Validation of anthropometric measures self-reported in a randomized controlled trial of a web-based platform for weight loss

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Funding

National Institute of Science and Technology for

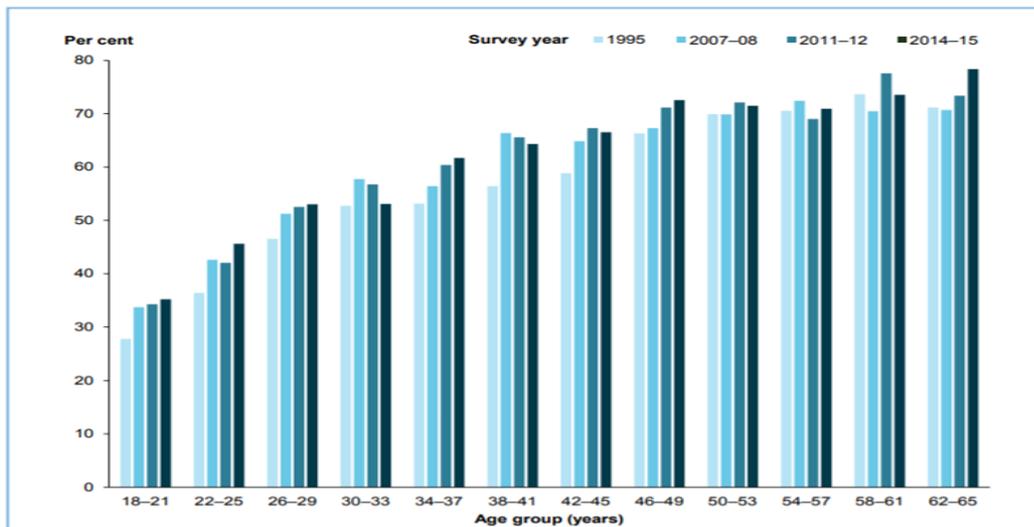Health Technology Assessment (IATS) – CNPq/Brazil.
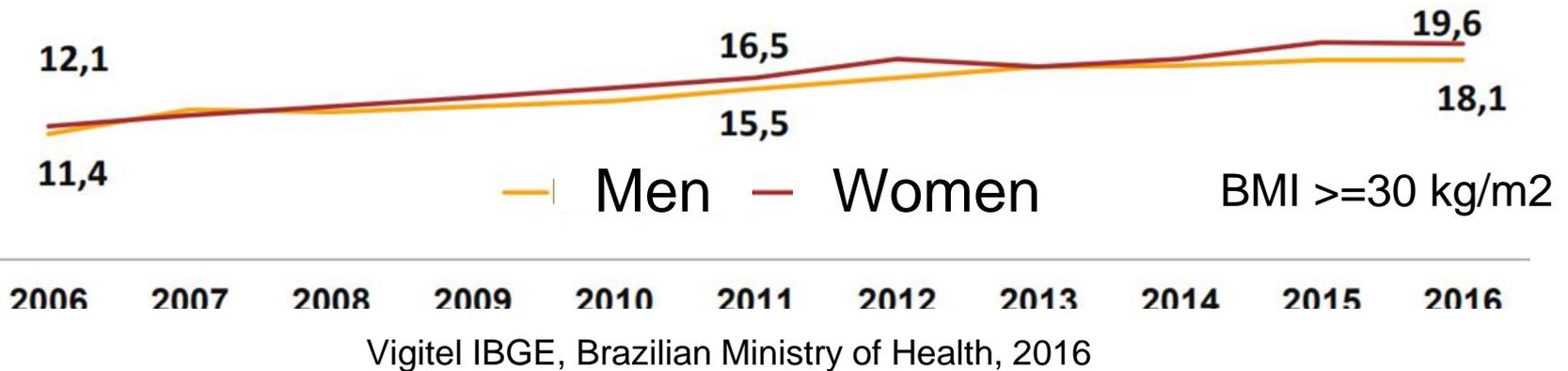
Prêmio CAPES de Teses

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Competing interests

Andre Andrade is the owner of the company that provided the online platform that was adapted for this project

Obesity: a massive public health problem

12,1

16,5

19,6

11,4

15,5

18,1

Men — Women   BMI >=30 kg/m2

2006   2007   2008   2009   2010   2011   2012   2013   2014   2015   2016

Vigitel IBGE, Brazilian Ministry of Health, 2016

Source: AIHW

Obesity: a massive public health problem

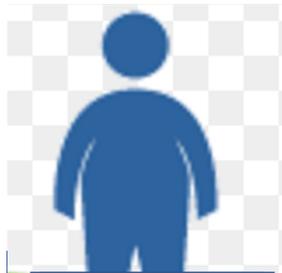Accessibility and equity in obesity healthcare

Web-based approaches are convenient to deliver weight loss interventions.

Question

In adults with overweight/obesity, is a behaviour change program delivered by a web-based platform more effective than a minimal intervention for weight loss?

Beleigoli et al. BMC Public Health. 2018 Aug 1;18(1):945

The POEmaS trial

Federal University of Minas Gerais (UFMG), Brazil

BMI >= 25 kg/m2

>=18 years
University staff/student
Non- pregnant
No special dietary requirement (e.g. celiac disease)

3 arm-parallel RCT

Arm 1
Minimal intervention wait list (e-booklet, 4 videos)

Arm 2
Web platform

Arm 3
Web platform plus online dietitian coaching

Beleigoli et al. BMC Public Health. 2018 Aug 1;18(1):945

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The POEmaS trial

24-week intervention

Primary outcomes: Weight and BMI change
Self-reported, online

The POEmas Trial

Convenience of electronic recruitment and online data collection in a difficult to engage population

Accuracy of self-reported data

Validation study

❖ How accurate are the online weight and height reports?

❖ How biased reports impact on BMI?

❖ Participant's characteristics associated with increased risk of misreporting?

Validation study

Sample

Random selection of 12.5% of the study population

Balanced randomisation across study groups

Validation study

Procedures

- Participants were invited to a 'clinical assessment' by email

- Unaware of reported vs measured anthropometry comparisons

- Instructed to report weight and height on on the web platform on the day of the clinical assessment

- Standardised methods of weight and height measures

Validation study

Statistical analysis

- Bland–Altman method

- Ordinal logistic regression:
     Response variable: good agreement -0.5 to 0.5kg difference (reference), <-0.5kg and >0.5kg difference.
   Adjustment for age, gender, education, BMI, and study group

Results

| Characteristic	POEmaS trial (n=1298)	Validation study (n=159)
Gender		
Female	996 (76.6)	128 (80.5)
Age, years	33.6 (10.7)	36.5 (11.0)
BMI, kg/m2	29.9 (4.3)	29.4 (4.1)
Education		
Undergraduate	99 (18.2)	39 (24.5)
Higher degree	445 (81.8)	120 (75.2)
Group		
Minimal intervention	470 (36.2)	59 (37.0)
Platform	420 (32.4)	42 (26.4)
Platform plus online dietitian	408 (31.4)	58 (36.6)

Results

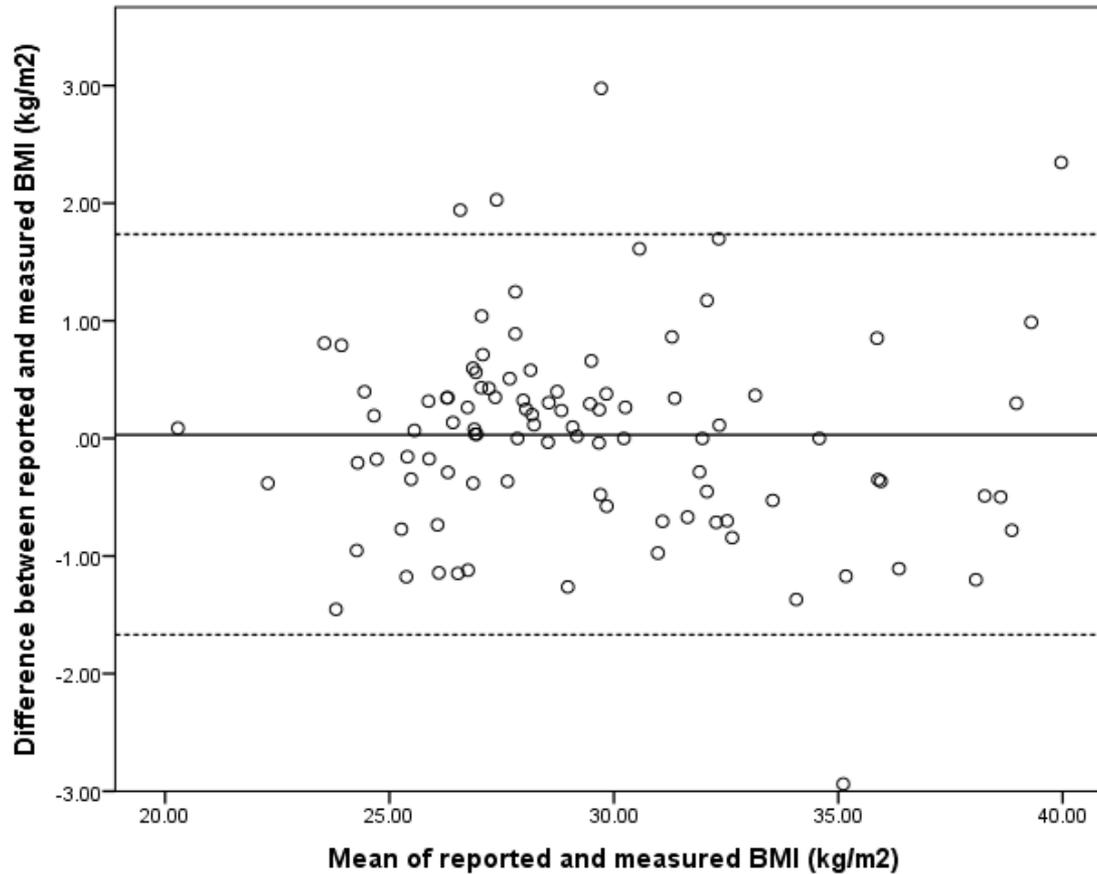|	Difference Reported online - measured		
	Weight (kg)*	Height (cm)**	BMI*** (kg/m2)
Mean (SD)	0.4	0.4	0.03
	(1.7)	(1.0)	(0.9)

*p=0.13; **p<0.001;*** p=0.06

Results
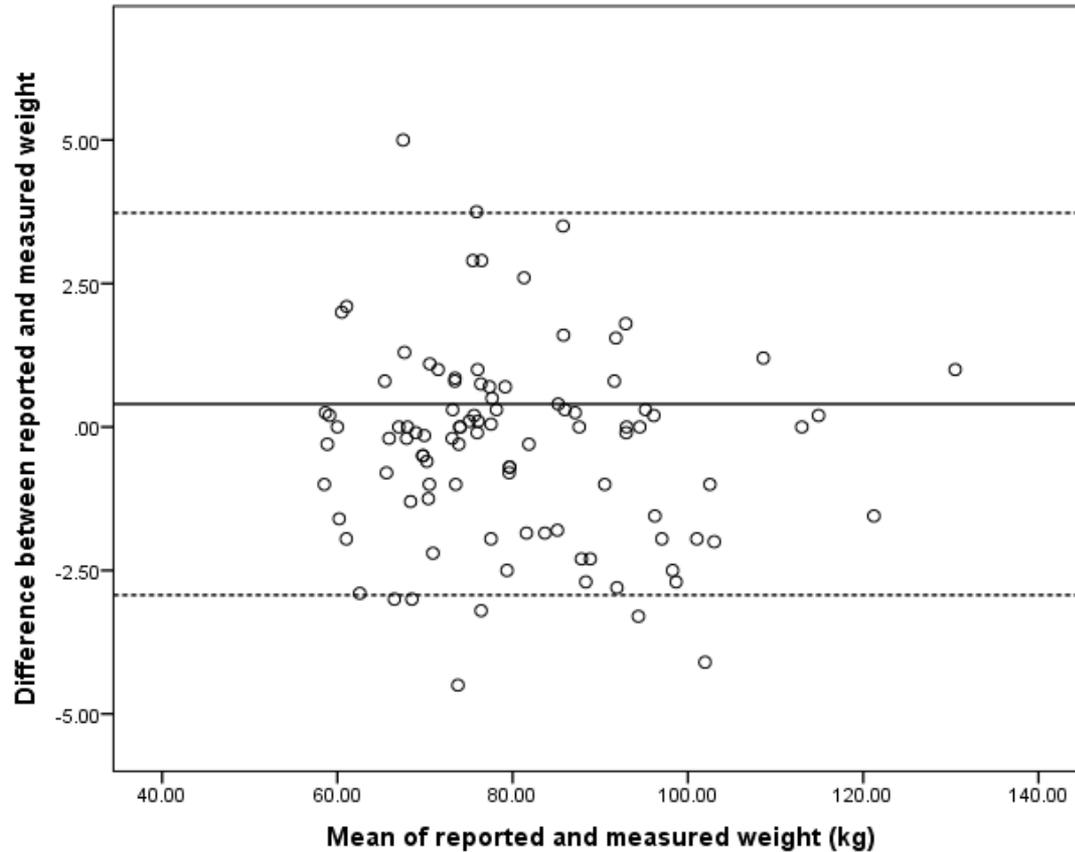
Results
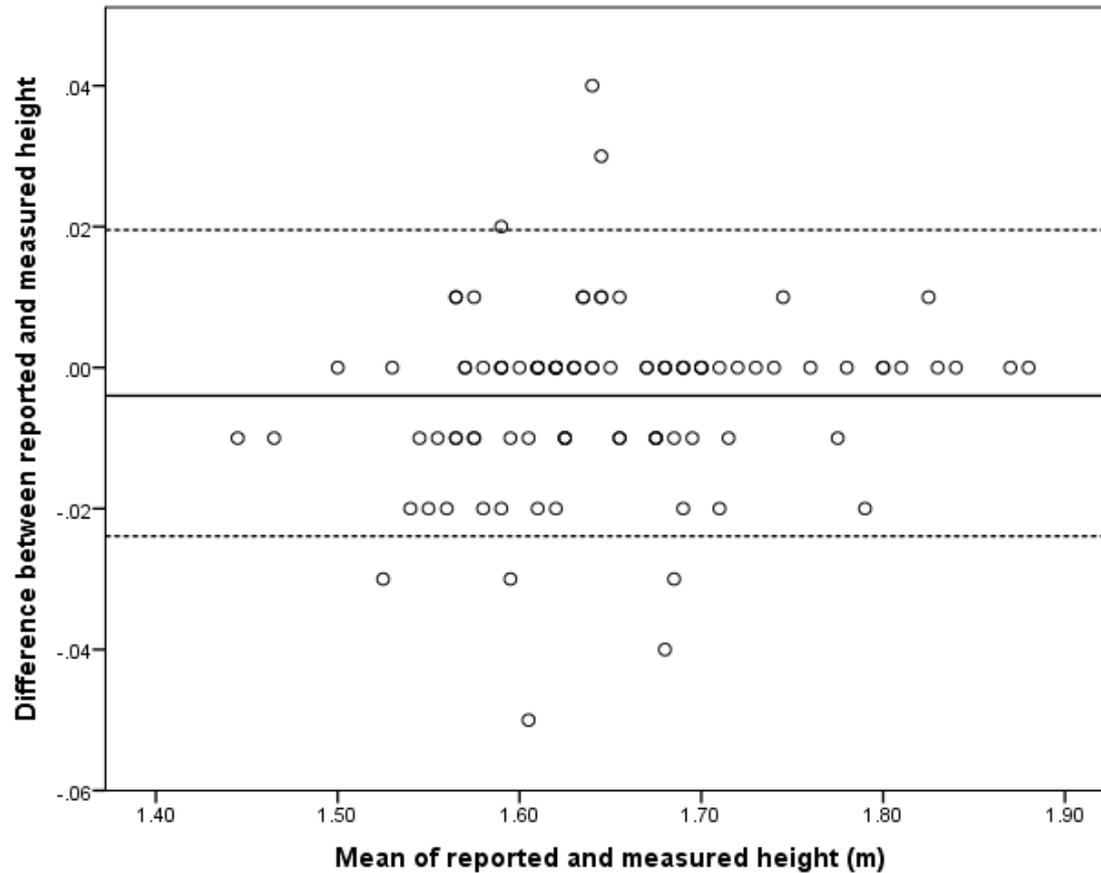
Results

Discussion

Smaller magnitude of differences in comparison to previous paper-based self-reported studies:

- Effect of the feeling of anonymity associated with the online report?

- Volunteer bias?

Nicholau CK et al. European Journal of Public Health, 2017; 27: 898–903

Discussion

Age, gender, education, BMI, and study group did not affect the accuracy of self-reported anthropometry

Generalisability of the results

Bonn SE et al. JMIR, 2013 Apr; 15(4): e52

Pursey K et al. JMIR 2014;16:e4

Nicholau CK et al. European Journal of Public Health, 2017; 27: 898–903

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Conclusion

Good agreement between online self-reported and measured anthropometric data

Weight and height discrepancies are small and unlikely to be clinically important

Online data collection is valid

Thank you

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