

Project PEEL: Purpose and Engagement in Everyday Life



Isabella Gomez, Peter Failma, Charlotte Palmer, Dr. Angelina Sutin

Department of Behavioral Sciences and Social Medicine, College of Medicine
Florida State University



Introduction

- The PEEL study focuses on how a sense of purpose in life may be related to maintaining memory and cognitive function while aging
- This is determined by gathering data on participants' daily lives (e.g. exercise levels), feelings they may experience (e.g. life satisfaction), and cognition
- Exercise improves both the physical and mental well being of adults, decreases the likeliness of developing disease or chronic conditions, and increases overall happiness
- Our research will use the data collected in this study to answer the question: **How does exercise affect life satisfaction and cognitive performance in older adults aged 65 and older?**

Methods

- Participants that fell within one of the three following groups
 - Group 1: Healthy adults aged 40-64
 - Group 2: Adults aged 65 and older with subjective cognitive decline
 - Group 3: Adults 65 and older with no subjective cognitive decline
- It is intended that the population is
 - 50% male/female gender identity
 - At least 30% people of color and
 - At least 30% from low-income households..
- Subjective cognitive impairment: Participants who report cognitive complaints but who score within **the normal range of cognitive function and do not have severe symptoms of depression or anxiety**
- Offered participants compensation of up to \$275 for their participation in the study

1. Screening by staff, which measured

Measure	Scale	Sample Items
Subjective Cognitive Decline	Criteria established by the Subjective Cognitive Decline Initiative (SCD-1) Working Group	- Do you feel your memory and thinking has become worse over the past 2-3 years? - Do you feel that your ability to learn new things has become worse over the past 2-3 years?
Cognitive Function Test	TICS _m , verbal fluency	- Immediate and delayed recall of 10 word - Serial 7 subtraction, - Backward counting - Scored on a scale of 0-26
Depression/Anxiety	PHQ-4	- "Over the last 2 weeks, how often have you been bothered by the following problems?" - Items are rated on a scale from 0 (not at all) to 3 (nearly every day) and summed separately for depression and anxiety.

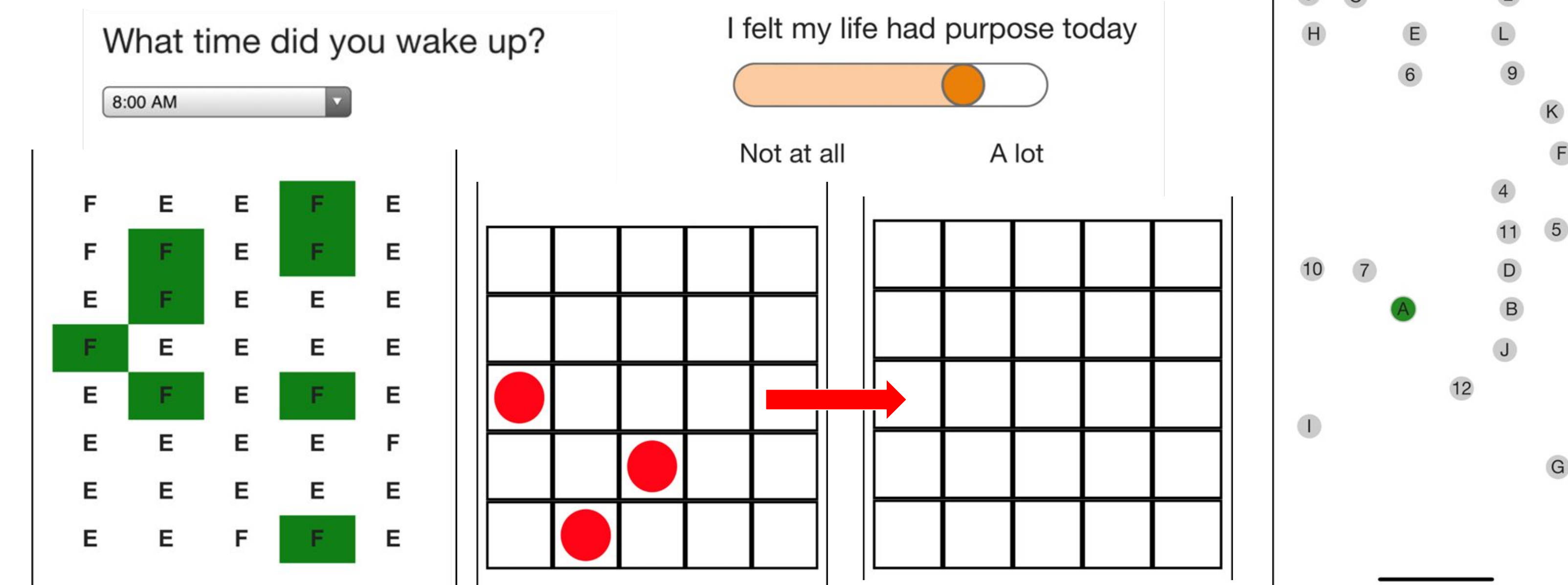
Methods (Cont.)

2. Baseline survey, which measured

Measure	Scale	Sample Items
Purpose in life	Ryff Measure of Psychological Well-Being	- "I have a sense of direction and purpose in my life." - "I am satisfied with my life" - Item is rated on a scale from 1 (strongly disagree) to 5 (strongly agree)
Well being	Ryff Measure of Psychological Well-Being	- I like most parts of my personality." - "I have confidence in my own opinions, even if they are different from the way most other people think."
Personality	BFI-2	- "I am someone who worries a lot." - "I am someone who has a forgiving nature."
Trait engagement	Positive and Negative Affect Schedule, GRIT Scale, Adult ADHD Self-Report Scale, HRS social support measure	- "I finish whatever I begin." - "How much can you open up to them if you need to talk about your worries?" - "How much do they let you down when you are counting on them?"
Health behaviors	Smoking history, physical activity, sleep	- "How often do you take part in sports or activities that are vigorous, such as running or jogging, swimming, cycling, aerobics or gym workout?" - "How often do you have trouble falling asleep?"
Clinical history	hypertension, diabetes (type 1 and type 2), or depression	- Report on their medical history, including whether a physician has ever diagnosed them with a condition/illness

3. EMA Assessments, which measured

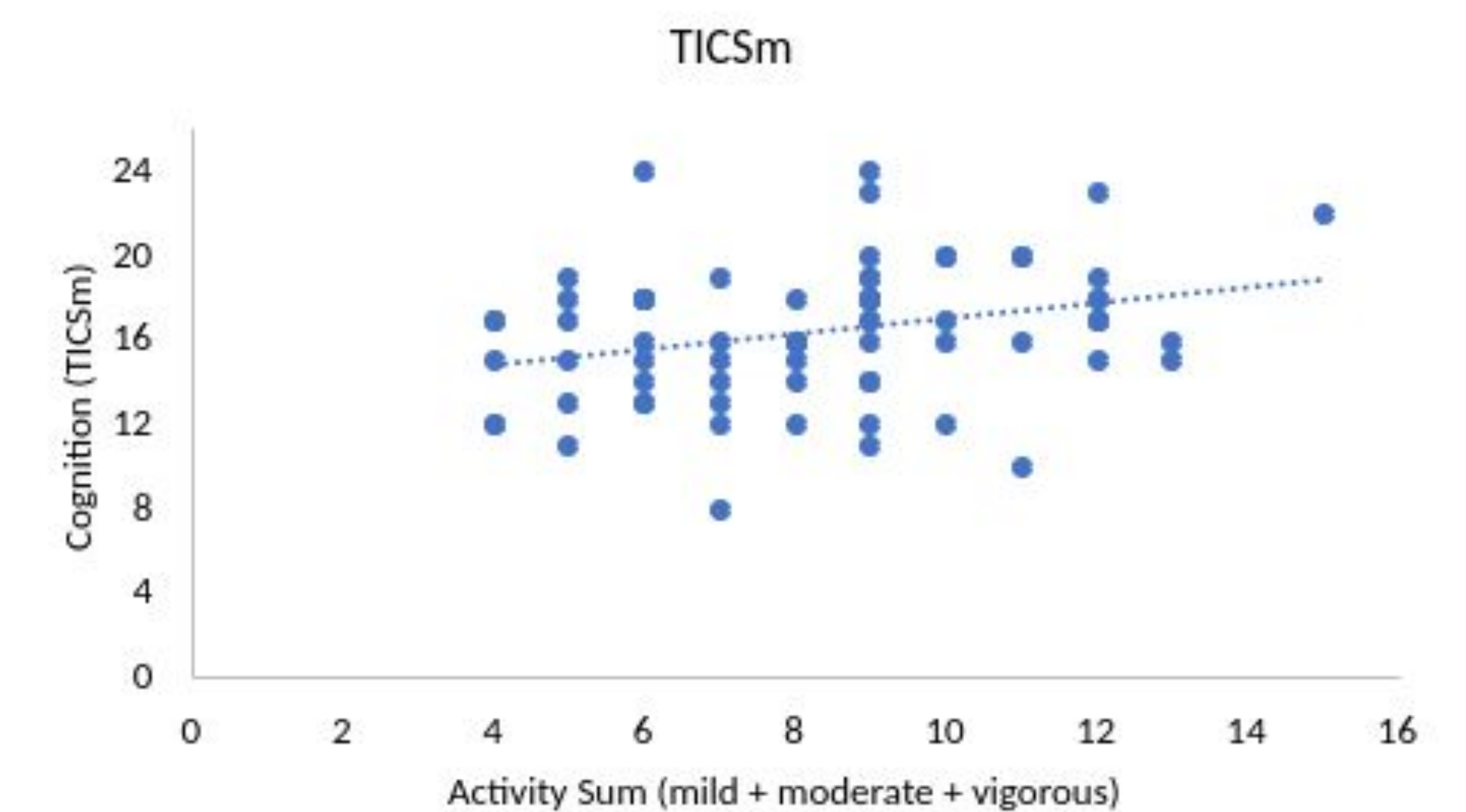
- Momentary purpose
 - Momentary engagement
 - Emotional engagement
 - Behavioral engagement
 - Cognitive engagement
 - Brain games
 - Relational engagement
- The EMA Assessments consist of 5 daily surveys for a span of 8 days
- 1 daytime survey
 - 3 daytime surveys
 - 1 night survey



4. Year 4-5 Telephone Follow- Up to inquire about participant's cognition and purpose then.

Preliminary Results

- Data analyzed from 73 participants aged 65 and older to determine a relationship between exercise (predictor) and cognitive function, and a relationship between exercise (predictor) and life satisfaction,
- Activity scaled on a summed score of mild, moderate, and vigorous activity
- Life satisfaction measured by characteristics from the baseline survey (ranked by participants on a scale of strongly disagree-strongly agree); cognition measured from cognitive function test
- A significant, positive correlation was found between activity and cognitive performance in adults aged 65 and older
- Found an **increase of 0.92 in TICs scores (range:0-26), on average, for one standard deviation increase in activity**
- This correlation **increased to 1.01 in TICs scores when variables such as sex and age were accounted for, and grouping participants into subjective cognitive decline and non-subjective cognitive decline groups**
- Graph shows correlation between activity and cognition



- There was **no correlation of significance between exercise and life satisfaction** in adults aged 65 and older

Discussion/Conclusion

- From the data collected/analyzed, a significant positive correlation was found between exercise (predictor), and cognitive function
- Regarding exercise and life satisfaction, no significant correlation was found. Due to the limited sample size, n=73, a larger number of participants may be needed in order to find a significant statistical correlation
- Because there is little difference in cognitive function between those who exercise sometimes and those who exercise everyday, we assume, from this data, the extent to which one exercises does not have a significant impact on cognitive function, as long as some sort of activity is performed

References

- Sutin, A. R., Aschwanden, D., Luchetti, M., Stephan, Y., & Terracciano, A. (2021). Sense of purpose in life is associated with lower risk of incident dementia: A meta-analysis. *Journal of Alzheimer's Disease*, 83, 249-258. DOI: 10.3233/JAD-210364
- Cunningham, C., O' Sullivan, R., Caserotti, P., Tully, MA. Consequences of physical inactivity in older adults: A systematic review of reviews and meta-analyses. *Scand J Med Sci Sports*. 2020; 30: 816- 827. <https://doi.org/10.1111/sms.13616>
- Sutin, A. R., Luchetti, A., Stephan, Y., Strickhouser, J. E., Terracciano, A. (2022). The association between purpose/meaning in life and verbal fluency and episodic memory: A meta-analysis of >140,000 participants from up to 32 countries. *International Psychogeriatrics*, 34, 263-273. Doi: 10.1017/S1041610220004214.
- Sutin, A. R., Luchetti, M., Aschwanden, D., Lee, J. H., Sesker, A. A., Stephan, Y., & Terracciano, A. (2022). Sense of purpose in life and concurrent loneliness and risk of incident loneliness: An individual-participant meta-analysis of 135,227 individuals from 36 cohorts. *Journal of Affective Disorders*, 309, 211-220. Doi: 10.1016/j.jad.2022.04.084

Acknowledgements

Special thanks to all members of the Sutin Lab, especially Dr. Sutin herself, Finesse Beck, Hannah Lovett, and Justin Brown.