

Distributing activity trackers to investigate health behavior: response rates, data quality, and the role of incentives



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Background

- Subjective measures of physical activity, e.g., in health surveys are inaccurate
 - Memory effects
 - Social desirable responding
- Alternative: use sensor system
- Project: investigate feasibility of using professional accelerometers in monitoring systems of the general population



Collaboration

- ◆ National Institute for Public Health and the Environment (NL)
 - Anne Loyen, Marjolein Duijvestijn, Ellen de Hollander
 - EUPASMOS project
- ◆ Statistics Netherlands
 - Annemieke Luiten, Barry Schouten
- ◆ Utrecht University
 - Peter Lugtig, Vera Toepoel



Accelerometer: UKK RM42





Method

- ◆ Health survey
- ◆ Question to wear accelerometer for a week
- ◆ Random sample drawn by Statistics Netherlands from basic administration
 - Online hip (N=8,000)
- ◆ Online: instruction video

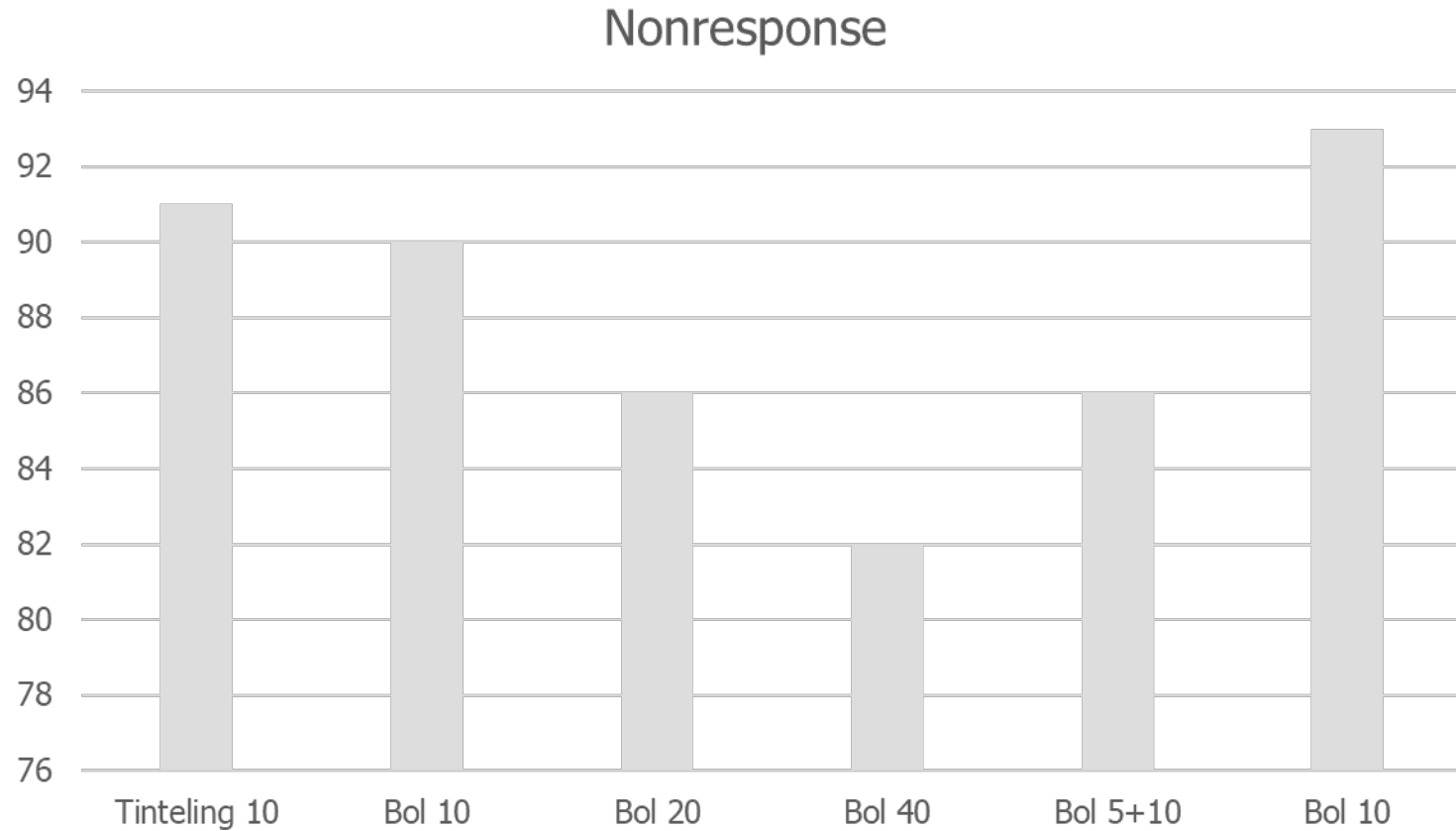
Response rate



n (%)	Response
Completed Questionnaire	1097 (13.8)
Gave permission to send meter	1019 (12.8)
Dropped out (not wear meter)	113 (1.4)
Participated (survey and meter data)	912 (11.4)
Follow up (gave permission for follow up research)	818 (8.2)
N=7968	



Experiment incentives



Logistic regressions predicting participation rates



	Question-naire	Permission	Dropout	Participate	Follow-up
18-34					
50-64	+			+	+
65+	-	-		-	
Men	-	-		-	-
Tinteling10					
Bol20	+		+	+	
Bol40	+		+	+	+
No feedback	-		+	-	-
R2	.3	.3	.1	.4	.3
N	7968	7968	7968	7968	7968



Wear time



%	0	1	2	3	4	5	6	7	N
24h weartime	17.5	.6	1.3	2.0	3.3	8.8	66.1	.4	1119

Logistic regression predicting min. 4 weardays



	B
Men	+
18-34	-
50-64	
65+	+
General health (1=poor)	-
BMI	
Chronical disease	
Physical limitation	
Adherence PA guidelines (self-report)	



Conclusions

- ◆ Low response rate
- ◆ Effect gender, age, incentives on different phases in process
- ◆ Weartime: majority (66%) 24h during whole week
- ◆ Effect gender, age, and general health on weardays (no effect of BMI, chronical disease, physical limitations and adherence to PA guidelines)



Future

- ◆ How to increase response rates?
- ◆ Use of personal devices such as Fitbits
- ◆ See Toepoel, V., A. Luiten & R. Zandvliet (2021). Response, Willingness and Data Donation in a Study on Accelerometer Possession in the General Population. *Survey Practice*.
- ◆ Thank you for your attention!
- ◆ Questions?
- ◆ V.Toepoel@uu.nl