>0.002</td>
</tr>
</tbody>
</table>

- All variables except distance are 5 or 7 point Likert scales
- Variables that are **not** in the logistic regression model (orange) also discriminate the misfits from the correct fits
Summary

• As expected, distance discriminates, as do other variables that are in the LR model (“Takes too much time”; “Is on the way to somewhere else”)

• But variables that are not in the LR model also discriminate the misfits from the correct fits

• Students that fit the criteria of those who use ATS, but don’t do it, are more likely to:
  • Have parents who think it is unsafe
  • Not have friends who say they should walk
  • Perceive it as being too far away
  • Say that they often can’t be bothered to walk

• Hence, social norms and lifestyle factors (fitness, sleep patterns?) seem to be key in any behaviour change