Screening For Cognitive Dysfunction in Older Adults with Type 1 Diabetes

Authors

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INTRODUCTION

- Cognitive dysfunction is common in older adults with type 1 diabetes (T1D) and may affect medication adherence, glucose monitoring, and safety.
- Routine screening is recommended but underused in busy clinics due to time and resource constraints.
- The Digit Symbol Substitution Test (DSST) is a brief cognitive measure with extensive use in paper-and-pencil form.
- A digital DSST could streamline administration and scoring.
- A previous study conducted by our group demonstrated validity in a sample of older adults with Type 2 Diabetes.

Abbrev.: T1D = type 1 diabetes; DSST = Digit Symbol Substitution Test

OBJECTIVE

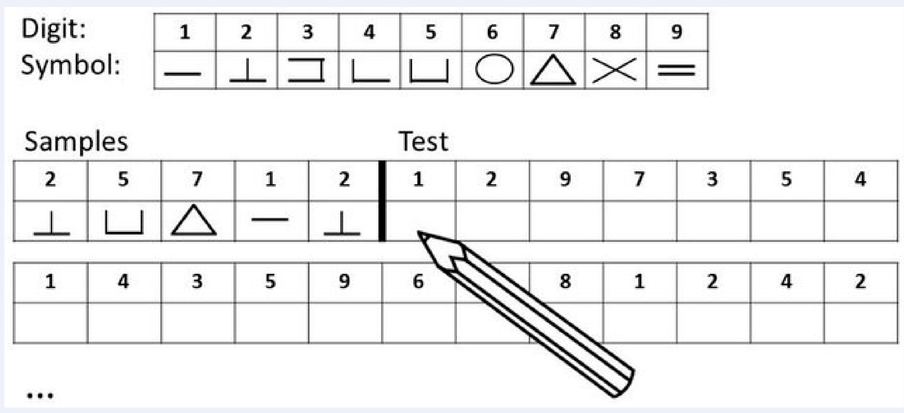
- To assess the validity of a digital version of the DSST in a sample of older adults with T1D.
- This will be conducted by assessing:
- The correlation between the scores achieved on the digital and the pen and paper version of the DSST.
- The correlation between the scores achieved on the digital DSST and other cognitive measures.

METHODOLOGY

- Adults ≥60 with T1D at Sheba Medical Center.
- Administer the digital and pen&paper versions of the DSST in a randomized order (digital↔paper).
- Demographic/clinical data via questionnaire/EMR.
- Analyses: Pearson r + slope/intercept, Bland–Altman bias/limits, T test for difference in the digital DSST score according to catagories of cognitive status.
- Planned N=50; current N=20.

DIGIT SYMBOL SUBSTITUTION TEST

Pen and Paper Version:



Digital Version:

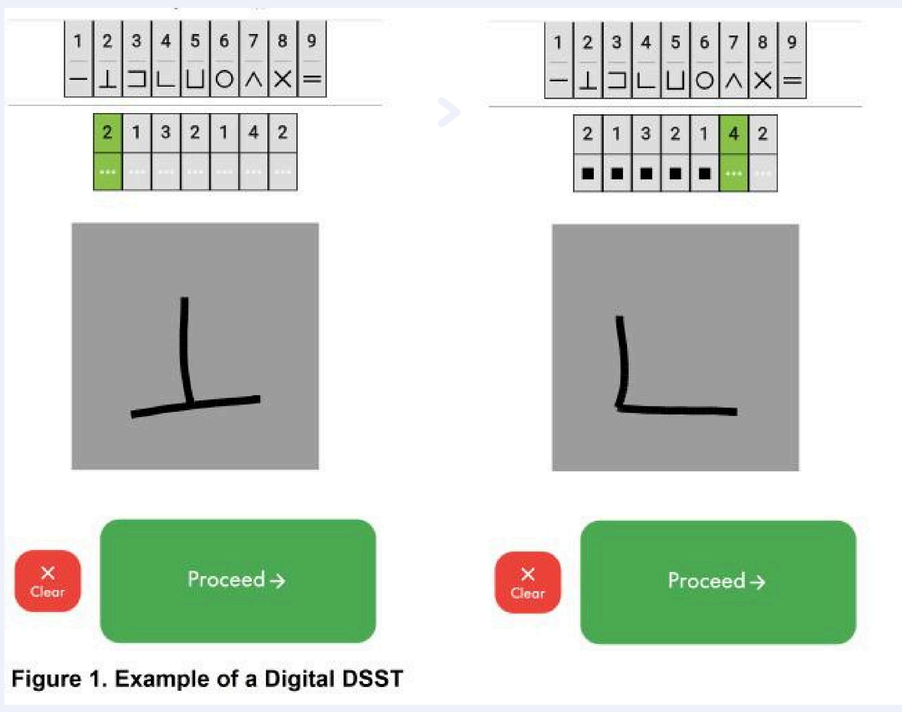


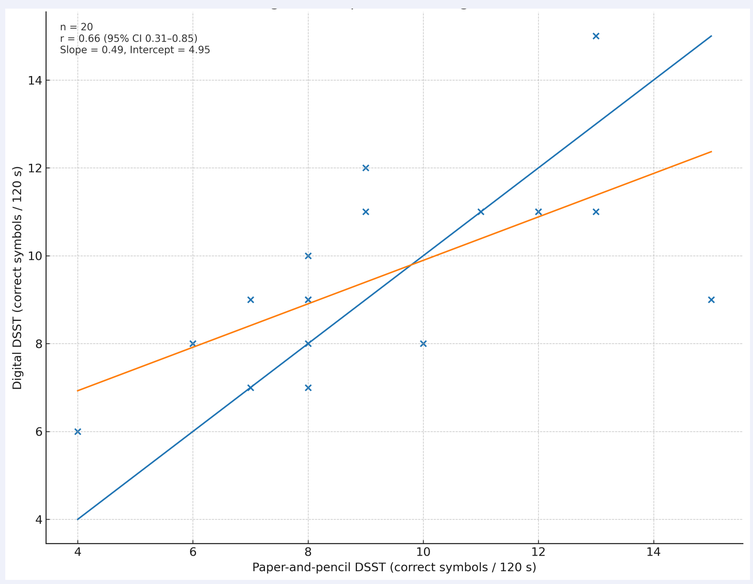
Figure 1. Example of a Digital DSST

PRELIMINARY RESULTS

Table 1: Participant Characteristics by Cognitive Status (N=20)

Cognitive Status	N	Age	Education (years)	Diabetes Duration (years)	HbA1c (%)	Digital DSST
Impaired (≤26)	15	71.0 ± 5.6	15.6 ± 7.4	39.1 ± 16.6	7.8 ± 0.9	28.9 ± 8.4
Normal (>26)	5	67.2 ± 1.5	19.4 ± 3.8	25.0 ± 16.2	7.5 ± 0.5	48.6 ± 17.0

Digital vs Paper DSST - Agreement



CONCLUSION

Preliminary analysis demonstrates:

- A correlation between P&P and digital versions scores of the DSST.
- Individuals designated as “impaired cognitive function” had lower scores on the digital DSST.
- Larger N is needed to further validate the digital DSST.

SCAN ME!

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