Novel approaches to optimize dietary intake in older adults

Knowledge mismatch between professionals and older malnourished adults

M. Visser (NL)
KNOWLEDGE MISMATCH BETWEEN PROFESSIONALS AND OLDER ADULTS
Misperception
Stages of behavior change
Content

For 3 lifestyle factors:

- Prevalence of misperception
- Determinants of perception
- Identify subgroups with higher levels of misperception
Misperception with regard to

Body weight
(Having a normal body weight)

Dietary intake
(Meeting dietary recommendation for fruit, vegetable and fish)

Physical activity
(Meeting the recommendation for physical activity)
Study sample

- Longitudinal Aging Study Amsterdam
- Representative samples of Dutch older adults aged 55+ years
- Over 5000 persons included in the study
- Three regions of the Netherlands

www.lasa-vu.nl
Misperception of body weight
Self-perceived body weight

- Self-administered questionnaire (N=1440)

- How do you classify your body weight? 
  (underweight, normal weight, overweight, obese, do not know)
Objective body weight

- Home visit during which body weight and body height were objectively assessed by trained interviewers (N=1443)
- WHO criteria:
  - underweight: $<18.5 \text{ kg/m}^2$
  - normal weight: $18.5 - 24.9$
  - overweight: $25.0 - 29.9$
  - obesity: $30+$
## Characteristics study sample

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>599</td>
<td>696</td>
</tr>
<tr>
<td><strong>Age (y)</strong></td>
<td>72.1 (SD 8.0)</td>
<td>72.9 (8.2)</td>
</tr>
<tr>
<td><strong>BMI (kg/m^2)</strong></td>
<td>27.1 (3.5)</td>
<td>27.9 (4.9)</td>
</tr>
<tr>
<td><strong>Objective body weight status (%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight (BMI&lt;18.5 kg/m^2)</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Normal weight (18.5 – 24.9 kg/m^2)</td>
<td>27.2</td>
<td>30.5</td>
</tr>
<tr>
<td>Overweight (25.0 – 29.9 kg/m^2)</td>
<td>53.4</td>
<td>39.8</td>
</tr>
<tr>
<td>Obese (30+ kg/m^2)</td>
<td>19.9</td>
<td>29.3</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low (elementary school or less)</td>
<td>15.7</td>
<td>28.6</td>
</tr>
<tr>
<td>Medium</td>
<td>54.4</td>
<td>58.1</td>
</tr>
<tr>
<td>High (university, college and higher vocational education)</td>
<td>29.7</td>
<td>13.4</td>
</tr>
</tbody>
</table>
### Perceived versus objective body weight

<table>
<thead>
<tr>
<th></th>
<th>Don’t know</th>
<th>Underweight</th>
<th>Normal weight</th>
<th>Overweight</th>
<th>Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEN</strong></td>
<td>0.7</td>
<td>4.2</td>
<td>52.3</td>
<td>42.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Underweight</td>
<td>0.0</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Normal weight</td>
<td>0.0</td>
<td>12.9</td>
<td>84.0</td>
<td>3.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Overweight</td>
<td>0.6</td>
<td>0.6</td>
<td>50.6</td>
<td>48.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Obesity</td>
<td>1.8</td>
<td>0.0</td>
<td>12.3</td>
<td>81.6</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Kappa = 0.146
## Perceived versus objective body weight

<table>
<thead>
<tr>
<th></th>
<th>Don’t know</th>
<th>Underweight</th>
<th>Normal weight</th>
<th>Overweight</th>
<th>Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WOMEN</strong></td>
<td>1.3</td>
<td>2.3</td>
<td>49.7</td>
<td>42.8</td>
<td>3.9</td>
</tr>
<tr>
<td>Underweight</td>
<td>0.0</td>
<td>66.7</td>
<td>33.3</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Normal weight</td>
<td>1.4</td>
<td>6.1</td>
<td>85.8</td>
<td>6.6</td>
<td>0.0</td>
</tr>
<tr>
<td>Overweight</td>
<td>0.0</td>
<td>0.4</td>
<td>49.1</td>
<td>49.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Obesity</td>
<td>2.9</td>
<td>0.0</td>
<td>13.2</td>
<td>71.6</td>
<td>12.3</td>
</tr>
</tbody>
</table>

Kappa = 0.142
Misperception of body weight

- 77% of the misperceivers underestimated their body weight.
- Of those, 94% were overweight or obese.
- Among overweight and obese persons, 62% of men and 64% of women underestimated their body weight.
Misperception of body weight

- Underestimation of body weight is common in older adults
- Especially in those who are overweight and obese, those who are older, and those with a low education level
- No gender differences
Determinants misperception

Overestimation
Right estimation
Underestimation

P=0.56

P=0.001

Men
Women
< 70 y
70-80 y
> 80 y
Determinants misperception

- Overestimation
- Right estimation
- Underestimation

P<0.001
Misperception

of dietary intake

Self-reported dietary intake

- Self-administered questionnaire (N=1057)

- Contained a thorough explanation in lay language of the Dutch dietary recommendations for fruit, vegetables and fish.
Self-reported dietary intake

- Seven statements (example fruit) ranging from 1: ‘I did not know that it is healthy to eat fruit’ to 7: ‘I eat at least two pieces of fruit every day and I have been doing this during the last six months’.

- Self-reported perceived adherence to the guidelines was categorized as ‘yes’ if respondents indicated that they ate more than or two pieces of fruit per day and started doing this during the last 6 months, or had been doing this for longer than 6 months already.
Assessment of dietary intake

- FFQ (N=1057)
- Fruits, fruit juice, raw vegetables, cooked/baked vegetables, fish
- How many days per week do you usually eat cooked vegetables?
  Range: never – every day
- How many serving spoons do you usually eat?
  Range: less than one – more than 5 spoons per day
- Four serving spoons of vegetables per day (200 g) = meeting the dietary recommendation
Self-reported versus objective adherence

Kappa 0.51  0.39  0.89
Misperception dietary intake

- Fruit guideline: 2.3%
- Vegetable guideline: 18.7%
- Fish guideline: 3.8%
## Determinants of overestimation vegetables

<table>
<thead>
<tr>
<th></th>
<th>Odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (y)</td>
<td>1.02 (0.99-1.04)</td>
</tr>
<tr>
<td>Female gender</td>
<td>0.88 (0.63-1.22)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>1.01 (0.97-1.05)</td>
</tr>
<tr>
<td>Physical activity (min/d)</td>
<td>1.00 (0.99-1.00)</td>
</tr>
<tr>
<td>Low education level</td>
<td>3.40 (1.86-6.21)*</td>
</tr>
<tr>
<td>Low household income</td>
<td>2.30 (1.27-4.18)*</td>
</tr>
<tr>
<td>Social support</td>
<td>0.93 (0.71-1.21)</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.67 (0.49-0.91)*</td>
</tr>
</tbody>
</table>
Misperception of dietary intake

- Overestimation of vegetable intake is common in older adults
- Especially in those who with a low education level, those with a low household income, and those with lower self-efficacy
Misperception

of physical activity

Self-reported physical activity

- Self-administered questionnaire (N=1058)

- Contained a thorough explanation in lay language of the Dutch physical activity recommendation for those age 55+ y: “Perform at least 30 minutes of moderate-intensity physical activity on at least 5 days per week”.
Self-reported physical activity

Please mark the statement that applies to you:

1. I did not know physical activity is good for me;
2. I never thought about the Dutch physical activity recommendation;
3. I thought about the Dutch physical activity recommendation, but do not know yet whether I want to meet it;
4. I thought about the Dutch physical activity recommendation, but decided not the meet it;
5. I decided to meet the Dutch physical activity recommendation but am not yet meeting it;
6. I meet the Dutch physical activity recommendation but only for less than six months;
7. I meet the Dutch physical activity recommendation for more than six months.
Objectively assessed physical activity

- Actigraph accelerometer (Model GT1M)
- N=153 (aged 65-75 y)
- ≥4 days wear time
- ≥ 10 hours per day
- >760 counts per minute used as cut-point to indicate moderate-intensity activities
56.8% of the older adults reported to meet the Dutch physical activity recommendation

Women: 65.5%, Men: 48.5% (p<0.05)
Number of days ≥30 min active

Based on accelerometry data

24.6% of sample met the recommendation (31.0% for men, 17.9% for women)
Objective versus self-reported

<table>
<thead>
<tr>
<th>Accelerometry</th>
<th>Meet</th>
<th>Do not meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meet</td>
<td>19.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Do not meet</td>
<td>37.1</td>
<td>37.1</td>
</tr>
</tbody>
</table>

Of those who reported to meet the recommendation, only 34.7% actually did so!
## Determinants misperception

<table>
<thead>
<tr>
<th>Self-reported</th>
<th>Overestimation</th>
<th>Correct perception</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV viewing (h/d)</td>
<td>3.2 (SD 1.3)</td>
<td>2.9 (1.3)</td>
<td>0.27</td>
</tr>
<tr>
<td>Bicycling (min/d)</td>
<td>10 (15)</td>
<td>10 (10)</td>
<td>0.87</td>
</tr>
<tr>
<td>Walking (min/d)</td>
<td>50 (36)</td>
<td>58 (49)</td>
<td>0.44</td>
</tr>
<tr>
<td>Sports (min/d)</td>
<td>18 (29)</td>
<td>24 (19)</td>
<td>0.39</td>
</tr>
<tr>
<td>Total activity (min/d)</td>
<td>167 (75)</td>
<td>156 (94)</td>
<td>0.61</td>
</tr>
</tbody>
</table>
## Determinants misperception

<table>
<thead>
<tr>
<th></th>
<th>Overestimation</th>
<th>Correct perception</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female gender (%)</td>
<td>67.3</td>
<td>34.6</td>
<td>0.007</td>
</tr>
<tr>
<td>Age (y)</td>
<td>71.4 (SD 2.6)</td>
<td>69.6 (3.1)</td>
<td>0.009</td>
</tr>
<tr>
<td>Walking performance</td>
<td>3.0 (1.0)</td>
<td>3.6 (0.8)</td>
<td>0.02</td>
</tr>
<tr>
<td>(objective test score)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social support</td>
<td>0.43 (0.60)</td>
<td>0.77 (0.75)</td>
<td>0.04</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.86 (0.56)</td>
<td>1.10 (0.60)</td>
<td>0.09</td>
</tr>
</tbody>
</table>
Misperception of physical activity

- Overestimation of physical activity is common in older adults
- Especially in women, those who are older, those with a poor walking performance, and those with lower social support
Overall conclusion 1

- Misperception of body weight, dietary intake and physical activity frequently occurs in older persons.
- This leads to a low awareness that lifestyle should be improved.
- And therefore seriously hampers effective treatment.
Overall conclusion 2

- Risk groups of misperception are:
  - Higher age
  - Lower education
  - Higher BMI
  - Lower education
  - Lower household income
  - Lower self-efficacy
  - Females
  - Higher age
  - Lower walking performance
  - Lower social support
THANK YOU FOR YOUR ATTENTION

m.visser@vu.nl