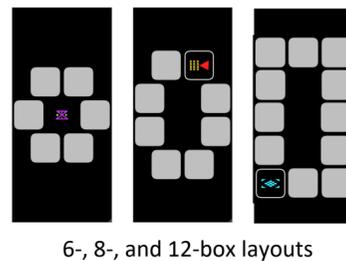


Background

The Paired Associates Learning (PAL) task is a reliable, sensitive tool for assessing memory capabilities. We have developed and tested a Smartphone-adapted PAL version. Here, we explore its characteristics in an online sample of older adults.

Method

We developed layouts that mirror the classic PAL form, while using portrait mode for easy smartphone handling.

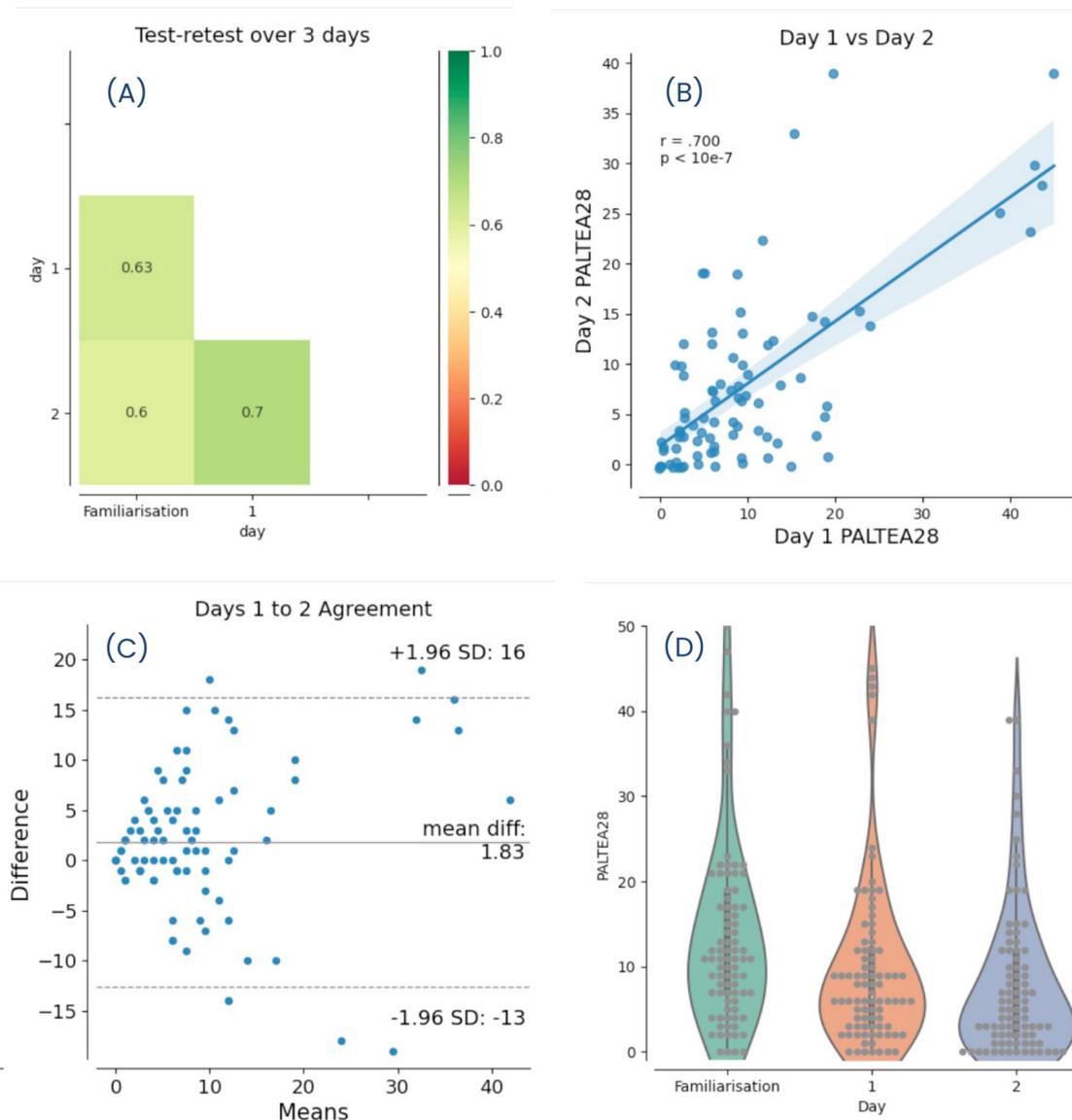


Participants: 31 males, 55 females aged 55+ (M=57.6, SD=5.65) were recruited for online testing using the Prolific platform.

Procedure: Users completed the smartphone PAL task for three consecutive days on their own devices.

Analysis: Adjusted error scores were analysed for up to eight-box problems. Pearson correlations were used to assess test-retest reliability.

Results



Adherence and enjoyment of the task: High: there was minimal user attrition (<5%) and users free-text feedback was unanimously positive.

Test-retest reliability: As seen in heatmap (A) and scatterplot (B), good between Familiarisation and Day One ($r = .63$), very good between Days 1 & 2 ($r = .7$). Bland-Altman plot (C) showing <2 error point bias in Days 1 & 2.

Task Learning Effect: As shown in the violin plots (D), there was some task learning between each day's testing, Familiarisation Session (M=14.5, SD=12.6) to Day One (M=9.7, SD=10.0), $T(85) = 4.420$, $p < .001$ and Day One to Day Two (M=7.9, SD=8.8), $T(85) = 2.286$, $p = .025$.

Familiarisation: Prior familiarisation reduced the learning effect between sessions. The difference between Familiarisation and Day One (M=4.8, SD=9.9), and Day One and Day Two (M=1.83, SD=7.4) was significant $T(85) = 1.903$, $p = .0302$, 1-tailed, supporting our advice that the Familiarisation session helps reduce task learning.

Conclusion

The smartphone version of PAL exhibits good reliability and users respond positively to it. Familiarisation sessions reduce learning effects, enhancing the task's effectiveness. The smartphone version of PAL is well-received by older participants, indicating its potential value in this demographic.

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