# Social cognitive and parasympathetic correlates of loneliness in everyday life



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### Introduction

- Loneliness has been shown to be a risk factors for cardiovascular diseases (CVD), but the underlying mechanisms are still not fully explored;
- · Abnormal social threat percetion reported in lonely individuals (LI) could be reflected by reduced parasympathetic regulation measured with heart rate variability (HRV);
- Most of the initial evidence for the associations between loneliness, reduced HRV, and the increased social threat has been come from laboratory studies examining short-term cardiac activity at rest.
- The current study examined the relationship between real-life HRV markers and appraisals of everyday social encounters in lonely (LI) and non-lonely individuals (NLI)

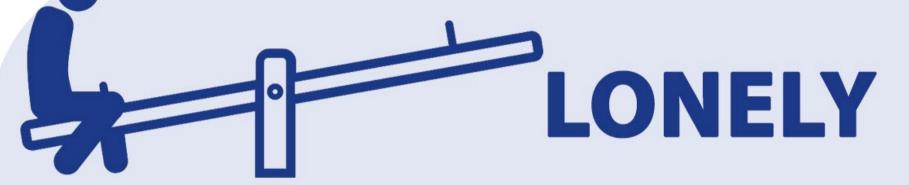
### Participants

## **NON-LONELY** • Sex: 26 females, 25 males

• RUCLA score: < 33 (first quartile)

• Age: 24.23 ± 4.42

# Methods



- Sex: 28 females, 26 males
  - Age:  $24.20 \pm 4.24$
- RUCLA score: > 48 (fourth quartile)

### Experience sampling

• 7 days, 9 promtps/day (9:00-21:00), semi-random sampling scheme

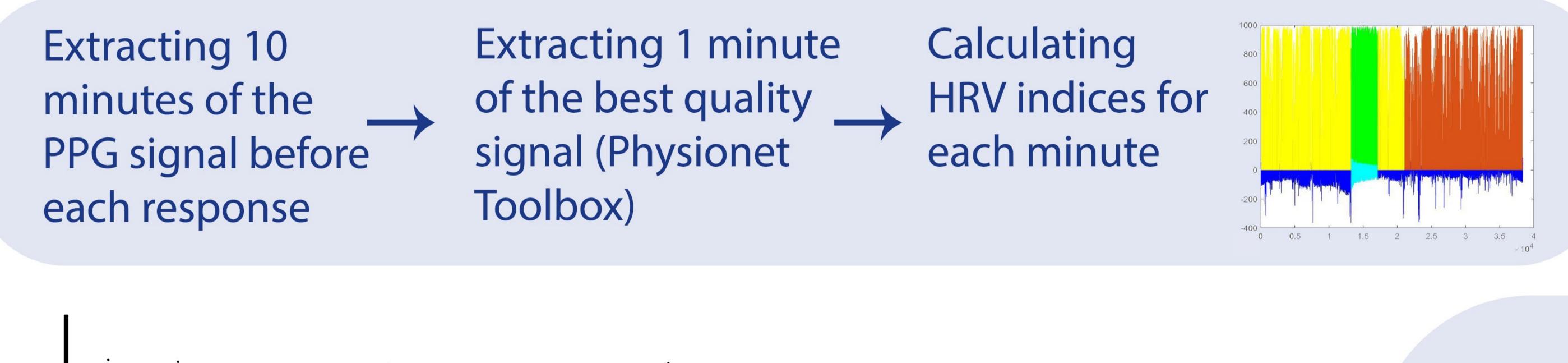
### Physiological assessment

Photoplethysmography sensor of Empatica E4 wearable device

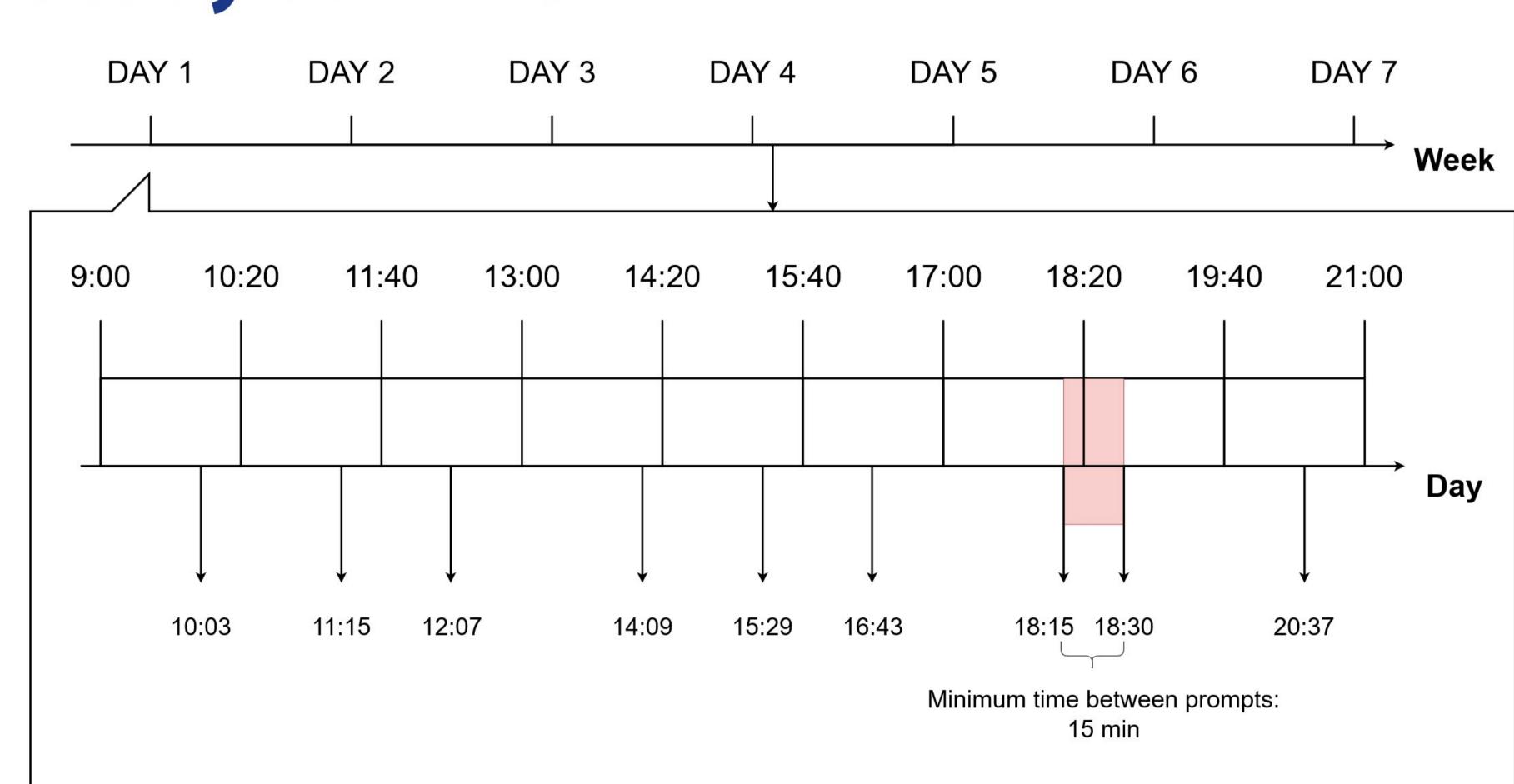
### Laboratory assessment

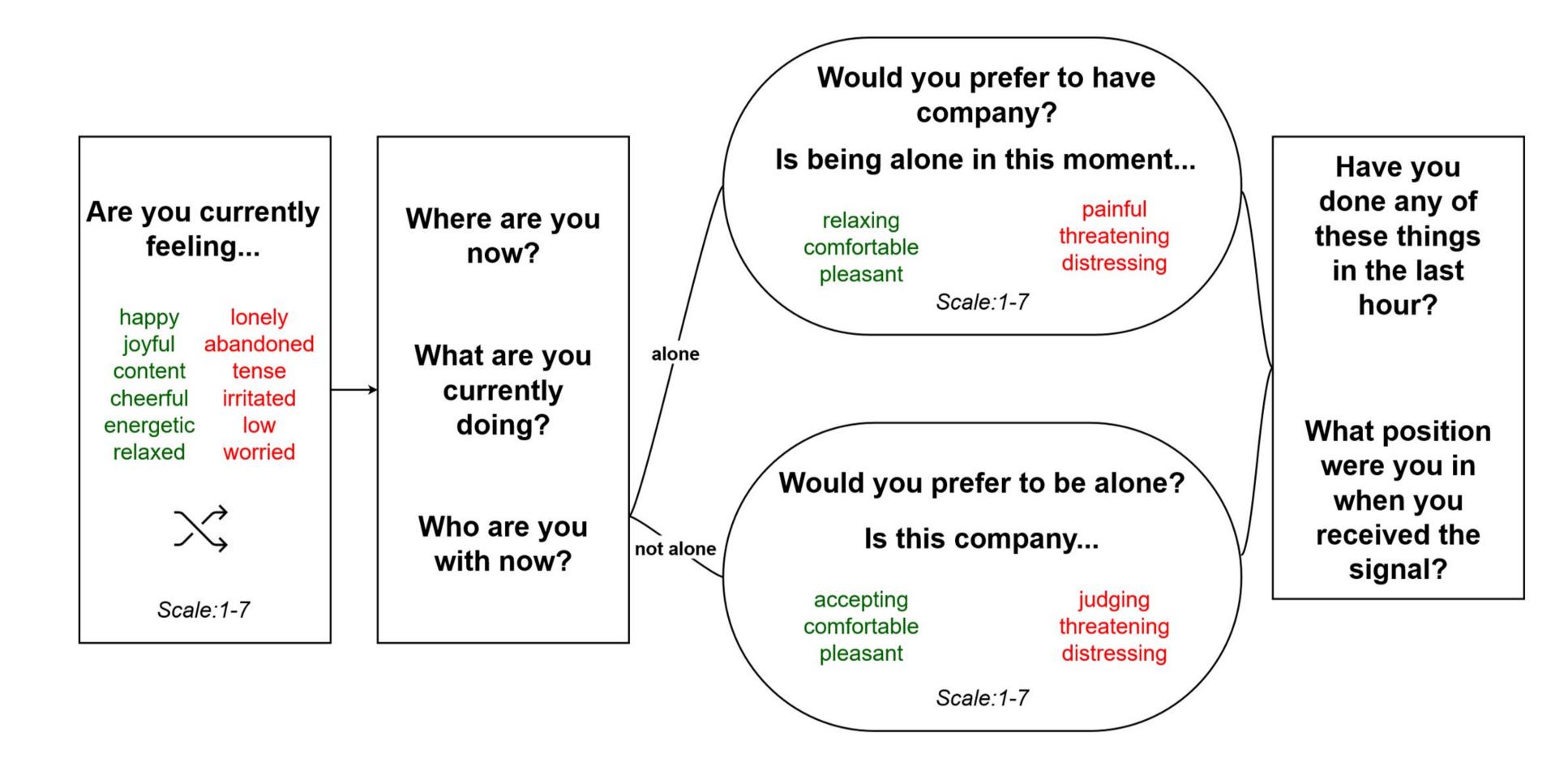
- Social cognition measures: a/ Reading Mind in the Eyes, b/ Penn Emotion Recognition Task, c/ The Mini Profile of Nonverbal Sensitivyty
- Social cognitive biases measures: / Davos Assessment of Cognitive Biases Scale, b/The Ambiguous Intentions Hostility Questionnaire

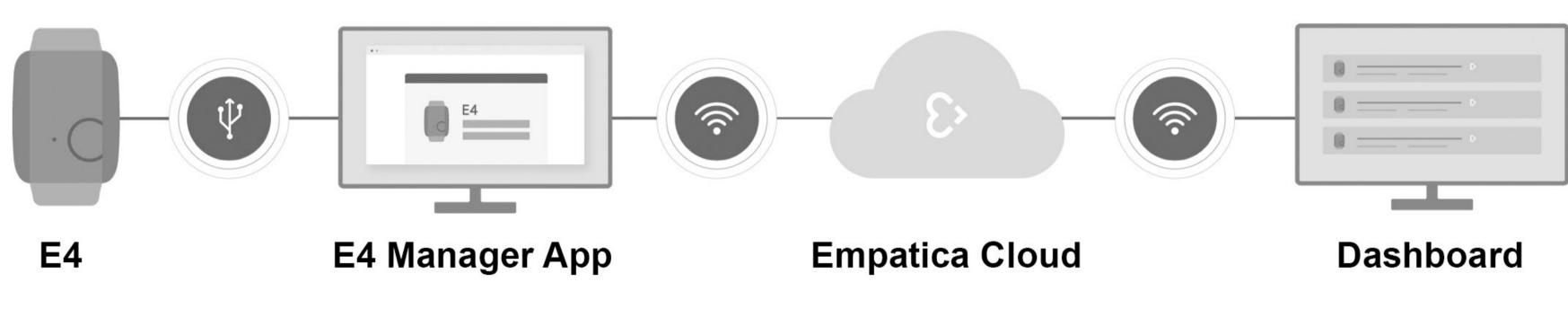
### Signal preparation



### Study scheme







# Lonely & Abandoned

# Results

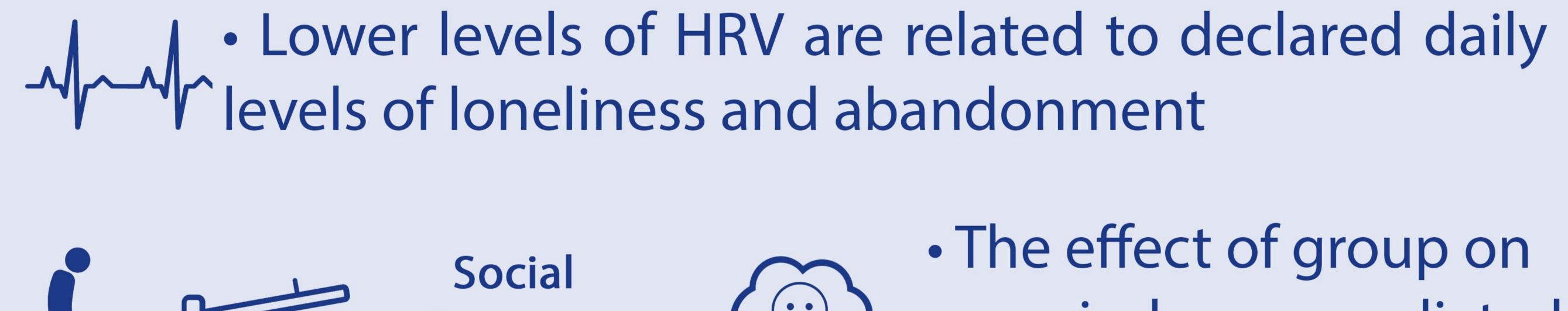
 More negative and less positive affect in LI as compared to NLI



 More negative & less positive appraisals of both company of others and being alone in LI as comapred to NLI



 LI have globally lower levels of parasympathetic activity (as measured by HRV indices)



 The effect of group on appraisals was mediated by social cognitive biases

# Conclusions

- Presented findings offer a novel insights into real-life effects of loneliness on affective, cognitive, and physiological outcomes
- Methodology used for the study allows for an unobstrusive measurement of parasympathetic activity and can be used to study psychophysiological phenomena outside of the laboratory settings