

CogState (Cognitive Battery)

CogState cognitive tasks use novel visual and verbal stimuli to ensure assessment is culture-neutral and not limited by a subject or participant's level of education. All Cogstate tasks are designed for repeated administration with minimal practice or learning effects.

A Cogstate battery comprises a number of individual tasks – each designed to test a specific area of cognition. When a number of these individual tests are put together to form a test battery, a more complete picture of a person's cognitive state can be defined.

1. Groton Maze Learning Task
2. Detection Task
3. Identification Task
4. One Card Learning Task
5. One Back Task
6. Set-Shifting Task
7. Two back Task

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code	Variable code	Unit of measurement	Description and interpretation of scores
CPAL	acc	Total errors	Accuracy of performance; Total number of errors across the five rounds Lower score = better performance
DET	lms	Log ₁₀ milliseconds	Speed of performance; mean of the log ₁₀ transformed reaction times for correct responses Lower score = better performance
GMCT	mps	Moves per second	The total number of correct moves made per second. Higher score = better performance
GML	ter	Errors	Total number of errors made in attempting to learn the same hidden pathway on five consecutive trials at a single session Lower score = better performance
GMR	ter	Errors	Total number of errors made in remembering the maze pathway after a delay Lower score = better performance
IDN	lms	Log ₁₀ milliseconds	Speed of performance; mean of the log ₁₀ transformed reaction times for correct responses Lower score = better performance
ISL	cor	Number of correct responses	Total number of correct responses made in remembering the list on three consecutive trials at a single session Higher score = better performance
ISLR	cor	Number of correct responses	Total number of correct responses made in remembering the list after a delay Higher score = better performance
OCL	acc	Arcsine proportion correct	Accuracy of performance; arcsine transformation of the square root of the proportion of correct responses Higher score = better performance
ONB	acc	Arcsine proportion correct	Accuracy of performance; arcsine transformation of the square root of the proportion of correct responses Higher score = better performance
SECT	acc	Arcsine proportion correct	Accuracy of performance; arcsine transformation of the square root of the proportion of correct responses Higher score = better performance
SETS	acc	Total number of errors	Accuracy of performance; Total number of errors across the five rounds Lower score = better performance
TWOB	acc	Arcsine proportion correct	Accuracy of performance; arcsine transformation of the square root of the proportion of correct responses Higher score = better performance

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Session 1 – Screening Session 2 – Baseline Session 3 – Week 4 Session 4 – Week 24	<p><i>Weighted median (IQR)</i></p> <p><i>p-values derived using weighted test for location</i></p> <p><i>(some test results available multiple times per visit thus this is accounted using weighted median)</i></p>
--	---

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
Composite age adjusted z-score based on available normative data	All available normative tests OCL ONB TWOB DET IDN GMR GML	N=40	-0.12(-0.77 to 0.53)	N=40	-0.06(-0.71 to 0.72)	N=39
				-0.01(-0.71 to 0.80)		-0.15(-0.62 to 0.78)
Change in age adjusted composite z-score based on <u>all</u> available normative data					Baseline to week 4	Baseline to week 24
Change in age adjusted composite z-score based on <u>all</u> available normative data					0.00(-0.43 to 0.34) Range: -3.25 to 6.49 P=0.634 Using weighted test for location	0.00(-0.61 to 0.52) Range: -5.31 to 7.00 P=0.995 Using weighted test for location

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name	Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out			41 0 0	40 0 1	39 0 2
ACC – Accuracy of performance					
CPAL Continuo us paired associate learning Find the correct location of the object.	Paired associate learning Accuracy of performance; Total number of errors across the five rounds Lower score = better performance	nodata			
OCL One-card learning	Learning Accuracy of performance; arcsine transformation of the square root of the proportion of correct responses Higher score = better performance	N=40 Total= 9947 0.95 (0.90 to 1.03)	N=40 Total= 10003 0.98 (0.84 to 1.05)	N=40 Total= 10284 0.98 (0.90 to 1.07)	N=39 Total= 10165 1.01 (0.90 to 1.07)
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)
Change from Baseline to week post switch in OCL (wk-baseline) +ve means (better performance) at wk compared to baseline				N=39 0.004(-0.04 to 0.05) Range: -0.27 to 0.63 P=0.167 Using weighted test for location	N=39 0.04(-0.06 to 0.10) Range: -0.41 to 0.50 P=0.168 Using weighted test for location

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended				41	40	39
DNA				0	0	0
Drop out				0	1	2
OCL age adjusted z-score			N=39	N=36	N=39	N=38
Continuous paired associate learning <i>Find the correct location of the object.</i>		-3SD	3(7.7)	2(5.6)	2(5.1)	3(7.9)
		-2SD	7(18.0)	7(19.4)	9(23.1)	8(21.1)
		-1SD	13(33.3)	14(38.9)	15(38.5)	9(23.7)
		Average	0(0.0)	0(0.0)	0(0.0)	0(0.0)
		1SD	13(33.3)	9(25.0)	8(20.5)	15(39.5)
		2SD	3(7.7)	4((11.1)	5(12.8)	3(7.9)
		3SD				
ONB	<i>Working memory – Simple Accuracy of performance; arcsine transformation of the square root of the proportion of correct responses Higher score = better performance</i>		N=39	N=40	N=40	N=39
One-back memory			Total= 12669	Total= 12926	Total= 14076	Total= 13444
			1.32 (1.19 to 1.39)	1.32 (1.19 to 1.39)	1.39 (1.32 to 1.57)	1.39 (1.32 to 1.39)
					Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)
Change from Baseline to week post switch in ONB (wk-baseline)					N=39 0.05(-0.07 to 0.25) Range: -0.25 to 1.23	N=39 0.07(-0.07 to 0.18) Range: -1.03 to 1.43
+ve means (better performance) at wk compared to baseline					P=0.020 Using weighted test for location	P=0.212 Using weighted test for location

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
ONB mean age adjusted z- score			N=38	N=36	N=39	N=36
	-4SD		1(2.6)	1(2.8)	2(5.1)	0(0.0)
	-3SD		1(2.6)	3(8.3)	0(0.0)	1(2.8)
	-2SD		6(15.8)	3(8.3)	3(7.7)	0(0.0)
	-1SD		15(39.5)	16(44.4)	14(35.9)	11(30.6)
One-back memory	Average		0(0.0)	0(0.0)	0(0.0)	0(0.0)
	1SD		11(29.0)	7(19.4)	9(23.1)	16(44.4)
	2SD		4(10.5)	6(16.7)	11(28.2)	8(22.2)
SETS Set Shifting	Executive Function <i>Accuracy of performance; Total number of errors across the five rounds Lower score = better performance</i>		N=39 Total= 10857 1.04 (0.98 to 1.16)	N=40 Total= 11660 1.08 (0.986 to 1.23)	N=40 Total= 11517 1.14 (1.95 to 1.21)	N=39 Total= 11379 1.09 (0.96 to 1.25)
					Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)
Change from Baseline to week post switch in SETS (wk-baseline) -ve means (better performance) at wk compared to baseline					N=39 -0.01(-0.04 to 0.05) Range: -0.30 to 0.28 P=0.908 Using weighted test for location	N=39 0.004(-0.03 to 0.04) Range: -0.51 to 0.33 P=0.958 Using weighted test for location

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
SETS Set Shifting mean age adjusted z-score	Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance	No normal population data available				
SETSED (extradimensional shift)	Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance	N=39 Total= 10893 1.05 (1.00 to 1.14)	N=40 Total= 11639 1.08 (1.00 to 1.23)	N=40 Total= 11541 1.11 (0.98 to 1.23)	N=38 Total= 10886 1.11 (0.98 to 1.23)	
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)	
Change from Baseline to week post switch in SETSED (wk-baseline) -ve means (better performance) at wk compared to baseline				N=39 0.00(-0.09 to 0.06) Range: -0.21 to 0.33 P=0.829 Using weighted test for location	N=38 -0.02(-0.08 to 0.07) Range: -0.23 to 0.33 P=0.994 Using weighted test for location	

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
SETSED <i>(extradimensional shift)</i>	<i>Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance</i>	No normal population data available				
SETSED R <i>(extradimensional shift reverse)</i>	<i>Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance</i>	N=39 Total=10769 1.05 (0.94 to 1.18)	N=40 Total=11671 1.08 (1.00 to 1.18)	N=40 Total=11510 1.14 (0.96 to 1.23)	N=38 Total=11078 1.08 (0.98 to 1.29)	
				Baseline to week 4 <i>Weighted median change (IQR)</i>	Baseline to week 24 <i>Weighted median change (IQR)</i>	
Change from Baseline to week post switch in SETSEDR (wk-baseline) <i>-ve means (better performance) at wk compared to baseline</i>				N=39 0.00(-0.11 to 0.09) Range: -0.19 to 0.31 P=0.936 Using weighted test for location	N=38 0.00(-0.11 to 0.09) Range: -0.16 to 0.31 P=0.564 Using weighted test for location	

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
SETSED R <i>(extradimensional shift reverse)</i>	<i>Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance</i>	No normal population data available				
SETSID <i>(Intra-dimensional shift)</i>	<i>Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance</i>	N=39 Total=112128 1.05 (1.00 to 1.29)	N=40 Total=12041 1.08 (0.98 to 1.29)	N=40 Total=12158 1.18 (1.02 to 1.29)	N=39 Total=12137 1.18 (1.02 to 1.29)	
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)	
Change from Baseline to week post switch in SETSID (wk-baseline) -ve means (better performance) at wk compared to baseline				N=39 0.02(-0.06 to 0.16) Range: -0.54 to 0.43 P=0.369 Using weighted test for location	N=39 0.03(-0.05 to 0.14) Range: -0.35 to 0.39 P=0.153 Using weighted test for location	

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
SETSID (Intra-dimensional shift)	Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance	No normal population data available				
SETSIDR (Intra-dimensional shift reverse)	Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance	N=38 Total=10783 1.11 (0.96 to 1.23)	N=40 Total=11597 1.05 (0.96 to 1.23)	N=40 Total=11589 1.18 (0.98 to 1.23)	N=39 Total=11527 1.14 (0.96 to 1.23)	
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)	
Change from Baseline to week post switch in SETSIDR (wk-baseline) -ve means (better performance) at wk compared to baseline				N=39 0.00(-0.07 to 0.13) Range: -0.34 to 0.31 P=0.529 Using weighted test for location	N=39 0.00(-0.051 to 0.11) Range: -0.33 to 0.31 P=0.393 Using weighted test for location	

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
SETSIDR (Intra-dimensional shift reverse)	Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance	No normal population data available				
SETSVD (Visual discrimination)	Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance	N=39 Total=11239 1.11 (0.96 to 1.29)	N=40 Total=12304 1.18 (0.96 to 1.29)	N=40 Total=11653 1.11 (0.92 to 1.29)	N=39 Total=11725 1.05 (0.96 to 1.29)	
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)	
Change from Baseline to week post switch in SETSVD (wk-baseline) -ve means (better performance) at wk compared to baseline				N=39 0.04(-0.24 to 0.11) Range: -0.68 to 0.52 P=0.359 Using weighted test for location	N=39 0.00(-0.24 to 0.12) Range: -0.79 to 0.65 P=0.649 Using weighted test for location	

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
SETSVD <i>(Visual discrimination)</i>	<i>Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance</i>	No normal population data available				
SETSVD R <i>(Visual discrimination reverse)</i>	<i>Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance</i>	N=39 Total=11143 1.11 (0.96 to 1.29)	N=40 Total=11895 1.18 (0.96 to 1.29)	N=40 Total=11418 1.11 (0.96 to 1.29)	N=39 Total=11677 1.18 (1.00 to 1.29)	
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)	
Change from Baseline to week post switch in SETSVDR (wk-baseline) -ve means (better performance) at wk compared to baseline				N=39 -0.07(-0.16 to 0.11) Range: -0.33 to 0.37 P=0.241 Using weighted test for location	N=39 -0.07(-0.16 to 0.11) Range: -0.33 to 0.37 P=0.922 Using weighted test for location	

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name	Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out			41 0 0	40 0 1	39 0 2
SETSVD R (Visual discrimination reverse)	<i>Executive Function Accuracy of performance; Total number of errors across the five rounds Lower score = better performance</i>	No normal population data available			
SECT Social emotional cognition task	<i>Social emotional cognition Accuracy of performance; arcsine transformation of the square root of the proportion of correct responses Higher score = better performance</i>	No data			

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended DNA Drop out				41 0 0	40 0 1	39 0 2
TWOB <i>Two-back memory</i>	<i>Working memory - Complex Accuracy of performance; arcsine transformation of the square root of the proportion of correct responses Higher score = better performance</i>		N=39 Total=11869 1.19 (1.11 to 1.33)	N=40 Total=12219 1.27 (1.13 to 1.33)	N=40 Total=12847 1.27 (1.19 to 1.33)	N=39 Total=12756 1.33 (1.19 to 1.40)
					Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)
Change from Baseline to week post switch in TWOB (wk-baseline) +ve means (better performance) at wk compared to baseline					N=39 0.00(-0.05 to 0.16) Range: -0.36 to 1.07 P=0.128 Using weighted test for location	N=39 0.03(-0.04 to 0.07) Range: -0.69 to 1.12 P=0.149 Using weighted test for location

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

Task code/task name		Cognitive function tested	Screen N=41	Baseline N=41	Week 4	Week 24
Attended				41	40	39
DNA				0	0	0
Drop out				0	1	2
TWOB			N=38	N=36	N=38	N=36
Two-back memory mean age adjusted z-score	-4SD	1(2.6)	1(2.8)	1(2.6)	1(2.8)	
	-3SD	1(2.6)	2(5.6)	2(5.3)	1(2.8)	
	-2SD	4(10.5)	3(8.3)	3(7.9)	0(0.0)	
	-1SD	14(36.8)	6(16.7)	5(13.2)	10(27.8)	
	Average	0(0.0)	0(0.0)	0(0.0)	0(0.0)	
	1SD	15(39.5)	20(55.6)	21(55.3)	19(52.8)	
	2SD	2(5.3)	2(5.6)	2(5.3)	2(5.6)	
	3SD	1(2.6)	2(5.6)	4(10.5)	3(8.3)	
LMN (log10 mili seconds)						
DET	Psychomotor Function	N=38	N=40	N=40	N=37	
Detection	Speed of performance; mean of the log10 transformed reaction times for correct responses	2.51 (2.47 to 2.64)	2.57 (2.46 to 2.65)	2.53 (2.47 to 2.61)	2.57 (2.47 to 2.61)	
	Lower score = better performance	Range: 2.38 to 3.09	Range: 2.37 to 2.86	Range: 2.43 to 2.95	Range: 2.19 to 2.74	
				Baseline to week 4	Baseline to week 24	
				Weighted median change (IQR)	Weighted median change (IQR)	
				N=34 -0.01(-0.03 to 0.03) Range: -0.16 to 0.39	N=32 -0.002(-0.04 to 0.05) Range: -0.16 to 0.18	
				P=0.478	P=0.609	
				Using weighted test for location	Using weighted test for location	
Change from Baseline to week post switch in DET (wk-baseline)						
-ve means (better performance) at wk compared to baseline						

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

DET		N=38	N=35	N=39	N=37
Detection mean age adjusted z-score	-4SD -3SD -2SD -1SD Average 1SD 2SD 3SD 4SD 5SD 6SD 7SD	0(0.0) 0(0.0) 1(2.6) 15(39.5) 0(0.0) 12(31.6) 4(10.5) 4(10.5) 1(2.6) 0(0.0) 0(0.0) 0(0.0) 1(2.6)	0(0.0) 0(0.0) 1(2.9) 10(28.6) 0(0.0) 11(31.4) 8(22.9) 5(14.3) 0(0.0) 0(0.0) 0(0.0) 0(0.0) 0(0.0)	0(0.0) 0(0.0) 0(0.0) 13(33.3) 0(0.0) 15(38.5) 8(20.5) 2(5.1) 0(0.0) 0(0.0) 0(0.0) 1(2.6) 0(0.0)	1(2.7) 0(0.0) 0(0.0) 13(35.1) 0(0.0) 14(37.8) 8(21.6) 1(2.7) 0(0.0) 0(0.0) 0(0.0) 0(0.0) 0(0.0)
IDN <i>Identificat ion</i>	Attention Speed of performance; mean of the log₁₀ transformed reaction times for correct responses Lower score = better performance	N=34 2.71 (2.67 to 2.76) Range: 2.60 to 2.82	N=32 2.72 (2.69 to 2.81) Range: 2.60 to 2.97	N=34 2.74 (2.69 to 2.82) Range: 2.62 to 2.87	N=33 2.75 (2.68 to 2.81) Range: 2.64 to 2.89
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)
Change from Baseline to week post switch in IDN (wk-baseline) -ve means (better performance) at wk compared to baseline				N=31 0.01(-0.02 to 0.04) Range: -0.11 to 0.12 P=0.233 Using weighted test for location	N=30 0.01(-0.02 to 0.05) Range: -0.12 to 0.18 P=0.413 Using weighted test for location
IDN		N=34	N=32	N=34	N=33
Identificat ion mean age adjusted	-2SD -1SD Average 1SD	1(2.9) 10(29.4) 0(0.0) 17(50.0)	3(9.4) 10(31.3) 0(0.0) 10(31.3)	3(8.8) 10(29.4) 0(0.0) 8(23.5)	0(0.0) 13(39.4) 0(0.0) 5(15.2)

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

z-score	2SD 3SD 4SD	6(17.7) 0(0.0) 0(0.0)	4(12.5) 4(12.5) 1(3.1)	11(32.4) 2(5.9) 0(0.0)	11(33.3) 4(12.1) 0(0.0)
MPS (moves per second)					
GMCT Groton maze timed chase test	Speed of visual Processing The total number of correct moves made per second. Higher score = better performance	No data			
TER (total number of errors made)					
GML Groton maze learning test	Executive Function Total number of errors made in attempting to learn the same hidden pathway on five consecutive trials at a single session Lower score = better performance	N=40 Total= 1273278 13(7 to 23) Range: 1 to 164	N=40 Total= 1113654 11(7 to 19) Range: 0 to 158	N=40 Total= 986198 10(6 to 17) Range: 0 to 106	N=39 Total= 949598 10(6 to 17) Range: 0 to 106
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)
Change from Baseline to week post switch in GML (wk-baseline) -ve means (better performance) at wk compared to baseline				N=39 -3(-11 to 5) Range: -79 to 40 P=0.116 Using weighted test for	N=39 -2(-13 to 4) Range: -99 to 16 P=0.069 Using weighted test for

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

				location	location
GML		N=40	N=40	N=40	N=39
Groton maze learning test mean age adjusted z-score	-2SD -1SD Average 1SD 2SD 3SD 4SD 5SD	6(15.0) 17(42.5) 0(0.0) 9(22.5) 3(7.5) 2(5.0) 2(5.0) 1(2.5)	7(17.5) 22(55.0) 0(0.0) 6(15.0) 3(7.5) 1(2.5) 1(2.5) 0(0.0)	8(20.0) 24(60.0) 0(0.0) 4(10.0) 4(10.0) 0(0.0) 0(0.0) 0(0.0)	10(25.6) 20(51.3) 0(0.0) 6(15.4) 2(5.1) 1(2.6) 0(0.0) 0(0.0)
GMR	Delayed recall	N=39	N=40	N=40	N=39
Groton maze learning test – delayed recall	Total number of errors made in remembering the maze pathway after a delay Lower score = better performance	Total= 79389 6(4 to 10) Range: 2 to 24	Total= 98936 8(5 to 13) Range: 0 to 36	Total= 77325 7(4 to 9) Range: 0 to 20	Total= 70484 5(4 to 10) Range: 0 to 21
				Baseline to week 4 Weighted median change (IQR)	Baseline to week 24 Weighted median change (IQR)
Change from Baseline to week post switch in GMR (wk-baseline)				N=39 -2(-4 to 1) Range: -16 to 7 P=0.013 Using weighted test for location	N=39 -3(-4 to 0) Range: -26 to 10 P=0.013 Using weighted test for location
GMR		N=39	N=40	N=40	N=39
Groton maze learning test – delayed recall	-2SD -1SD Average 1SD 2SD 3SD	10(25.6) 16(41.0) 0(0.0) 5(12.8) 5(12.8) 2(5.1)	7(17.5) 15(37.5) 0(0.0) 8(20.0) 6(15.0) 3(7.5)	10(25.0) 15(37.5) 0(0.0) 10(25.0) 2(5.0) 3(7.5)	12(30.8) 14(35.9) 0(0.0) 6(15.4) 5(12.8) 0(0.0)

SSAT 058: Final locked data analysis

Version 4.0: 22nd May 2018

mean	4SD	0(0.0)	0(0.0)	0(0.0)	2(5.1)
age	5SD	1(2.6)	0(0.0)	0(0.0)	0(0.0)
adjusted	6SD	0(0.0)	1(2.5)	0(0.0)	0(0.0)
z-score					

COR

ISLR	Verbal learning	No data			
International Shopping List Task	Total number of correct responses made in remembering the list after a delay Higher score = better performance				

A z-score less than 0 represents less than population mean.
 A z-score greater than 0 represents greater than population the mean.
 A z-score equal to 0 represents equal to the population mean.
 A z-score equal to 1 represents that sample is 1 standard deviation greater than the mean; a z-score equal to 2, 2 standard deviations greater than the mean;
 A z-score equal to -1 represents that sample is 1 standard deviation less than the mean; a z-score equal to -2, 2 standard deviations less than the mean; etc.
 If the number of elements in the set is large, about 68% of the elements have a z-score between -1 and 1; about 95% have a z-score between -2 and 2; and about 99% have a z-score between -3 and 3.