

# Can motivational messages change older adults' momentary motivation of being physically active?

## A micro randomized-controlled pilot trial in older adults

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### 1 Background



Thirty percent of persons aged 65 or older aren't sufficiently physically active. (e.g. Muellmann et al., 2018)



**Implementation intentions** have been found to effectively enhance physical activity, but effects vary greatly. (Gollwitzer, 1999; Gollwitzer & Sheeran 2006)



**Motivation** is assumed to moderate implementation intention effectiveness. (Hagger & Luszczynska, 2014)

### 2 Hypotheses

#### H1) Between-person:

Participants in the intervention group will be more physically active during the intervention period than participants in the control group.

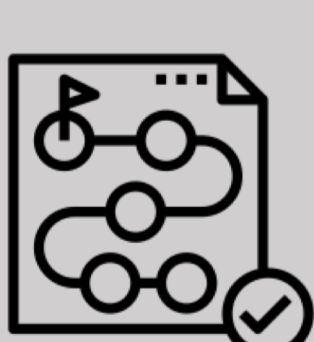
#### H2) Within-person:

On days with motivational messages, participants in the intervention group will be more physically active than on days where they did not receive a motivational message (control days).

#### H3) Motivation:

Participants in the intervention group will score higher in motivational factors after the intervention compared to the control group

### 3 Methods



single-blind two-arm between- and within-person randomized trial

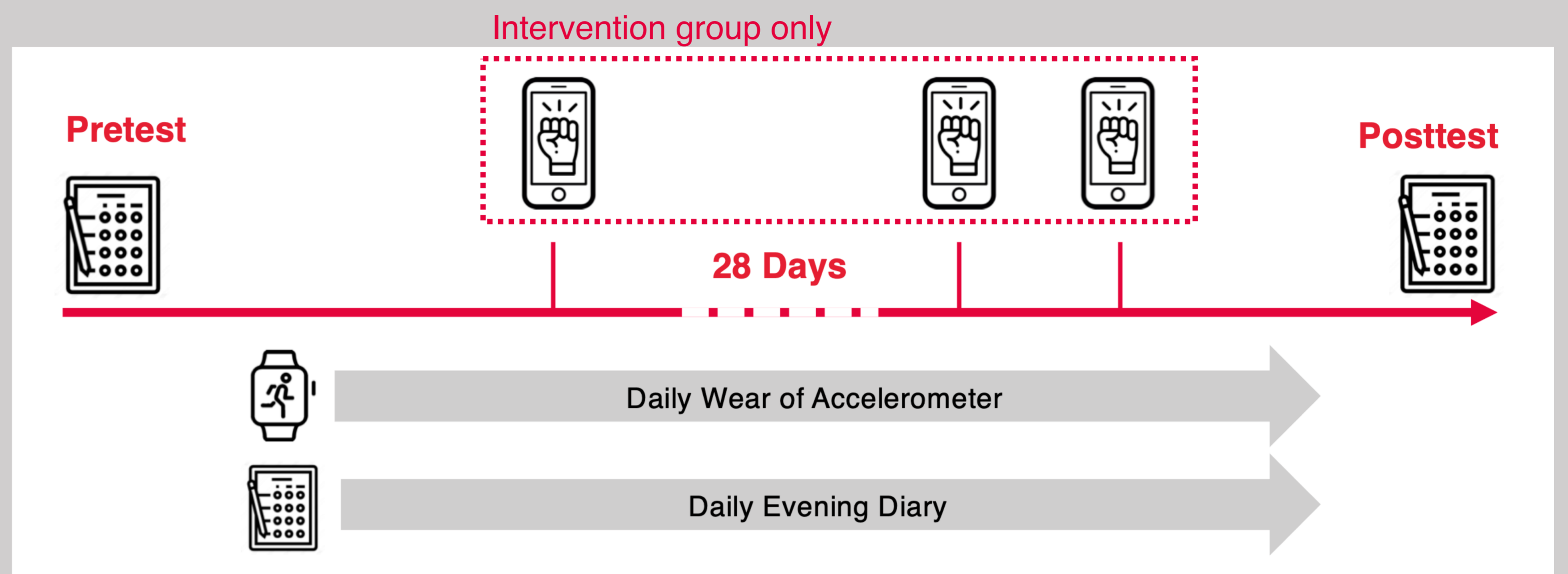
Control Group	Intervention Group
	On random intervention days (n=14)

Inclusion criteria: 65+, no dementia, willing to be active

Sample: 39 older adults  
71.3 years (SD = 4.8, range: 65 – 84)  
Observations: 1232

### 4 Study Design

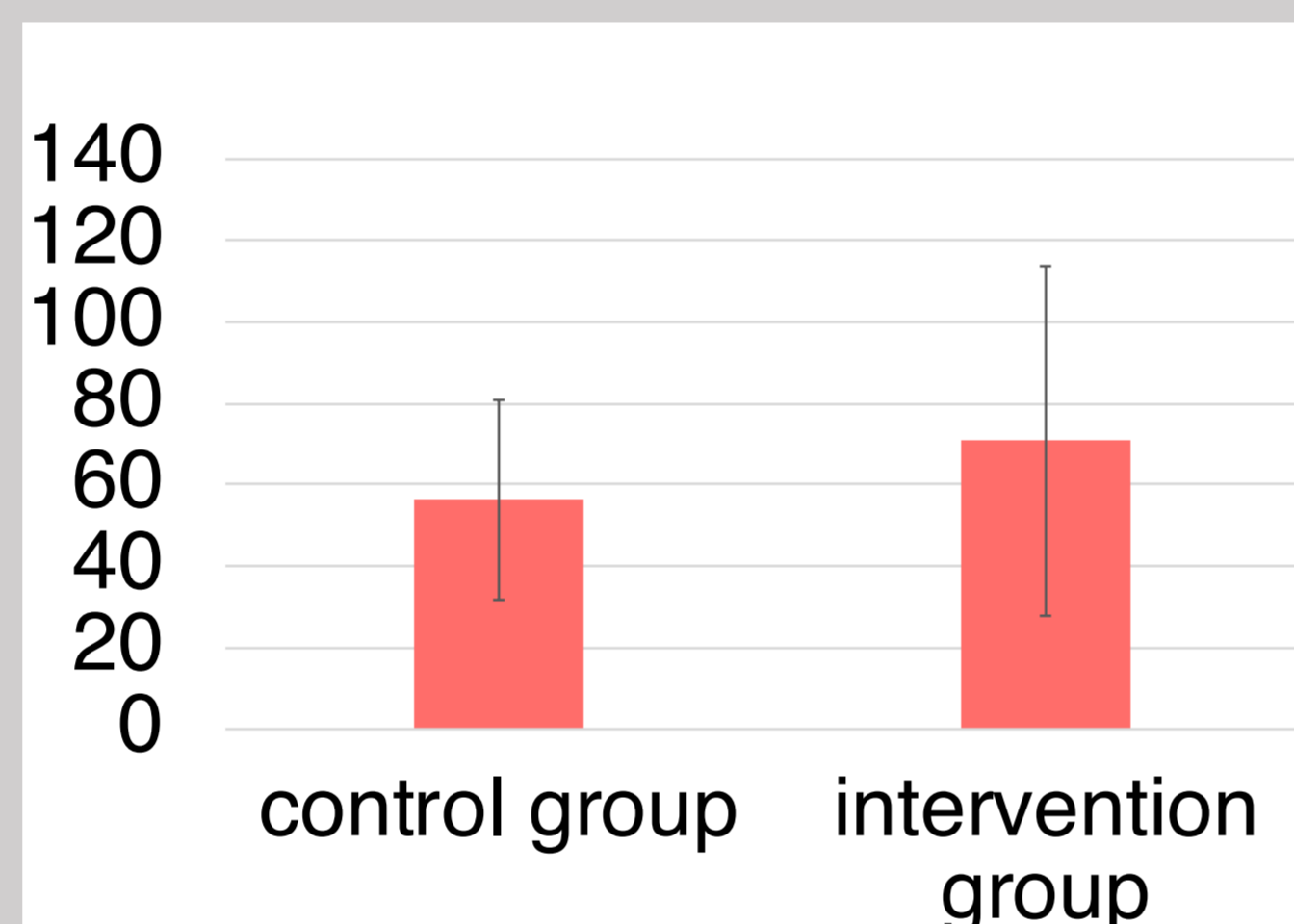
#### Experimental diary study



### 5 Results



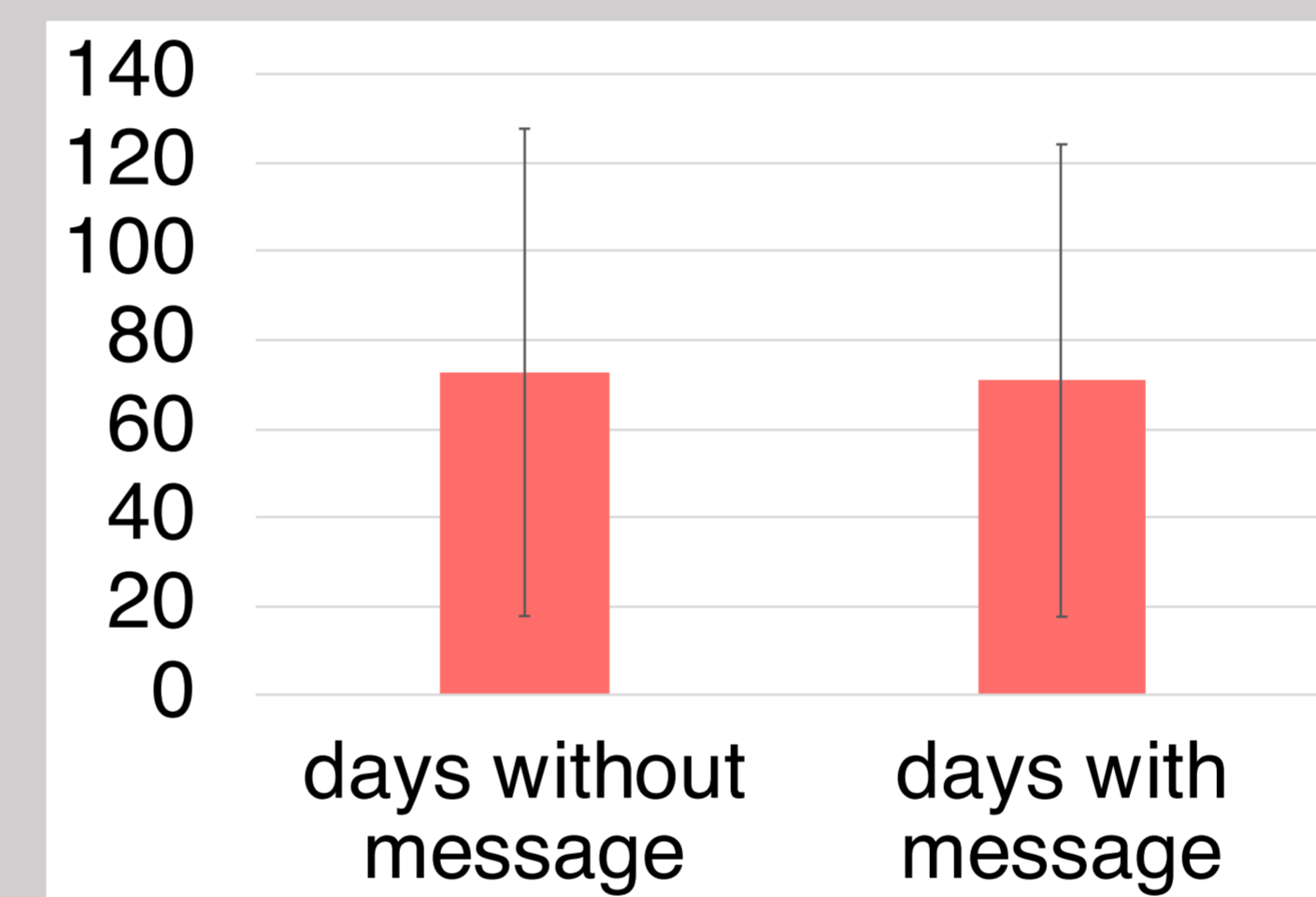
**Figure 1:** mean daily moderate to vigorous physical activity in minutes of the intervention and control group measured by accelerometer



Notes. The error bars represent the standard deviation



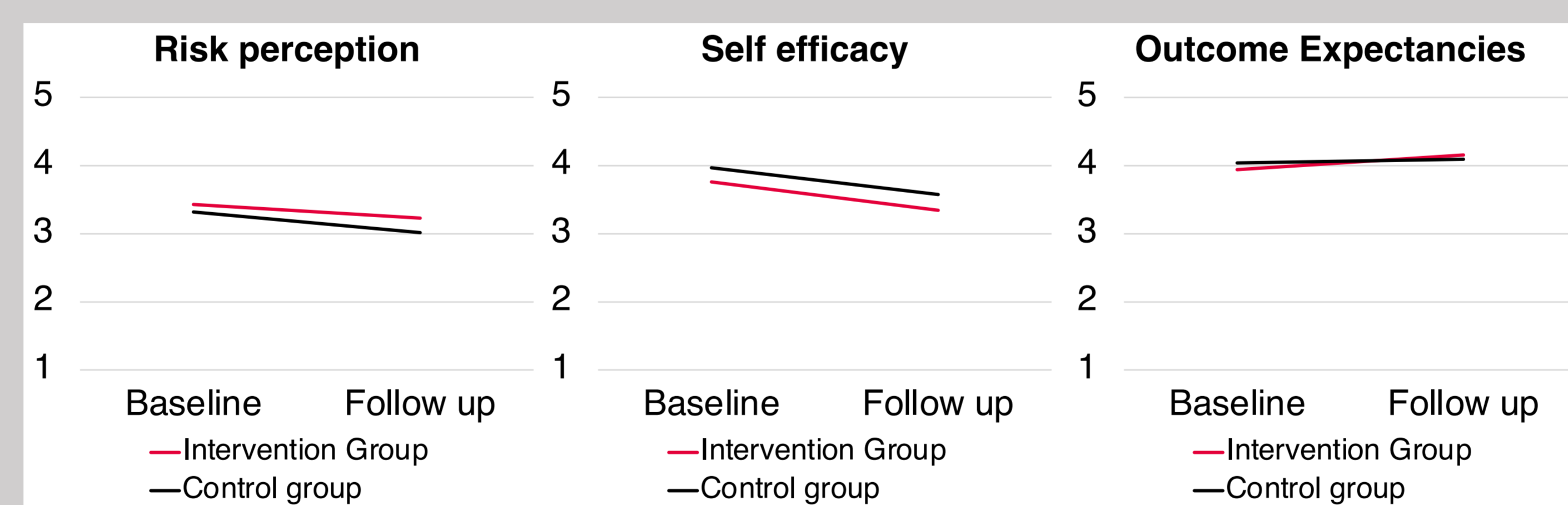
**Figure 1:** mean daily moderate to vigorous physical activity in minutes of days with and without motivational message measured by accelerometer



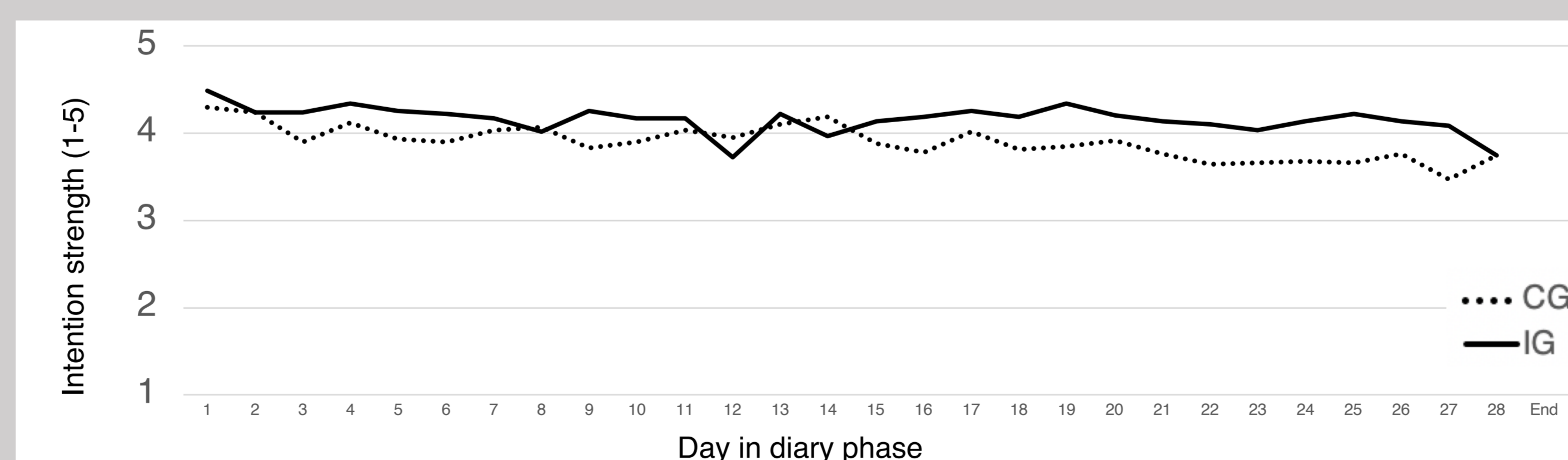
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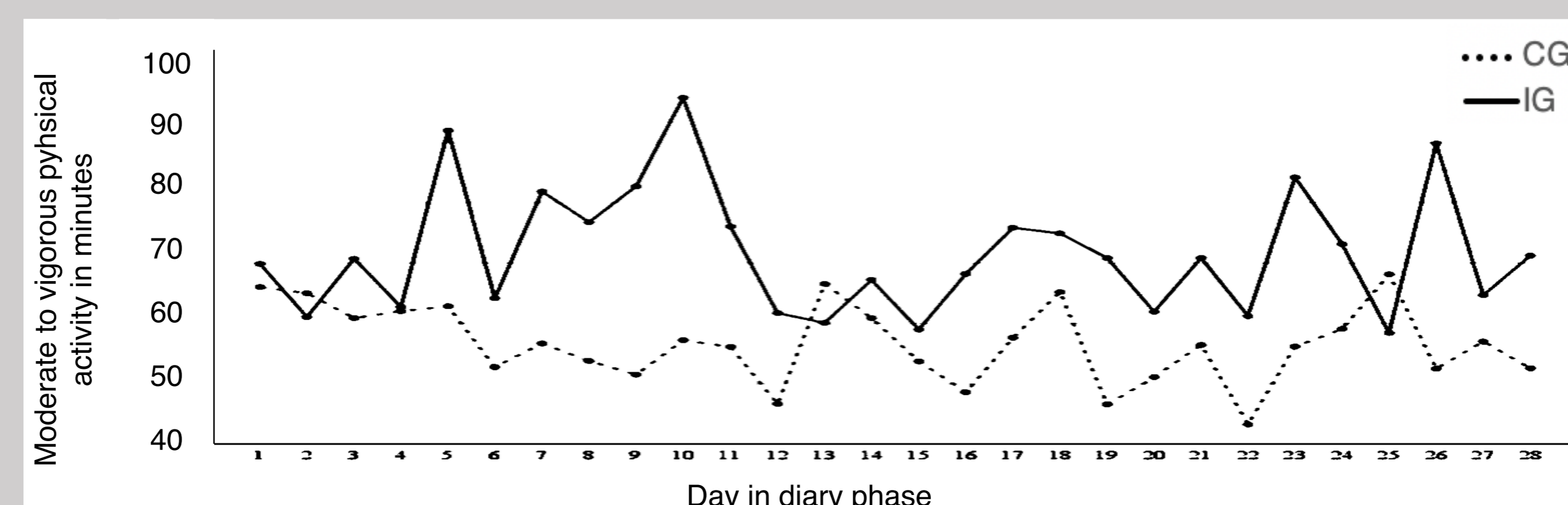
**Figure 3.** mean **motivational factors** of the intervention and control group before and after the intervention period



**Figure 4.** development of the intention during the diary phase in control and intervention group measured by accelerometer.



**Figure 5.** development of the moderate to vigorous physical activity during the diary phase in control and intervention group measured by accelerometer.



### 6 Discussion



Motivational messages couldn't improve physical activity compared to only implementation intentions.



Older adults were not more active on days with motivational messages



No differences in motivational factors to be more active could be found between groups after the intervention period



However, participants in the intervention group were by trend more active, had less decline in activity and had stronger intentions over the course of the intervention



Further studies and more participants are needed to understand the **influence of motivational messages on socio-cognitive variables**



**Selection Bias and possible Ceiling Effects:** Older participants in the sample were already very active and motivated

### References

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Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. *Advances in experimental social psychology, 38*, 69–119.  
Hagger, M. S., & Luszczynska, A. (2014). Implementation intention and action planning interventions in health contexts: State of the research and proposals for the way forward. *Applied Psychology: Health and Well-Being, 6*(1), 1–47.  
Muellmann, S., Forberger, S., Möllers, T., Bröring, E., Zeeb, H., & Pischke, C. R. (2018). Effectiveness of eHealth interventions for the promotion of physical activity in older adults: A systematic review. *Preventive medicine, 108*, 93–110.