Procedures:

Measures

Self-efficacy (SE) is a mediator of physical activity behaviors in children and accounts for the effect of intention on physical activity (Motl et al., 2002). To assess the reliability and validity of children's SE for walking to school as measured by child (C-SE) and parent (P-SE) questionnaires.

Methods

Participants: Children involved in an active commuting intervention (Travelling Green; McKenzie et al., 2007) and one of their parents

Children in Year 5 of primary (elementary) school (N = 165, 57% boys, 43% girls; age 8-9 yr)

Parents (n = 115)

Measures

Self-efficacy scales were part of a larger questionnaire developed using the conceptual framework of Panter et al. (2008), to investigate determinants of active commuting.

Developed specifically for the Travelling Green evaluation study, using methods described by Motl (2000) and Feltz (2008) for developing measures of SE

Self-efficacy for overcoming barriers associated with active travel among children (e.g. your child can walk to school?), social environment (e.g. your child can ask your friend to walk to school with you?), weather (e.g. your child can walk to school in bad weather?), traffic safety (e.g. your child can cross difficult roads while walking to school?), personal safety (e.g. your child can walk to school even if you are frightened of meeting strangers?), and planning (e.g., your child can walk to school even if it takes a long time?).

3-point Likert response (Not sure, Kind of Sure and Very Sure).

Participants responded regarding their perceptions of child’s efficacy for overcoming the same 14 barriers associated with active travel among children.

Parent SE was significantly (p < .01) and meaningfully higher than for non-walkers, as measured by the children’s scale (d = 0.60) and the parent scale (d = 1.06). These instruments are suitable for use in investigations of active commuting in elementary school children.

Internal consistency: Cronbach’s alpha (α) for total scale (14 items): Children SE α = .80

Test-retest reliability: Intraclass correlation coefficient (ICC) from 2-way ANOVA model, adjusted for a single test administration

Exploatory factor analysis

First factor explained 33% of variance in children’s SE with 12 of 14 items loading > .30, three additional factors with eigenvalues marginally > 1.0 explained an additional 37% of item variance, but rotated factor loadings were mostly low on these factors

A single factor explained 66% of variance in parent SE with all items loading > .40

Correlation between children’s SE and parent SE: Pearson’s r = .31 (p = .01)

Known groups evidence

SE for walkers was significantly (p < .01) and meaningfully higher than for non-walkers, as measured by the children’s scale (d = 0.60) and the parent scale (d = 1.06)

Future validity research will look at the role of SE and other psychological determinants in active commuting behavior and behavior change.

Further research is needed into the dimensionality and invariance across child and parent populations for SE for active commuting in children.

Main conclusions

Reliability (internal consistency, 7-day, and 8-week test-retest) and validity (structural, convergent, and construct-related evidence) were acceptable to high for both parent and child questionnaire measures of children’s SE for walking to school.

These instruments are suitable for use in investigations of active commuting in elementary school children.

SE for walking to school may be better represented by a multidimensional model when measured in children rather than via a proxy (parent) measure.

Recommendations

Questionnaire measures with children of this age should be administered in small groups

Future validity research will look at the role of SE and other psychological determinants in active commuting behavior and behavior change.

Further research is needed into the dimensionality and invariance across child and parent populations for SE for active commuting in children.

Data analyses

Internal consistency:

Test-retest reliability

Exploratory factor analysis

Known groups evidence

Correlation between children’s SE and parent SE

Table 1 - Baseline descriptive statistics

<table>
<thead>
<tr>
<th>Measure</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
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<tbody>
<tr>
<td>Child SE</td>
<td>165</td>
<td>23.2</td>
<td>5.8</td>
<td>0.5</td>
<td>0.0</td>
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<tr>
<td>Parent SE</td>
<td>115</td>
<td>37.5</td>
<td>14.6</td>
<td>0.4</td>
<td>-0.5</td>
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</tbody>
</table>

Table 2 - Test-retest reliability descriptive statistics

<table>
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<tr>
<th>T-R period</th>
<th>N</th>
<th>Mean (Pre)</th>
<th>SD (Pre)</th>
<th>Mean (Post)</th>
<th>SD (Post)</th>
</tr>
</thead>
<tbody>
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<td>7 days</td>
<td>23</td>
<td>22.6</td>
<td>5.6</td>
<td>22.4</td>
<td>5.8</td>
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<td>8 weeks</td>
<td>72</td>
<td>24.3</td>
<td>6.2</td>
<td>23.4</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Summary/Discussion

Main conclusions

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References