

# Effects of Solriamfetol on Cognition in Patients With Excessive Daytime Sleepiness Associated with Narcolepsy

Yaroslav Winter, MD<sup>1</sup>, Geert Mayer, MD<sup>2</sup>, Heike Benes, MD<sup>3</sup>, Lothar Burghaus, MD<sup>4</sup>, Graham M.L. Eglif, PhD<sup>5</sup>, Samantha Floam, DMD<sup>5</sup>, Gregory Parks, PhD<sup>5</sup>, Ulf Kallweit, MD<sup>6</sup>

<sup>1</sup>Mainz Comprehensive Epilepsy and Sleep Medicine Center, Department of Neurology, Johannes Gutenberg-University, Mainz, Germany; <sup>2</sup>Hephata Klinik, Schwalmstadt, Germany and Philipps University Marburg, Marburg, Germany; <sup>3</sup>Somni bene GmbH Institut für Medizinische Forschung und Schlafmedizin Schwerin GmbH, Schwerin, Germany; <sup>4</sup>Department of Neurology, Heilig Geist-Hospital, Cologne, Germany; <sup>5</sup>Axsome Therapeutics, New York, New York, USA; <sup>6</sup>Center for Biomedical Education and Research, University Witten/Herdecke, Witten, Germany

## Objective

- Does solriamfetol improve impaired cognition in patients with excessive daytime sleepiness associated with narcolepsy in a real-world setting?

## Conclusions

- In this retrospective, real-world study, cognitive performance was assessed in patients with EDS associated with narcolepsy
- At baseline, patients reported overall cognitive impairment, which was substantially improved following 3 months of solriamfetol treatment
- At baseline, objective assessments revealed selective impairment in alertness and processing speed; substantial improvements in these domains were observed following treatment with solriamfetol
- Improvement in cognitive performance was not associated with reduction in EDS
- These results indicate that solriamfetol has the potential to improve cognitive function in patients with EDS associated with narcolepsy

## References

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## Disclosures

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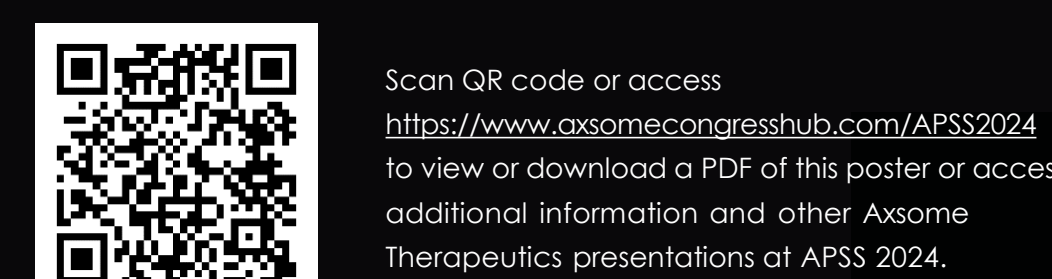
H. Benes and L. Burghaus have nothing to disclose.

U. Kallweit is on the advisory board at, is consultant to, and has accepted research support from Jazz Pharmaceuticals.

G.M.L. Eglif is an employee of Axsome Therapeutics, Inc.

S. Floam and G. Parks are employees of Axsome Therapeutics, Inc. and former employees of Jazz Pharmaceuticals.

U. Kallweit is on the advisory board at, is consultant to, and has accepted research support from Jazz Pharmaceuticals.



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## Introduction

- Narcolepsy is a chronic sleep disorder characterized by excessive daytime sleepiness (EDS)<sup>1</sup>
- Brain fog and difficulty concentrating are common complaints among patients and significantly impact their quality of life<sup>2</sup>
- Patients often exhibit deficits in processing speed and attention, core cognitive functions<sup>3</sup>
- Solriamfetol (Sunosi®) is a dopamine-norepinephrine reuptake inhibitor with agonistic properties at the trace amine-associated receptor 1 (TAAR1) and serotonin 1A (5HT<sub>1A</sub>) receptor<sup>1</sup> approved for treatment of EDS associated with narcolepsy or obstructive sleep apnea (OSA)<sup>4,5</sup>
- Solriamfetol improved cognitive performance in a clinical study of patients with OSA and EDS with cognitive impairment<sup>6</sup>
- Here we present cognitive outcomes of patients with narcolepsy and EDS treated with solriamfetol in a real-world setting

## Methods & Study Design

- SUNosi Real World Experience Study (SURWEY) was a real-world, retrospective chart review among physicians in Germany of patients prescribed solriamfetol for EDS associated with narcolepsy type 1 and 2

## Key Findings

### Patient Population

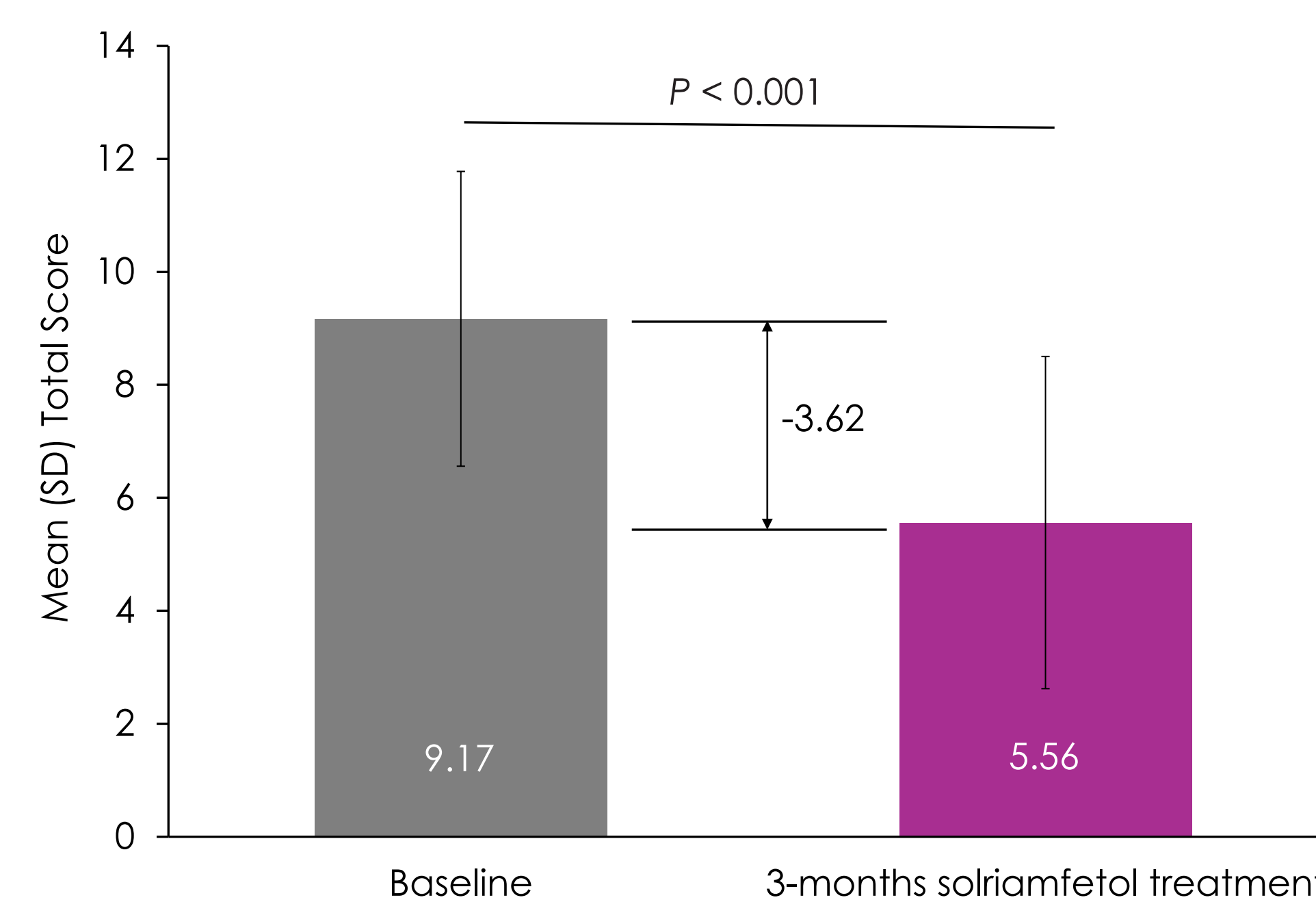
Table 2. Baseline Demographic and Clinical Characteristics	
Patients	52
Age, mean ± SD	36.4±12.9
Sex	
Male, n (%)	29 (55.8)
Female, n (%)	23 (44.2)
ESS score, mean ± SD	17.4±2.9

### Efficacy

#### Self-reported cognitive function

- Mean baseline score on the BC-CCI indicated moderate cognitive impairment (Figure 1)
- Solriamfetol substantially and statistically significantly improved subjective cognitive function as measured by the BC-CCI (39.4% improvement from baseline to 3-month follow-up;  $P < 0.001$ )

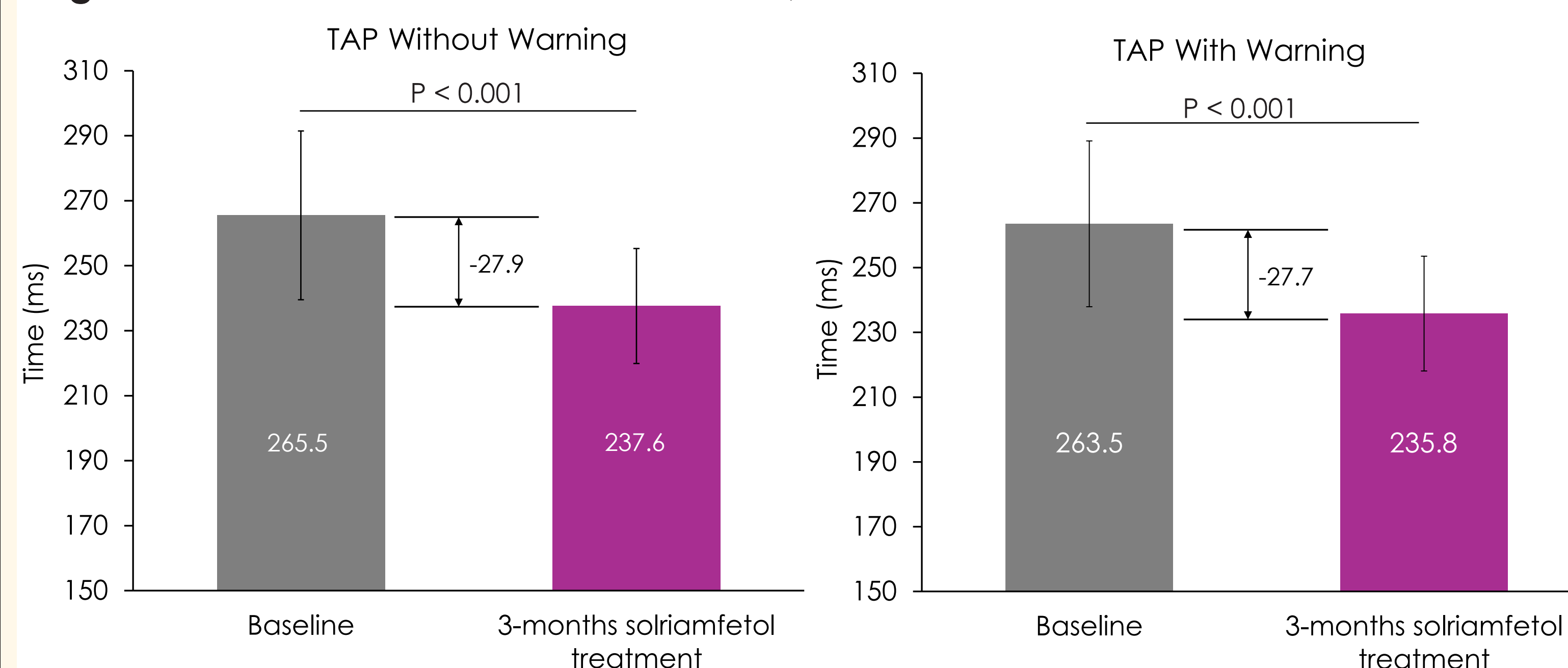
Figure 1. Scores on the BC-CCI at Baseline and Following 3 Months of Solriamfetol Treatment



### Alertness

- Baseline scores indicated impaired alertness on both TAP assessments, which have previously been used to assess cognitive deficits in patients with narcolepsy<sup>7</sup>
- Solriamfetol statistically significantly improved alertness on both measures (10.5%,  $P < 0.001$  each)

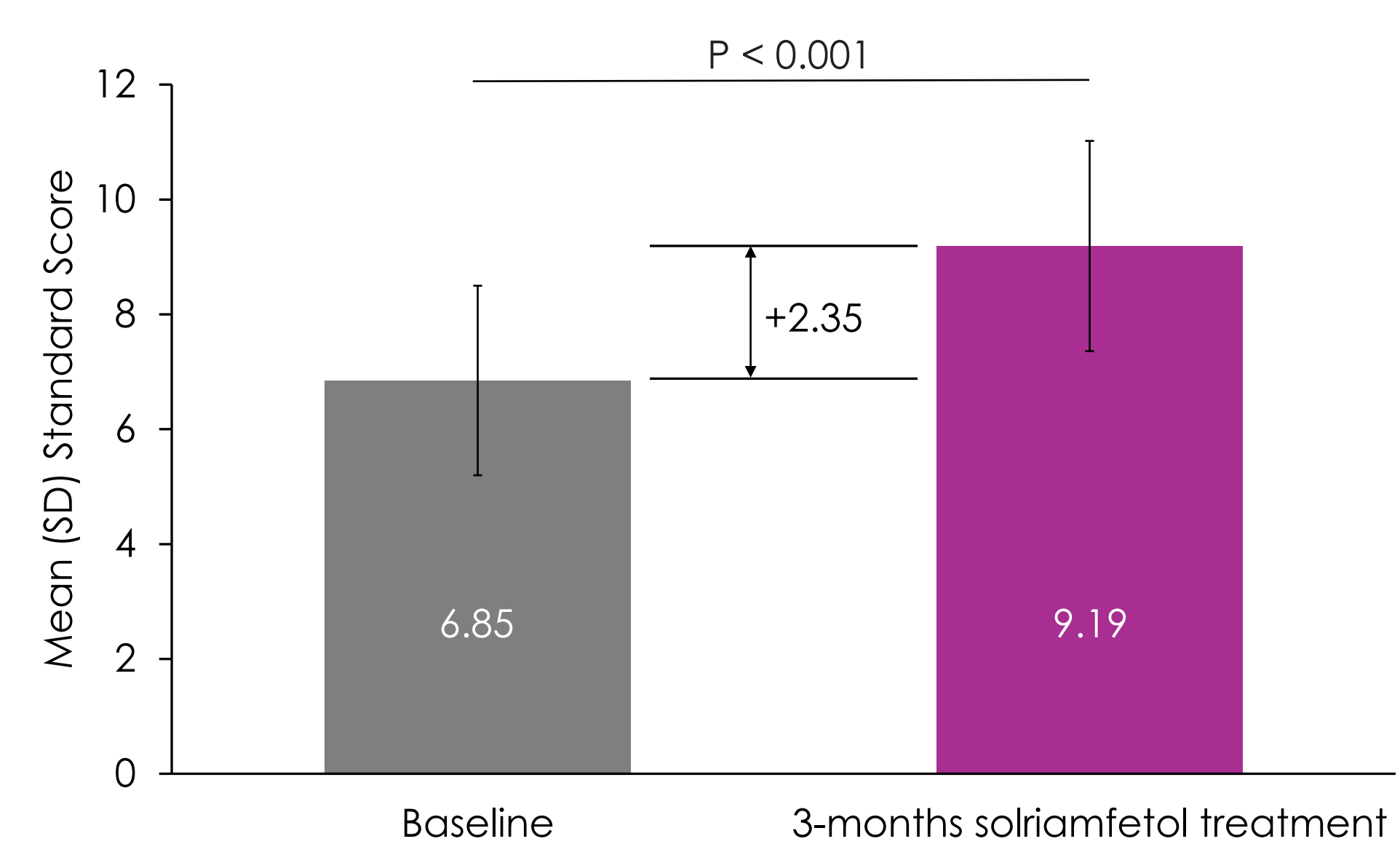
Figure 2. Scores on the TAP: Alertness, at Baseline and With Solriamfetol



### Processing Speed

- Processing speed was evaluated with the Wechsler Adult Intelligence Scale-IV (WAIS-IV) coding subtest (Figure 3), a test previously used to assess cognitive deficits in patients with narcolepsy<sup>7</sup>
- Solriamfetol substantially and statistically significantly improved processing speed (34.3%;  $P < 0.001$ )

Figure 3. Scores on the WAIS-IV: Coding, at Baseline and With Solriamfetol



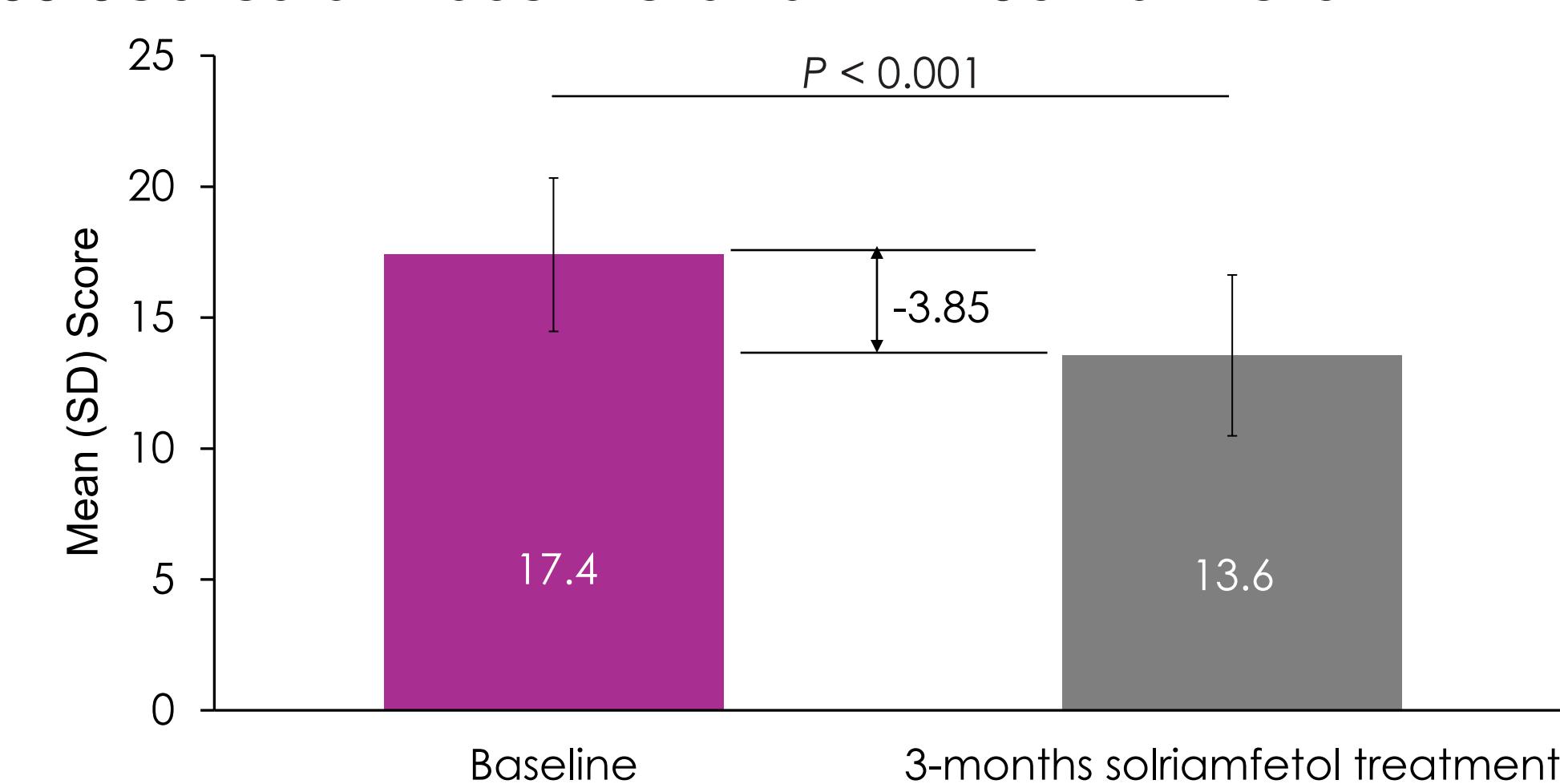
- The present analysis is of a subgroup of 52 patients with narcolepsy who underwent cognitive assessments (Table 1) prior to initiating solriamfetol and 3 months following
- Results are pooled across dosages, and most patients received less than 150 mg/day, the maximum recommended dose

Table 1. Cognitive Assessments		
Assessment	Task	Domain
British Columbia Cognitive Complaints Inventory (BC-CCI)	Rate level of impairment on 6 items including memory, concentration, and expressing thoughts	Cognitive impairment
Test of Attentional Performance (TAP): Alertness, without warning	Push button in response to displayed signal	Sustained alertness
Test of Attentional Performance: Alertness, with warning	Push button in response to displayed signal preceded by warning tone	Acute alertness
Wechsler Adult Intelligence Scale-IV (WAIS-IV): Coding subtest	Variation of the Digit Symbol Substitution Test; match symbols to numbers based on key	Processing speed
Regensburger Word Fluency Test (RWT): "S-words"	Write down as many words starting with 's' as possible in 1 minute	Verbal fluency
Regensburger Word Fluency Test (RWT): "Animals"	Write down as many animal names as possible within 1 minute	Verbal fluency
Wechsler Memory Scale (WMS): Visual Reproduction I	Reproduce displayed images from memory	Visual memory
Wechsler Memory Scale (WMS): Visual Reproduction II	Reproduce displayed images from memory, following a delay	Visual memory

### Sleepiness

- Solriamfetol resulted in a statistically significant reduction in EDS ( $P < 0.001$ )

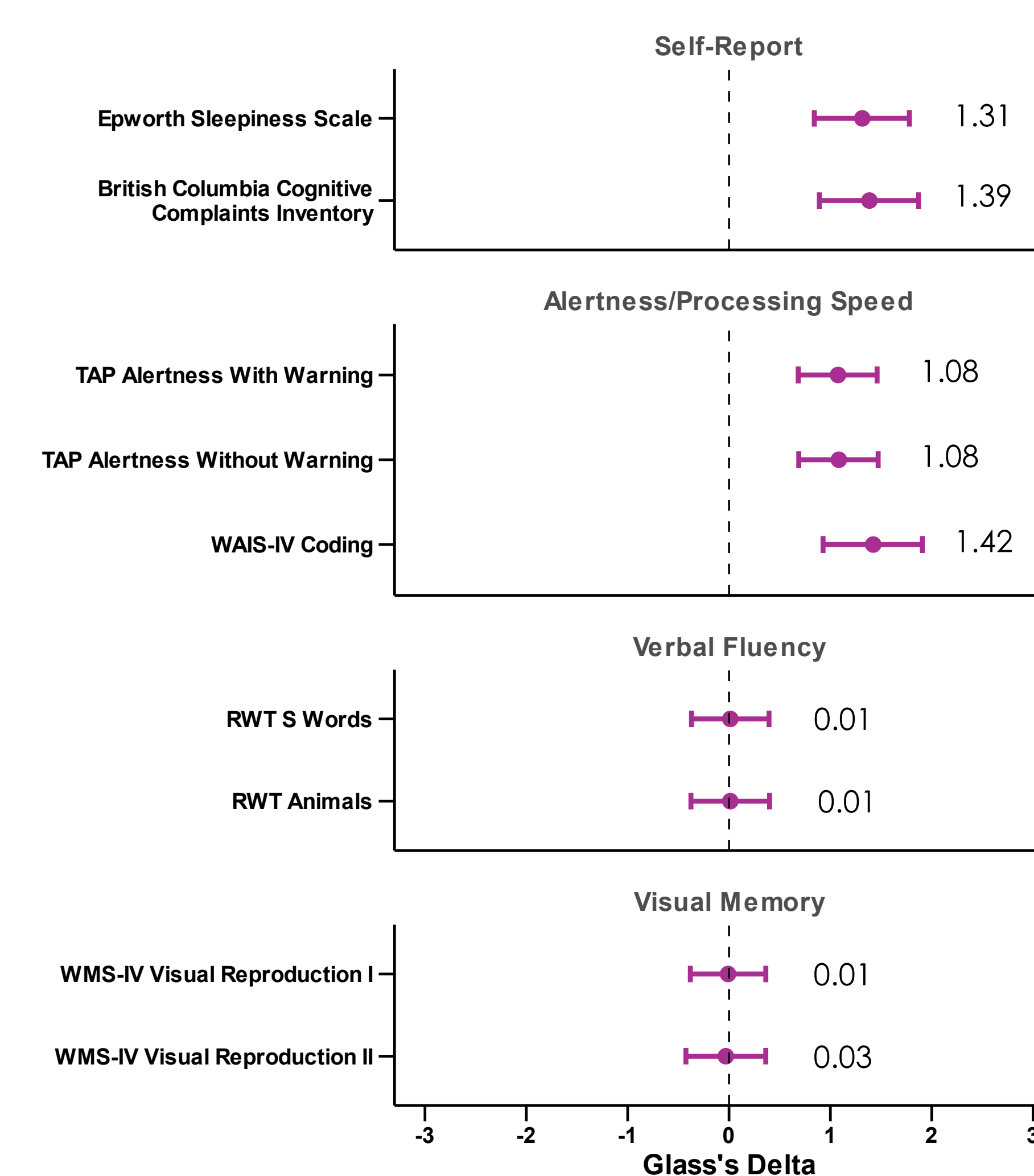
Figure 4. ESS Scores at Baseline and with Solriamfetol



### Effect sizes

- Reduction in EDS had a substantial effect size of 1.31 (Figure 5)
- Effect sizes for self-reported cognitive function (1.39, BC-CCI); alertness (1.08, TAP with and without warning); and processing speed (1.42 WAIS-IV coding) were also substantial
- No meaningful effects on verbal fluency or visual memory were observed

Figure 5. Standardized Effects of Solriamfetol on Cognition and EDS



### Regression analysis

- ESS change was not predictive of improvements in self-reported cognitive function, alertness, or processing speed (Figure 6)

Figure 6. Regression Analysis of Association Between Improvements in Cognition and Sleepiness

