

**Supplemental Table 1: Components of the intervention following the TIDieR guide**

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<b>1 Name</b>	Memory rehabilitation
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<b>2 Why</b>	Memory rehabilitation is a structured set of therapeutic activities designed to retrain an individual's memory and help people compensate for these deficits.
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<b>3 What</b>	Memory rehabilitation sessions followed a treatment manual, which was provided to participants at the start of the programme. The manual was accompanied by facilitator notes to guide delivery of the sessions.
<b>4</b>	Strategies taught included restitution (including attention retraining) and strategies to improve encoding and retrieval (such as deep-level processing). Compensation strategies taught included mnemonics (chunking, use of first letter cues, rhymes), use of external devices (diaries, mobile phones, calendars) and ways of coping with memory problems. The use of 'errorless learning' <sup>15</sup> was also taught. This was a 'mixed' approach, because research has found merits for both approaches. Practical day-to-day problems, such as forgetting people's names, improving concentration by avoiding distractions, ways to remember where the car was parked, etc. were discussed as a way to demonstrate how the memory aids could be used. Each session began with a review of the previous session, followed by teaching of a new strategy, and setting of homework. Homework exercises were prescribed to enable generalisation of what was taught in the sessions to daily life.

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<b>5 Who provided</b>	Facilitators delivering the intervention were psychology graduates with clinical experience. A clinical psychologist provided study-specific training on the delivery of the intervention and monthly teleconferences provided an opportunity for peer group supervision. Additional monthly one-to-one supervision with a clinical psychologist allowed for discussion of specific
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challenges relating to treatment or assessment. Ad hoc supervision for specific queries was also provided by clinical psychologists at each site. Sessions were video-recorded to assess fidelity to the manual and delivery plan.

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**6 How**

Face-to-face sessions were held in groups comprising four to six participants, led by a single facilitator at each site.

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**7 Where**

Sessions were held at NHS hospitals or community venues.

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**8 When and how much**

Participants were offered ten weekly sessions lasting approximately 1.5 hours each, with a 15 minute break mid-session.

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**9 Tailoring**

The emphasis was on identifying the most appropriate strategies to help individuals overcome their memory problems, and on providing participants with a range of memory techniques that they could adapt and use according to their needs. This provided an opportunity for revision of strategies taught during previous rehabilitation and discussion of their application in a community setting. Homework assignments were set following each session, which encouraged the participants to try the strategies learnt in the session within their home or work environment.

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**10 Modifications**

There were no changes to the intervention during the course of the study.

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**11 How well was the intervention followed**

Formal fidelity assessment was undertaken through analysis of video recordings of treatment sessions against a coding schedule based on the activities and skills described in the manual.

**12** The results of the fidelity analysis indicate that the components of therapy described in the manual were delivered to participants.

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**Supplemental Table 2: European Brain Injury Questionnaire – patient version (EBIQ-p) subscale scores**

	6-month follow-up			12-month follow-up		
	n	Mean [sd]	Adjusted difference in means (95% CI)	n	Mean [sd]	Adjusted difference in means (95% CI)
<i>Cognitive subscale</i>						
Usual care	109	1.97 [0.43]		99	1.94 [0.47]	
Memory Rehabilitation	121	1.89 [0.45]		117	1.88 [0.46]	
			-0.05 (-0.17 to 0.06)			-0.05 (-0.17 to 0.08)
<i>Depression subscale</i>						
Usual care	109	1.68 [0.62]		97	1.63 [0.63]	
Memory Rehabilitation	118	1.76 [0.62]		118	1.77 [0.64]	
			0.06 (-0.10 to 0.23)			0.16 (-0.01 to 0.34)
<i>Communication subscale</i>						
Usual care	110	1.86 [0.53]		99	1.90 [0.57]	

	6-month follow-up			12-month follow-up		
	n	Mean [sd]	Adjusted difference in means (95% CI)	n	Mean [sd]	Adjusted difference in means (95% CI)
Memory Rehabilitation	120	1.92 [0.57]	0.06 (-0.10 to 0.21)	115	1.85 [0.57]	-0.05 (-0.21 to 0.11)
<i>Difficulties in social interaction subscale</i>						
Usual care	110	1.71 [0.48]		97	1.71 [0.45]	
Memory Rehabilitation	120	1.82 [0.50]	0.09 (-0.04 to 0.22)	118	1.77 [0.48]	0.05 (-0.08 to 0.18)
<i>Impulsivity subscale</i>						
Usual care	108	1.7 [0.50]		97	1.64 [0.48]	
Memory Rehabilitation	121	1.8 [0.51]	N/A <sup>1</sup>	118	1.76 [0.50]	N/A <sup>1</sup>

	6-month follow-up			12-month follow-up		
	n	Mean [sd]	Adjusted difference in means (95% CI)	n	Mean [sd]	Adjusted difference in means (95% CI)
<i>Somatic subscale</i>						
Usual care	110	1.94 [0.52]		96	1.91 [0.51]	
Memory Rehabilitation	120	1.95 [0.52]	N/A <sup>1</sup>	115	1.89 [0.50]	N/A <sup>1</sup>
<i>Fatigue subscale</i>						
Usual care	107	2.01 [0.47]		99	1.99 [0.55]	
Memory Rehabilitation	120	2.00 [0.50]	N/A <sup>1</sup>	117	1.97 [0.51]	N/A <sup>1</sup>

Notes: EBIQ-p sub-scale scores range between 1 and 3 with higher scores indicating increased difficulties. <sup>1</sup>Impulsivity, somatic and fatigue subscales summarised using descriptive statistics only as per the Statistical Analysis Plan.

**Supplemental Table 3: European Brain Injury Questionnaire – relative version (EBIQ-r) subscale scores**

	6-month follow-up			12-month follow-up		
	n	Mean [sd]	Adjusted difference in means (95% CI)	n	Mean [sd]	Adjusted difference in means (95% CI)
<i>Cognitive subscale</i>						
Usual care	72	1.98 [0.50]		60	1.88 [0.52]	
Memory Rehabilitation	69	1.89 [0.52]	-0.06 (-0.23 to 0.12)	68	1.91 [0.53]	0.00 (-0.18 to 0.19)
<i>Depression subscale</i>						
Usual care	67	1.67 [0.65]		59	1.64 [0.61]	
Memory Rehabilitation	68	1.71 [0.59]	0.10 (-0.11 to 0.31)	69	1.77 [0.57]	0.13 (-0.08 to 0.34)
<i>Communication subscale</i>						
Usual care	71	1.76 [0.65]		59	1.72 [0.59]	

	6-month follow-up			12-month follow-up		
	n	Mean [sd]	Adjusted difference in means (95% CI)	n	Mean [sd]	Adjusted difference in means (95% CI)
Memory Rehabilitation	70	1.75 [0.58]	0.00 (-0.20 to 0.21)	69	1.80 [0.59]	0.04 (-0.17 to 0.26)
<i>Difficulties in social interaction subscale</i>						
Usual care	71	1.95 [0.57]		59	1.85 [0.52]	
Memory Rehabilitation	67	1.97 [0.51]	0.05 (-0.13 to 0.23)	63	1.97 [0.56]	0.11 (-0.08 to 0.30)
<i>Impulsivity subscale</i>						
Usual care	72	1.92 [0.61]		60	1.83 [0.56]	
Memory Rehabilitation	69	1.93 [0.55]	N/A <sup>1</sup>	68	1.97 [0.59]	N/A <sup>1</sup>
<i>Somatic subscale</i>						
Usual care	69	1.95 [0.50]		56	1.79 [0.47]	

	6-month follow-up			12-month follow-up		
	n	Mean [sd]	Adjusted difference in means (95% CI)	n	Mean [sd]	Adjusted difference in means (95% CI)
Memory Rehabilitation	68	1.97 [0.51]	N/A <sup>1</sup>	66	1.92 [0.54]	N/A <sup>1</sup>
<i>Fatigue subscale</i>						
Usual care	70	2.01 [0.50]		59	1.92 [0.51]	
Memory Rehabilitation	68	1.97 [0.54]	N/A <sup>1</sup>	66	2.02 [0.55]	N/A <sup>1</sup>

Notes: <sup>1</sup>Impulsivity, somatic and fatigue subscales summarised using descriptive statistics only as per the SAP.



**Supplemental Table 4: Sub-group analysis for Everyday Memory Questionnaire at 6-month follow-up**

	<b>Baseline Mean [sd]</b>	<b>6-month follow-up Mean [sd]</b>	<b>Adjusted difference in means (95% CI)</b>	<b>Adjusted interaction effect (95% CI)</b>
<b><i>Memory impairment at baseline (pre-specified)</i></b>				
RBMT-3 GMI score $\geq$ 85 (average and above average range)				
Usual care (n = 34)	43.4 [15.0]	36.0 [20.5]		
Memory Rehabilitation (n = 35)	42.7 [16.9]	34.4 [21.9]	-0.1 (-8.3 to 8.1)	
RBMT-3 GMI score 70 to 84 (borderline/moderate memory impairment)				
Usual care (n = 43)	45.7 [25.0]	43.9 [25.6]		
Memory Rehabilitation (n = 59)	43.5 [20.8]	34.0 [23.9]	-7.1 (-13.9 to -0.3)	-7.0 (-17.5 to 3.4)
RBMT-3 GMI score $\leq$ 69 (significant memory impairment)				
Usual care (n = 45)	56.3 [26.9]	50.4 [25.1]		
Memory Rehabilitation (n = 35)	53.2 [23.7]	51.3 [29.8]	3.3 (-4.4 to 11.0)	3.4 (-7.7 to 14.6)

***Time since TBI (post  
hoc)***

2 years or less since TBI

	<b>Baseline Mean [sd]</b>	<b>6-month follow-up Mean [sd]</b>	<b>Adjusted difference in means (95% CI)</b>	<b>Adjusted interaction effect (95% CI)</b>
Usual care (n = 31)	50.0 [22.5]	43.1 [28.0]		
Memory Rehabilitation (n = 30)	43.4 [20.4]	34.3 [25.8]	-2.1 (-10.9 to 6.7)	
More than 2 years to 10 years since TBI				
Usual care (n = 61)	46.6 [23.9]	42.7 [24.1]		
Memory Rehabilitation (n = 58)	41.6 [20.5]	34.5 [24.0]	-4.9 (-11.3 to 1.6)	-2.8 (-13.5 to 7.9)
More than 10 years since TBI				
Usual care (n = 30)	52.6 [25.7]	47.8 [22.1]		
Memory Rehabilitation (n = 41)	53.8 [20.5]	48.1 [27.3]	1.5 (-6.7 to 9.7)	3.6 (-8.3 to 15.5)

EMQ scores range from 0 to 112 with higher scores indicating more frequent/important memory problems.

p-value for interaction effect between allocated intervention and memory impairment at baseline: 0.12

p-value for interaction effect between allocated intervention and time since TBI: 0.48

The categories used for time since TBI were agreed at a trial management meeting prior to analysis.

**Supplemental Table 5: Incremental Cost Effectiveness Ratio for Bootstrapped Costs and Quality Adjusted Life Years (QALYs) at 12-Months**

	<b>Inc. Diff.</b> <b>(Int – Usual Care)</b>	<b>Inc. Diff.</b> <b>(Int – Usual Care)</b>		<b>ICER</b> <b>(£)</b>
<b>Basecase</b>	-26.89	-0.011	2,445	South-West Quadrant (Intervention less costly and less effective than usual care)
<b>U95% Bound Net Cost</b>				North-East Quadrant
<b>U95% Bound QALY</b>	401.34	0.011	36,485	(Intervention more costly and more effective than usual care)
<b>L95% Bound Net Cost</b>				South-West Quadrant
<b>L95% Bound QALY</b>	-455.13	-0.031	14,681	(Intervention less costly and less effective than usual care)
<b>U95% Bound Net Cost</b>				Usual Care Dominant <sup>1</sup>
<b>L95% Bound QALY</b>	401.34	-0.031	-	(Intervention more costly and less effective than usual care)
<b>L95% Bound Net Cost</b>				Intervention Dominant <sup>1</sup>
<b>U95% Bound QALY</b>	-455.13	0.011	-	(Intervention less costly and more effective than usual care)

Notes: ICER = incremental cost effectiveness ratio. <sup>1</sup>ICERs are not reported where either the intervention or usual care are dominant

