# Goal Attainment Scaling scores, without defined attainment levels, were associated with standardized measures in people with vascular and mixed dementia in the VASPECT trial



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## Background

- Specifying personalized goals and setting attainment levels as part of the Goal Attainment Scaling (GAS) process has proven to be challenging and time consuming.
- We developed a simplified system,
   SymptomGuide™ Dementia (SG-D), to allow caregivers to identify, rank and track symptoms of importance to them.
- We investigate the validity and responsiveness of SG-D as an outcome measure in a dementia trial.

## Objectives

- Investigate the relationship between SG-D (modified GAS score) and standard outcome measures.
- 2. Compare the goal selection by domain (e.g. cognition, daily function, etc.) to baseline scores of the standard measures that assess those domains.
- 3. Assess the responsiveness of SG-D.

## Methods

#### **Design and Subjects**

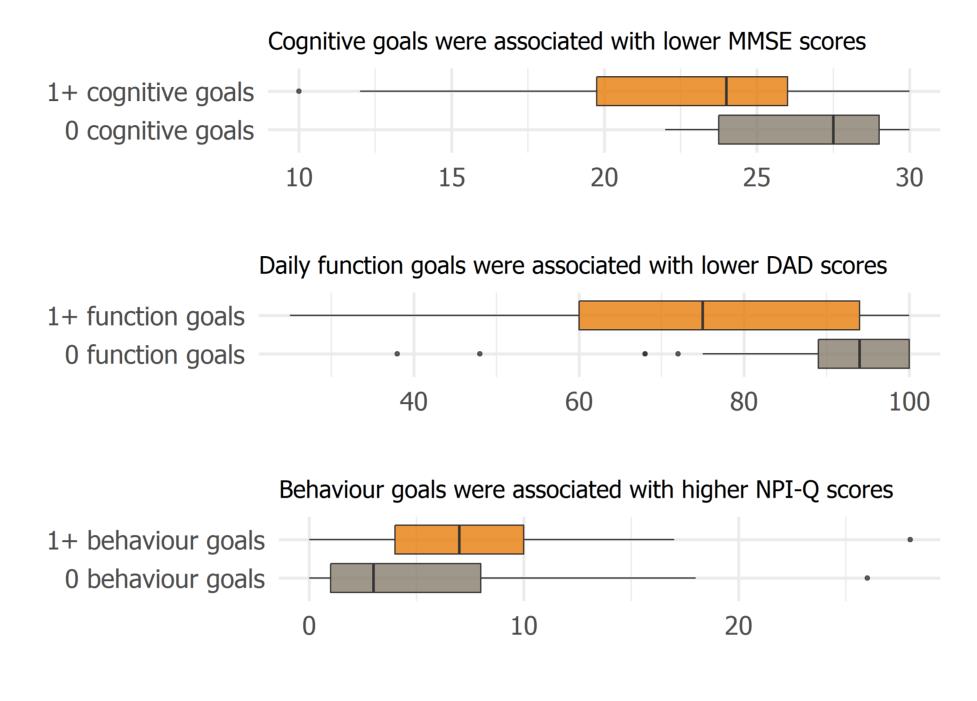
- *VASPECT* was a six-month, open-label trial of donepezil in mild-moderate vascular dementia (VaD) and mixed Alzheimer disease (AD)/VaD.
- 148 subjects were assigned to treatment. Mean age of subjects was 76.0 ± 9.4 years, and 55% were women. 77 and 71 subjects were diagnosed with VaD and AD/VaD, respectively.

#### Measures

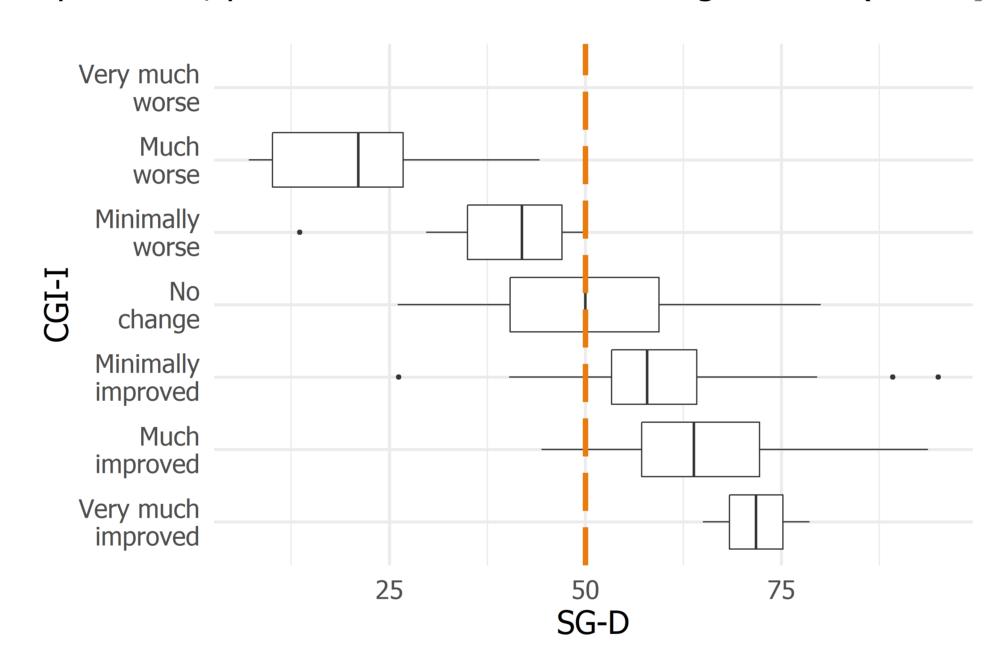
- The primary outcome measure was the Mini-Mental State Examination (MMSE).
- SG-D, a goal tracking system with a menu of 35 goal areas, was used by patients/caregivers to define baseline status and rate improvement on a 7-point scale from *very much worse* to *very much improved*.
- SG-D score =  $50 + \frac{10 \sum w_i x_i}{\sqrt{0.7 \sum w_i^2 + 0.3(\sum w_i)^2}}$
- Median (range) number of goals set at baseline was 6 (1-28) and each goal was categorized as one of the following domains: cognition, executive function, daily function, behaviour or physical manifestations.
- Other outcome measures included: Clinical Global Impression scale (CGI), Executive Clock Drawing Task (CLOX-1 and CLOX-2), Neuropsychiatric Inventory (NPI-Q and NPI-Q-D), Disability for Dementia (DAD), and Phonetic Fluency.

### Results

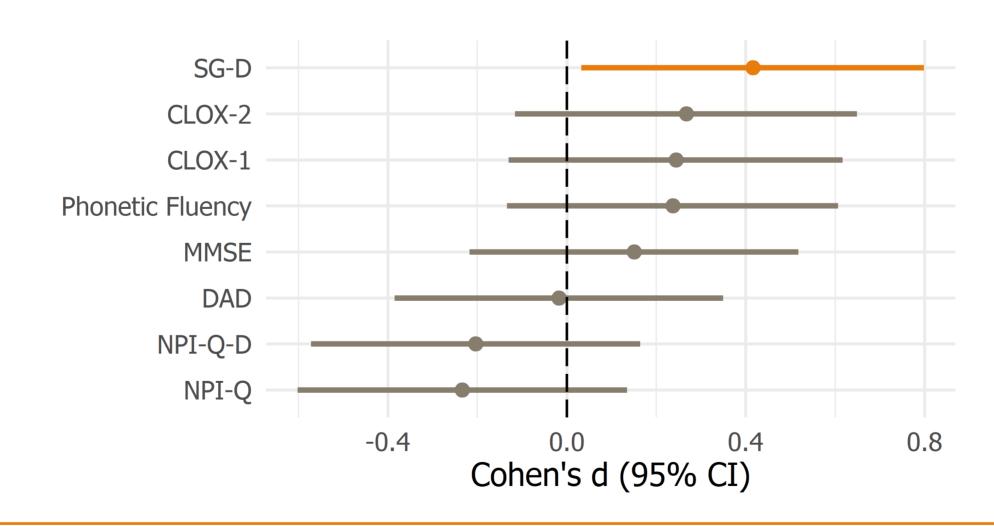
**Figure 1. SG-D** goals, grouped by domain, were associated with worse baseline status in related measures.



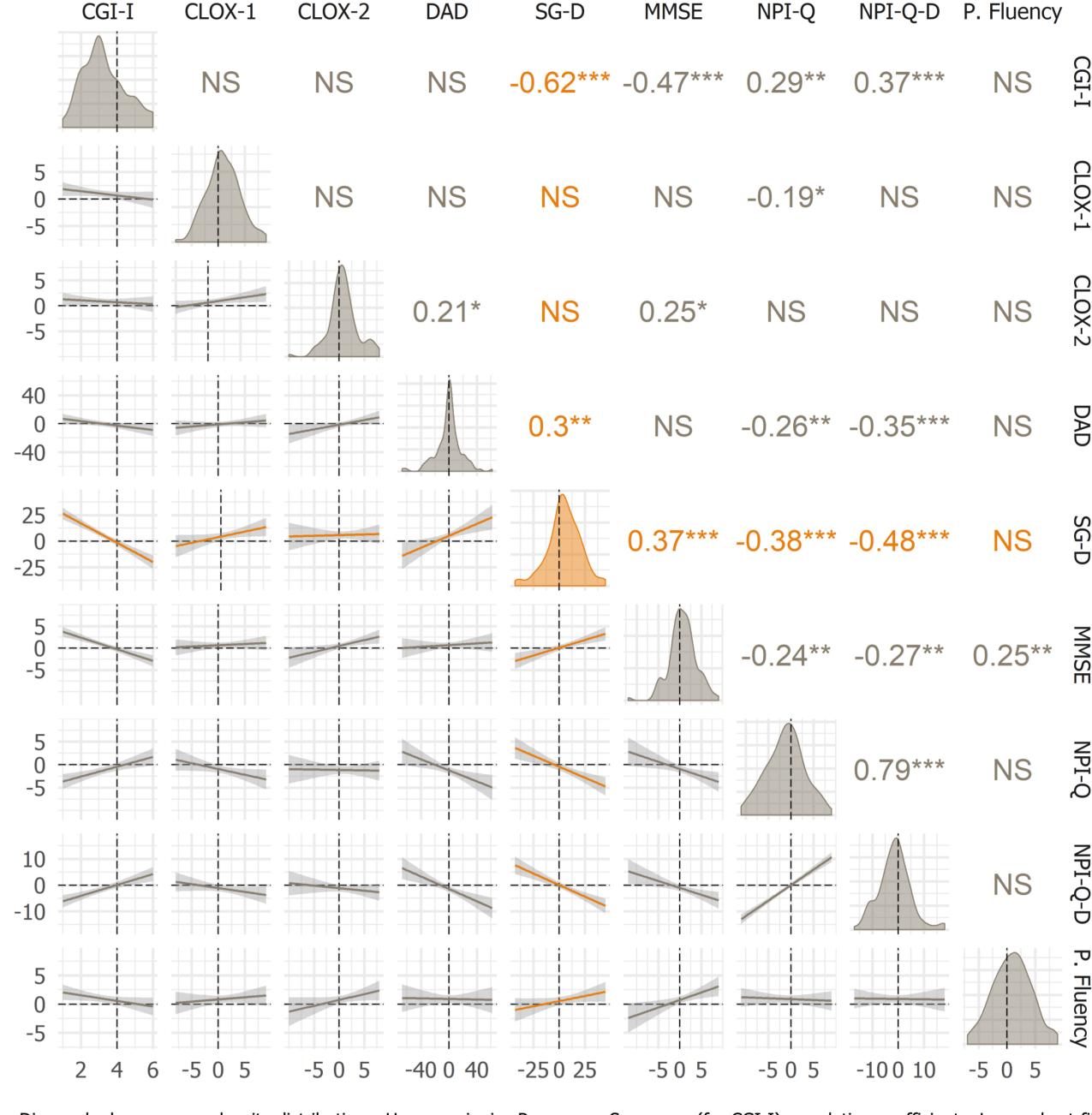
**Figure 2.** Six month **SG-D** scores, from caregivers' impressions, paralleled clinician-rated change scores (**CGI-I**).



**Figure 4. SG-D** was the most responsive measure (Cohen's d) at six months.



**Figure 3.** SG-D change scores were highly correlated with changes in most standardized outcome measures at six months.



Diagonal: change score density distributions. Upper: pairwise Pearson or Spearman (for CGI-I) correlation coefficients. Lower: best-fit linear relationship (95% CI) between change scores. NS: Not significant; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

**Table 1. SG-D** was one of the most responsive measures by standardized response mean (SRM) at six months.

	n	Baseline	6 Months	Change score	SRM
CLOX-1	111	8.7 (3.9)	9.6 (3.9)	0.95 (3.1)	0.31
SG-D	107	50.0 (0)	54.9 (16)	4.88 (16)	0.30
CLOX-2	106	11.3 (3.3)	12.1 (2.9)	0.84 (2.9)	0.29
NPI-Q	114	6.6 (5.2)	5.4 (5.1)	-1.20 (4.2)	-0.29
P. Fluency	113	7.3 (3.5)	8.3 (4.2)	0.92 (3.4)	0.27
NPI-Q-D	114	7.1 (6.4)	5.8 (6.9)	-1.37 (6.3)	-0.22
MMSE	114	23.4 (4.5)	24.1 (4.7)	0.69 (3.2)	0.22
DAD	114	79.1 (19)	78.7 (24)	-0.38 (18)	-0.02

## Summary and Discussion

- The selection of cognition, daily function and behaviour goals were strongly associated with MMSE, DAD and NPI-Q scores, respectively. Other goal area domains showed no significant relationship.
- SG-D scores were most strongly associated with global change (CGI-I) after six months of treatment.
- SG-D scores were well correlated with changes in standardized outcome measures.
- Significant improvements in SG-D were seen at six months and were equally responsive as or more responsive than other standardized outcome measures.
- This SymptomGuide™ Dementia simplification of the GAS process may facilitate its use, while remaining a highly individualized and clinically meaningful measurement of treatment efficacy.