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Introduction

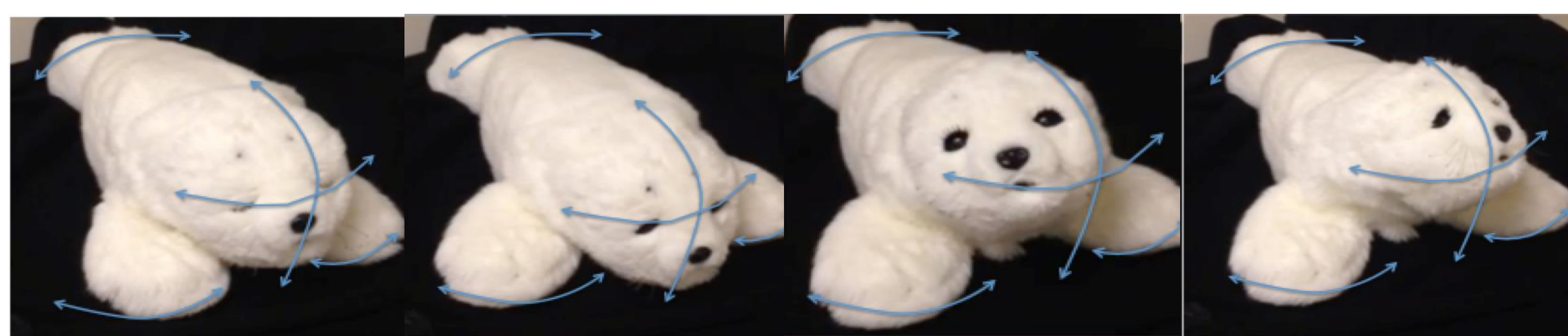
- Older adults' daily lives may be stressful for a variety of reasons (Lawrence & Schiller Schigelone, 2002)
- If stress is not properly managed, it can have a negative impact on physical and mental health (Lawrence & Schiller Schigelone, 2002; Norris & Murrell, 1990)
- Previous research on socially interactive robots such as PARO has suggested that they may have the potential to be effective sources of stress-reduction for older adults, but this claim has not been empirically tested (Wada & Shibata, 2006)
- Further investigation is needed on PARO's ability to reduce older adults' perceived stress and workload while engaging in a difficult task

Goals of Research

- Does PARO reduce older adults' perceived stress while they engage in a cognitively demanding task?
- Do the effects persist after PARO is removed?

Method & Procedure

Robot: PARO, designed by Dr. Takanori Shibata for therapeutic purposes



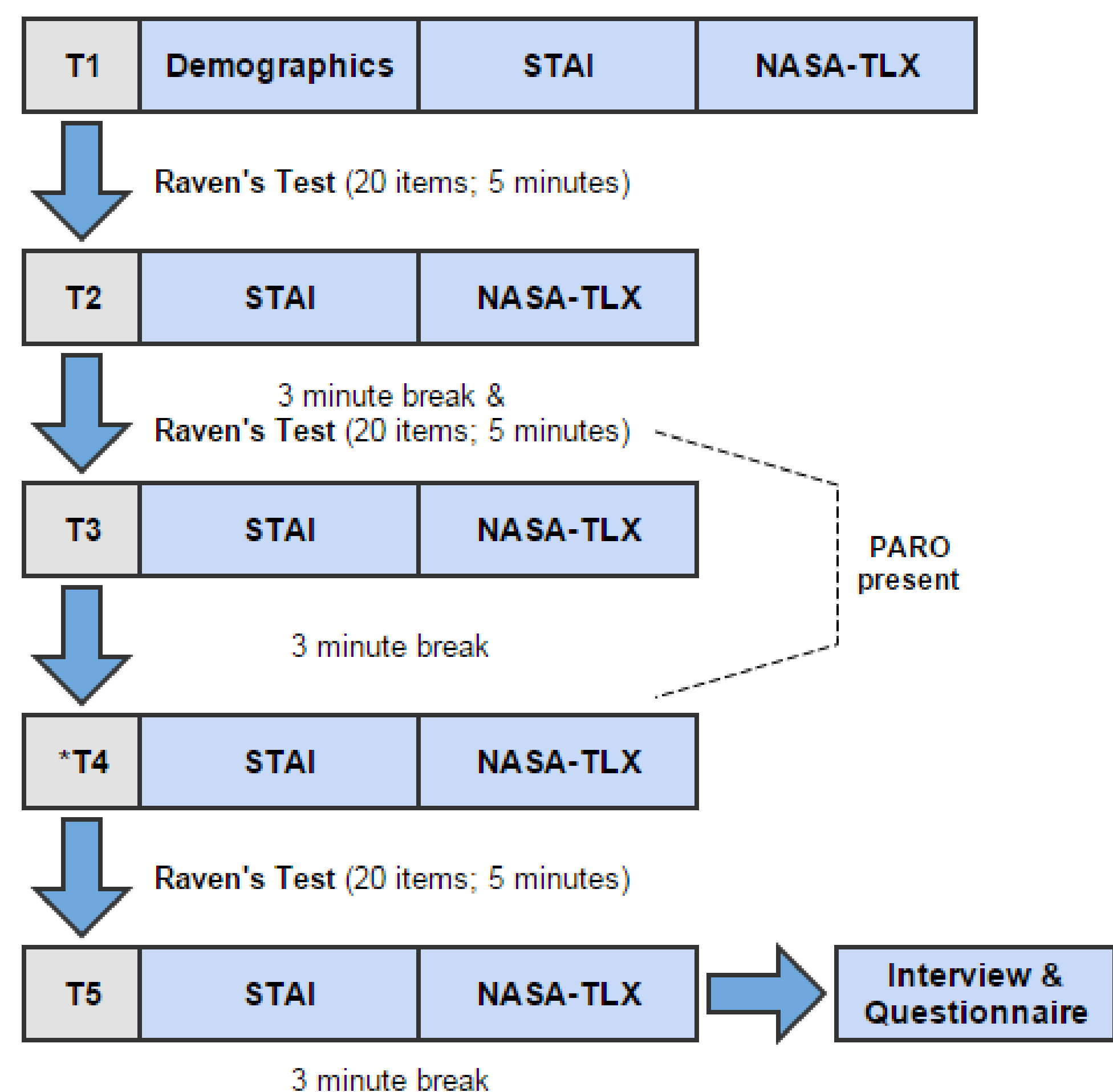
Participants: 8 older adults (Sample Range= 67-76 years; $M= 69.63$)

Stress: State subscale of the State-Trait Anxiety Inventory (STAI)
(Possible range = 20-80)

Workload: Mental demand, effort, and frustration subscales of the NASA-TLX
(Possible range = 15-300)

Difficult Task: Raven's Progressive Matrices Test

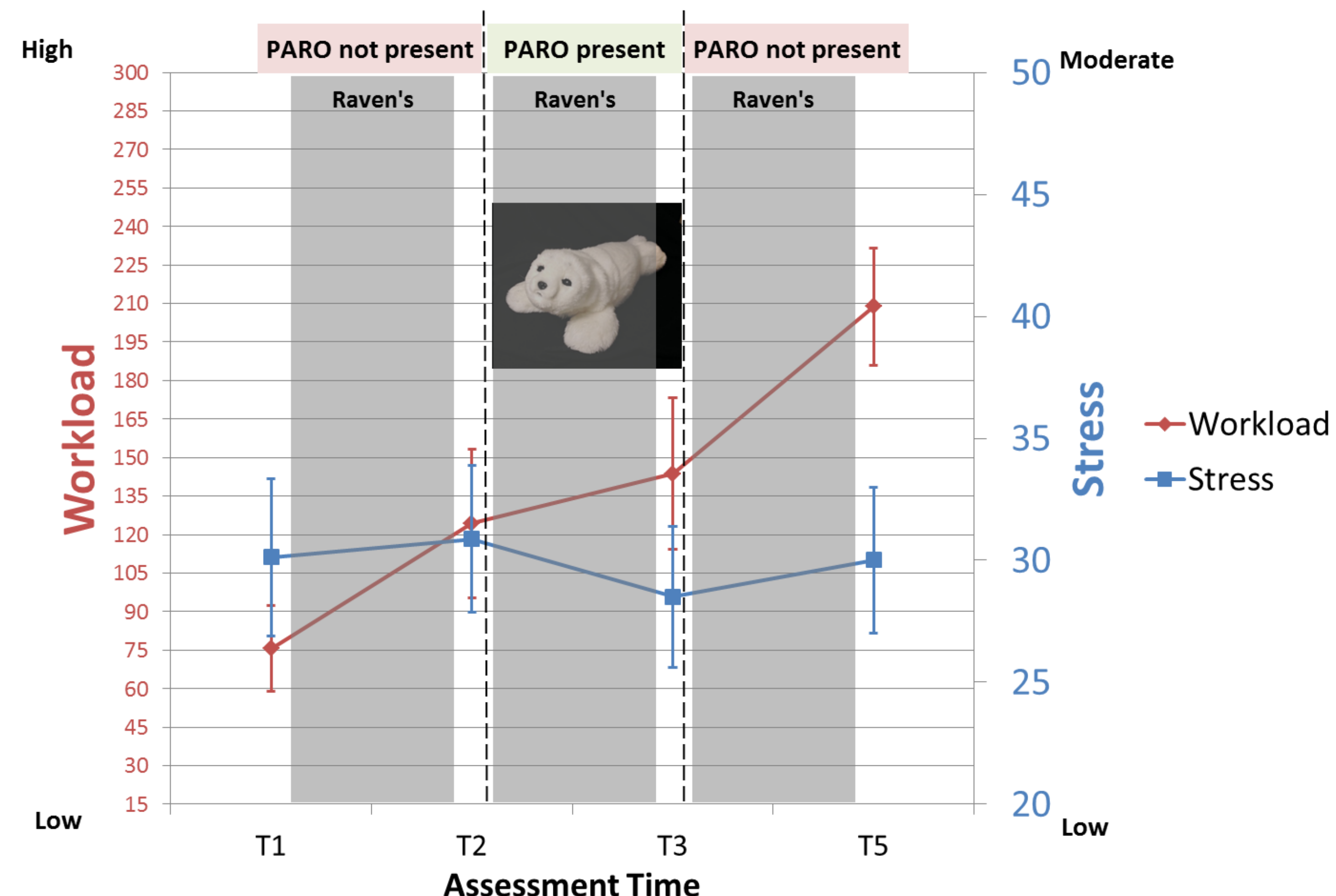
Procedure:



*Results for T4 assessments will not be presented here. We were interested in assessments administered immediately following the cognitively demanding task for these analyses.

Results

PARO's Impact on Workload and Stress



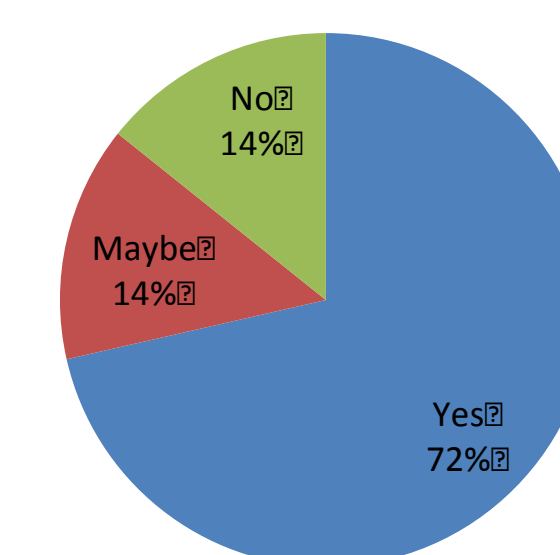
Workload

- Engaging in the cognitively demanding task (Raven's) increased workload, even with PARO present.
- Workload continued to increase after PARO was removed

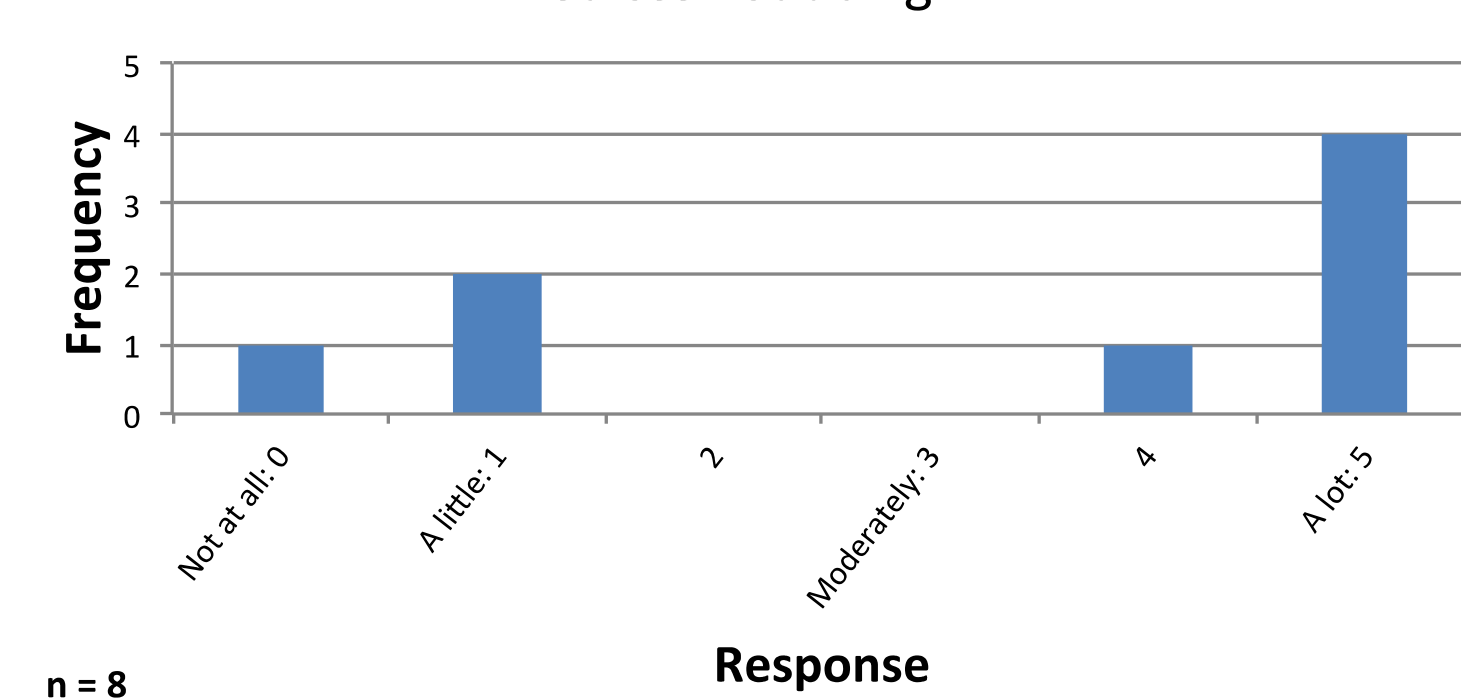
Stress

- Engaging in the cognitively demanding task increased stress slightly from baseline
- When PARO was present, stress decreased despite the cognitively demanding task
- After PARO was removed and the demanding task was re-administered, stress returned to baseline

In general, do you think PARO could help reduce stress?



During the study, did you find PARO to be stress-reducing?



- Most participants felt that PARO was capable of reducing stress in general
- Most of these participants found PARO to be more than moderately stress-reducing during the study and only one did not think PARO was stress reducing at all

Discussion

- As expected, doing the cognitively demanding task increased workload throughout the study
- Stress was relatively low throughout the study, and was not greatly impacted by the cognitively demanding task. However, stress was lowest when PARO was present during the task and then returned to baseline after PARO was removed from the room
- Identifying new methods of diminishing stress is critical to the support of healthy aging
- These data provide valuable insights into the potential of the PARO robot as a stress reduction tool for older adults

Acknowledgements

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References

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