Ensuring High Quality Anthropometric Measures and Physical Performance Assessments in a National In-Home Survey: Interviewer Training and Quality Control in the Wisconsin Longitudinal Study

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Challenges

- Collection of anthropometrics and physical assessments by field interviewers increasing
- Challenges of producing and maintaining high quality physical data
  - How to train effectively?
  - How to maintain standardization and reliability of measurements over time?
  - What tools do we provide field supervisors to monitor performance?

Overview

- Training on anthropometrics for the Wisconsin Longitudinal Study
- Tools used for monitoring and refresher training
- Lessons learned

Background of the Wisconsin Longitudinal Study

- Wisconsin Longitudinal Study (WLS) is a panel study of 10,317 men and women who graduated from Wisconsin high schools in 1957
- Data collection by telephone and mail in
  - 1975-1977
  - 1992-1993
  - 2003-2004

WLS Wave 2010-2012

- In-person interview in respondents' homes
- Study participants mostly in Wisconsin or the Midwest (75%) but otherwise scattered around US
- Field interviewers also located around US
- Interviews audio recorded
- Average completion time: 2.5 hours
- Response rate: 80%

WLS Wave 2010-2012

- Anthropometric measurements
  - Height
  - Weight
  - Hip circumference
  - Waist circumference
- Physical performance assessments
  - Peak air flow of lungs
  - Hand grip strength
  - Sit-to-stand test (a.k.a. chair rise)
  - Walking speed

WLS interviewer field interviewer training

- 60 interviewers trained in Madison, Wisconsin
- Training on anthropometrics consisted of
  - Lecture-style overviews
  - Several opportunities to practice
    - "Stations": first try, protocols and equipment
    - Practice in interviewer pairs
    - Practice with senior center volunteers
  - Certification

WLS anthropometrics documentation

- Three sources of documentation on WLS anthropometrics that interviewers had access to throughout the field period
  - Training manual
  - Training video
  - Summarized instructions in the instrument

WLS interviewing instrument

- CASES used to program the instrument, including the anthropometrics module
- Interviewers used laptops to record measurement results
- A separate paper booklet was considered
  - Pro: Booklet more mobile than laptop
  - Cons: Keeping booklets associated with cases; data entry once the booklets sent back to HQ; skip logic
- We decided on laptop entry over a paper booklet

Monitoring

- Interviewer performance was monitored using audio recordings
- Supervisors also monitored cooperation rates (CR) and refusal rates (RR) on all measurements
  - Rates displayed with in-house case management program (Monocle)

Anthro Rates for September-October

intid	mc	Hgt (tape) CR	Hgt (self) CR	Hgt RR	Wgt (scale) CR	Wgt (self) CR	Wst RR	Wst CR	Wst RR	Hip CR	Hip RR	Pix CR	Pix RR	Leg CR	Leg RR	Chr CR	Chr RR	Hnd CR	Hnd RR	Wlk CR	Wlk RR
101	17	100%	0%	0%	94%	6%	0%	100%	0%	100%	0%	100%	0%	100%	0%	94%	0%	100%	0%	100%	0%
102	5	80%	20%	0%	100%	0%	0%	80%	0%	80%	0%	100%	0%	80%	0%	80%	0%	100%	0%	80%	0%
103	20	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	95%	0%	100%	0%	100%	0%
105	21	100%	0%	0%	95%	5%	0%	100%	0%	100%	0%	100%	0%	95%	0%	95%	0%	100%	0%	100%	0%
106	35	97%	0%	3%	89%	9%	3%	97%	3%	97%	3%	97%	3%	94%	3%	97%	3%	97%	3%	97%	3%
107	21	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
110	26	100%	0%	0%	92%	4%	4%	96%	4%	96%	4%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
111	14	93%	7%	0%	86%	14%	0%	93%	7%	93%	7%	93%	7%	93%	7%	93%	7%	100%	0%	100%	0%
112	28	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
114	16	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
116	18	100%	0%	0%	89%	6%	6%	94%	6%	94%	6%	100%	0%	100%	0%	94%	6%	100%	0%	94%	6%
117	17	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	94%	6%	100%	0%	100%	0%
118	33	94%	6%	0%	85%	12%	3%	94%	6%	94%	6%	94%	6%	97%	3%	94%	0%	100%	0%	100%	0%
120	37	81%	19%	0%	78%	22%	0%	100%	0%	97%	3%	100%	0%	95%	5%	97%	3%	100%	0%	97%	3%
121	9	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
122	12	100%	0%	0%	92%	8%	0%	100%	0%	100%	0%	100%	0%	100%	0%	92%	0%	100%	0%	100%	0%
123	17	82%	12%	6%	76%	18%	6%	94%	6%	88%	12%	88%	12%	88%	12%	82%	12%	94%	6%	94%	6%
124	20	95%	5%	0%	85%	15%	0%	100%	0%	100%	0%	100%	0%	100%	0%	85%	10%	100%	0%	100%	0%
126	4	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
127	27	96%	4%	0%	96%	4%	0%	100%	0%	100%	0%	96%	4%	100%	0%	96%	4%	100%	0%	100%	0%
128	26	100%	0%	0%	92%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
130	11	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
131	15	87%	7%	7%	73%	20%	7%	87%	7%	93%	7%	93%	7%	93%	7%	87%	13%	93%	7%	93%	7%
133	3	100%	0%	0%	100%	0%	0%	67%	0%	100%	0%	100%	0%	100%	0%	67%	33%	100%	0%	100%	0%
134	22	100%	0%	0%	95%	5%	0%	95%	5%	95%	5%	95%	5%	100%	0%	86%	5%	100%	0%	95%	5%
135	23	91%	4%	4%	91%	4%	4%	91%	9%	91%	9%	100%	0%	96%	4%	87%	13%	96%	4%	91%	9%
137	19	74%	21%	5%	89%	5%	5%	95%	5%	95%	5%	89%	5%	95%	5%	84%	16%	95%	5%	95%	5%
138	34	94%	3%	3%	85%	12%	3%	91%	6%	91%	6%	97%	3%	97%	3%	91%	9%	97%	3%	97%	3%
140	17	94%	6%	0%	88%	12%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
142	14	93%	0%	7%	71%	21%	7%	93%	7%	93%	7%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
143	17	94%	6%	0%	94%	6%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
145	30	83%	13%	3%	77%	17%	7%	87%	7%	87%	7%	97%	3%	90%	10%	83%	17%	97%	3%	87%	13%
146	17	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	94%	6%	100%	0%	100%	0%
147	17	100%	0%	0%	94%	6%	0%	100%	0%	100%	0%	100%	0%	100%	0%	94%	0%	94%	6%	100%	0%
148	22	68%	14%	0%	77%	23%	0%	91%	9%	91%	5%	91%	5%	95%	5%	82%	14%	100%	0%	91%	5%
149	19	100%	0%	0%	100%	0%	0%	95%	0%	95%	0%	95%	0%	95%	0%	74%	5%	100%	0%	95%	0%
151	24	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	96%	4%	100%	0%	100%	0%
152	20	100%	0%	0%	95%	5%	0%	100%	0%	100%	0%	100%	0%	100%	0%	95%	0%	100%	0%	100%	0%
153	6	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%	0%	100%	0%	88%	13%	100%	0%	100%	0%

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Anthro Rates for September–October

intid	mc	Hgt (tape) CR	Hgt (self) CR	Hgt RR	Wgt (scale) CR	Wgt (self) CR	Wgt RR	Wst CR	Wst RR
101	17	100%	0%	0%	94%	6%	0%	100%	0%
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114	16	100%	0%	0%	100%	0%	0%	100%	0%
116	18	100%	0%	0%	89%	6%	6%	94%	6%
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106	35	97%	0%	3%	89%	9%	3%	97%	3%
107	21	100%	0%	0%	100%	0%	0%	100%	0%
110	26	100%	0%	0%	92%	4%	4%	96%	4%
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105	21	100%	0%	0%	95%	5%	0%	100%	0%
106	35	97%	0%	3%	89%	9%	3%	97%	3%
107	21	100%	0%	0%	100%	0%	0%	100%	0%
110	26	100%	0%	0%	92%	4%	4%	96%	4%
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114	16	100%	0%	0%	100%	0%	0%	100%	0%
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101	17	100%	0%	0%	94%	6%	0%	100%	0%
102	5	80%	20%	0%	100%	0%	0%	80%	0%
103	20	100%	0%	0%	100%	0%	0%	100%	0%
105	21	100%	0%	0%	95%	5%	0%	100%	0%
106	35	97%	0%	3%	89%	9%	3%	97%	3%
107	21	100%	0%	0%	100%	0%	0%	100%	0%
110	26	100%	0%	0%	92%	4%	4%	96%	4%
111	14	93%	7%	0%	86%	14%	0%	93%	7%
112	28	100%	0%	0%	100%	0%	0%	100%	0%
114	16	100%	0%	0%	100%	0%	0%	100%	0%
116	18	100%	0%	0%	89%	6%	6%	94%	6%
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118	33	94%	6%	0%	85%	12%	3%	94%	6%

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Refresher training

- Refresher trainings on anthropometric protocols took the form of exams
  - Main virtue of an exam: could be administered remotely, interviewers not required to fly back to headquarters
- Goals of the anthropometric refresher training exam
  - Force interviewers to reimmerse themselves in the documented protocols (manual, video)
  - Identify measurements where interviewers needed more individual attention and review
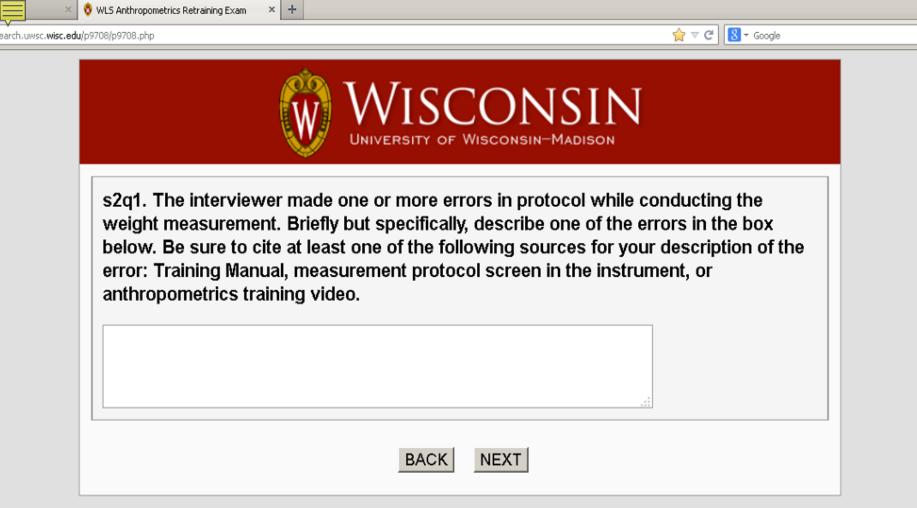
Refresher training

- The exam was administered online using the UW Survey Center's standard web survey platform
- Online exam consisted of
  - Videos of all 8 measurements, each containing intentional errors
  - Questions to identify the protocol errors in videos
- Demo one exam video (weight)
  - Intentional error: Improvised instructions

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s2q1. The interviewer made one or more errors in protocol while conducting the weight measurement. Briefly but specifically, describe one of the errors in the box below. Be sure to cite at least one of the following sources for your description of the error: Training Manual, measurement protocol screen in the instrument, or anthropometrics training video.

BACK   NEXT

If you have any questions about the exam, please contact your team leader.

Click below to close the survey and save your answers.

CLOSE

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Refresher training

- Supervisors evaluated exam answers in the online survey instrument

- Any interviewer with a single incorrect answer took exam again (only questions missed)

- Interviewers who answered incorrectly a second time met with supervisors for in-depth reviews

Conclusions and lessons learned

- Anthropometric module in CASES worked well overall
  - Better than a paper booklet would have
- The online refresher exam served as a good diagnostic
  - The gold standard is in-person refresher training, but online exam was a feasible substitute
  - Would implement the exam sooner in the field period and more often

Ideas for next wave

- A daily or weekly e-mail containing an anthropometrics protocol tip
- WebEx or GoToMeeting video conferencing to provide ongoing training boosters

Acknowledgements

- Brendan Day for programming the online exam
- Chris Huard for camera work and video production
- Marilyn Gannon for playing the respondent in the exam videos

Thank you!

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