Validity of proxy-reported weight for older adults

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Proxy-report

• Research and clinical settings.
• Most common for young children.
• Not uncommon for older adults:
  – Esp. those with cognitive impairment or dementia.
  – E.g. Health status, Functional status, Weight.

• Validity of proxy-report of weight of older adults?
Objectives

1. To assess the validity of proxy-reported weight for older adults.

2. To ascertain the variation in validity of proxy-reported weight by:
   - older adult-proxy relationship.
   - older adult demographics (age, gender and ethnicity).
   - older adult measured body mass category.
Methods

Social Isolation, Health and Lifestyles Survey 2009

• Survey of 5000 community-dwelling older Singaporeans, aged 60 years and above.

• **458 (9.2%) older adults** had a **proxy respondent**.
  – Child (59.8%), Spouse (15.9%), Other (24.3%).
  – 222 (48.5%) : estimate of the older adult’s weight.
  – Variation in ability to provide a weight estimate by older adult-proxy relationship: Chi-square test.

• **136 older adults** had **proxy-reported as well as measured weight**.
Methods

Validity of proxy-reported weight (N=136):

- Difference between proxy-reported and measured weight:
  \[ \text{Proxy-reported weight} - \text{measured weight} \]

- Percentage bias in proxy-reported weight:
  \[ \left( \frac{\text{Proxy-reported weight} - \text{measured weight}}{\text{Measured weight}} \right) \times 100 \]
    - +ve value: Overestimation of measured weight.
    - -ve value: Underestimation of measured weight.

  Overall, by older adult characteristics and by older adult-proxy relationship (ANOVA or t-test).

- Prediction equation for actual weight.
## Results

**Table 1: Ability to provide an estimate of older adult weight by older adult-proxy relationship**

<table>
<thead>
<tr>
<th>Older adult-proxy relationship</th>
<th>% (n) who provided estimate of older adult weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child (N=274)</td>
<td>52.2% (143)</td>
</tr>
<tr>
<td>Spouse (N=73)</td>
<td>43.8% (32)</td>
</tr>
<tr>
<td>Other (N=111)</td>
<td>42.3% (47)</td>
</tr>
</tbody>
</table>

\[ p >0.05 \text{(Chi-square test)} \]

Child proxy-respondents most likely to provide an estimate for older adult weight
Table 2: Average difference in proxy-reported and measured weight, and percentage bias, overall and by older adult body mass category and older adult-proxy relationship (N=136)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Proxy reported minus measured weight Mean (S.E.)</th>
<th>Percentage bias</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>0.56 (0.38) kg</td>
<td>1.38%</td>
<td>-</td>
</tr>
</tbody>
</table>

Older adult demographics: No significant variation
Results

Prediction Equation for actual weight (in kg)

– Linear regression analysis
– 125 older adults (11 outlier or influential data points deleted)
– Based on proxy-reported weight and older-adult proxy relationship (child / spouse / other)

Actual weight = 0.86 + 0.99 (proxy-reported weight) 
+ 0.87 (spouse proxy-respondent) 
− 0.98 (other proxy respondent)
Conclusion

• Proxy respondents provide a fairly accurate estimate of the weight of older adults.

• If possible, choose a child of the older adult as the proxy
  • Most likely to provide an estimate.
  • Most close to the actual weight.
Acknowledgements / Funding

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  – Ministry of Community Development, Youth and Sports, Singapore.

• **Analyses:**
  – Tsao Foundation Ageing Research Initiative, NUS.
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THANK YOU
Results

• Proxy respondents (N=458)
  - Child 59.8%
  - Spouse 15.9%
  - Other relative/friend 24.3%

• Reason/s for a proxy-respondent:
  - hearing/speaking difficulty 71.8%
  - memory loss/dementia 41.9%
  - physical illness/disability 21.0%

• Profile of older-adult:
  - Average age 81.6 ±7.7 years
  - Mostly female 66.4%
  - Majority of Chinese ethnicity 67.9%