**THE MEMORY AWARENESS RATING SCALE (MARS)**

**Linda Clare**

**The scale is described in:**

Clare, L., Wilson, B.A., Carter, G., Roth, I., & Hodges, J.R. (2002). Assessing awareness in early-stage Alzheimer’s disease: development and piloting of the Memory Awareness Rating Scale. *Neuropsychological Rehabilitation*, *12,* 341-362. doi: 10.1080/09602010244000129

Clare, L., Whitaker, C.J., & Nelis, S.M. (2010). Appraisal of memory functioning and memory performance in healthy ageing and early-stage Alzheimer’s disease, *Aging, Neuropsychology, and Cognition*, 17, 462-491. doi: 10.1080/13825580903581558

**Further details are available from:**

Professor Linda Clare

Professor of Clinical Psychology of Ageing and Dementia

REACH: The Centre for Research in Ageing and Cognitive Health,

University of Exeter Medical School,

South Cloisters,

St Luke’s Campus,

Exeter

EX1 2LU,

United Kingdom

Email: [l.clare@exeter.ac.uk](mailto:l.clare@exeter.ac.uk)

**Please note this manual is based on the use of the RBMT and RBMT-II.**

**Revised version: 06/03/2019**

**THE MEMORY AWARENESS RATING SCALE (MARS)**

**Contents**

About the MARS

Using the MARS to evaluate awareness of memory functioning

Psychometric properties of the MARS

Memory Functioning Scale - Self-report Version

Memory Functioning Scale - Informant Version

Memory Performance Scale

Rating card for Memory Functioning Scale - Self-report Version

Rating card for Memory Functioning Scale - Informant Version

Rating card for Memory Performance Scale

Score Sheet for interview administration RBMT-II

Score Sheet for interview administration RBMT-E

References

**THE MEMORY AWARENESS RATING SCALE (MARS)**

**ABOUT THE MARS**

**Overview of the MARS**

The Memory Awareness Rating Scale (MARS) assesses memory awareness in two domains:

1. The **Memory Functioning Scale** (MARS-MFS) assesses subjective views of memory functioning. The MARS self-rating (MFS-S) scale asks for subjective ratings of memory functioning in relation to specified aspects of everyday memory functioning. The scores reflect perceptions of the frequency with which difficulties occur in relation to the given items. Ratings are made on a 0 - 4 scale where 0 = never and 4 = always. The scale is usually administered in an interview format or alternatively a self-completed version in questionnaire format is also provided. The maximum possible score is 52, and a higher score indicates a more positive perception of functioning. TheMARS-MFS also has a parallel informant scale (MFS-I) which elicits a separate rating of memory functioning in relation to the same specified aspects of everyday memory functioning as the MFS-S. The self-rating (MFS-S) can be compared with the rating made by an informant on a parallel questionnaire (MFS-I).
2. The **Memory Performance Scale** (MARS-MPS) assesses views of memory performance on specific aspects of memory functioning following direct experience in each case of an analogue task assessing the given aspect of memory functioning. The MARS-MPS is administered together with the appropriate version of the Rivermead Behavioural Memory Test (RBMT). As each subtest is completed, the participant is asked to rate his or her performance on that subtest, which constitutes the analogue task. These tasks are analogues of the real-life situations covered in the MFS, thus allowing a comparison of responses on the two scales. Ratings are made on a 0 - 4 scale where 0 = very poor and 4 = very good. The maximum possible score is 52 and a higher score indicates a more positive perception of functioning. This can be compared with the score on the RBMT which constitutes an objective measure of performance.

**Administration**

The Memory Functioning and Memory Performancescales can be used individually or as a complete set, depending on the aims of assessment. Thus, assessment may involve administration of the MFS alone or MPS alone, or both. The MARS scales can also be used to allow partners or other carers giving informant ratings of participants to evaluate their own memory functioning. This allows an assessment of the accuracy of their own self-ratings and may be indicative of particular response patterns that influence their ratings of participants.

**Selecting the appropriate version of the RBMT**

For people who have, or are assumed to have, memory impairments, either the RBMT-II (Wilson, Cockburn, & Baddeley, 2003) or the original version of the RBMT (Wilson, Cockburn & Baddeley, 1985) is used. For those who are not thought to have memory impairments, the extended RBMT (RBMT-E; Wilson et al., 1999) is used. Both standard and extended versions assess performance in the same areas of everyday memory functioning, but the extended version is more demanding. These areas are analogues of those assessed by the questions in the MARS-MFS. Note that when using the RBMT-E, participants should also be assessed on the National Adult Reading Test (NART-R; Nelson & Willison, 1991), as this is necessary for the conversion of raw scores to profile scores on some subtests. For each subtest, the profile score should be recorded on the MARS score sheet.

**Converting RBMT scores for use with the MARS**

Scores on the RBMT and RBMT-E must be converted for use with the MARS. RBMT standardised profile scores (SPS) are based on a 0 - 2 scale and require conversion to a 0 - 4 scale; to make this conversion, the tester should multiply the standardised profile score by 2 (i.e. an SPS of 0 remains the same, an SPS of 1 is listed as 2, and an SPS of 2 is listed as 4). This is straightforward for all sub-tests except Message Delayed and Message Immediate. For Message Immediate and Message Delayed, take the raw score in each case and convert as follows: 0 = 0; 1 or 2 = 2; 3 = 4, giving two separate converted profile scores, one for Message Immediate and one for Message Delayed.

RBMT-E profile scores are based on a 0 - 4 scale and require no adjustment except in the case of the Orientation, Date and Names subtests, where it is necessary to create separate profile scores for these items. For the Orientation subtest, deduct the score for date (up to 2 points), leaving a total score out of a possible maximum of 12, and convert as follows: 0-10 = 0; 11 = 2; 12 = 4. For Date, take the raw score out of a possible maximum of 2 and convert as follows: 0 = 0; 1 = 2; 2 = 4. For Names take the two profile scores and get the average [(first names + second names profile score) /2] and round to the higher number.

**USING THE MARS TO EVALUATE AWARENESS OF MEMORY FUNCTIONING: CALCULATING DISCREPANCY SCORES**

Responses on the MFS provide a clinically-useful indication of participants’ and informants’ perceptions of memory functioning, and responses on the MPS provide an indication of the impact of direct experience on self-ratings. For a more detailed examination of awareness, and particularly for research purposes, discrepancy scores can be calculated. Simple discrepancy scores obtained by subtracting one score from the other do not take into account between-subject differences in level of rating or performance. Corrected discrepancy scores should be calculated using the method described below and in Clare, Whitaker and Nelis (2010).

**Memory Functioning Discrepancy (MFD)** compares self- and informant ratings by means of a corrected discrepancy score ((MFS-S - MFS-I)/((MFS-S + MFS-I)/2)). This corrected discrepancy score takes account of the actual level of scoring, dividing the discrepancy by the mean of the sum of the two scores; this accords equal weight to both sets of ratings and is suitable for comparing participant and informant ratings. MFD scores close to zero indicate good agreement between the participant and informant. Positive scores arise where participants rate themselves more positively than do their informants (overestimation) and negative scores arise where participants rate themselves less positively than do their informants (underestimation).

**Memory Performance Ratio (MPR**) compares postdiction rating (MPS) and objective test (RBMT) by means of a ratio score (MPS/ RBMT). The score values of MPS and RBMT are adjusted by adding 0.5 to both, to permit calculation of the ratio when either of the values is zero. Ratio scores provide a correction for actual level of scoring on the memory test, and are suitable for comparing predictions or postdictions with the ‘gold standard’ of an objective test score. MPR scores close to 1 indicate close agreement between the test score and the self-rating. Scores above 1 indicate that the self-rating was greater than the test score (overestimation), while scores below 1 indicate that the self-rating was lower than the test score (underestimation). Because of the skewed distributions associated with ratio scores, log transformations of the MPR are required for use in analyses involving the MPR (Trosset & Kaszniak, 1996).

**PSYCHOMETRIC PROPERTIES OF THE MARS**

Psychometric properties of the scale were originally assessed in a small-scale pilot study investigating internal consistency, test-retest reliability, and criterion validity. Data was obtained from 15 couples where one person had a diagnosis of early-stage Alzheimer’s disease (the ‘participant’). Mean scores for the MARS scales for 236 older people without memory impairment and 80 people with dementia with their carers are shown in Clare, Whitaker & Nelis (2010).

**Internal consistency** of the MFS was assessed using data from participant self-rating, informant rating of the participant, and informant self-rating, a total of 45 responses, and yielded Cronbach’s alpha (α) of .94. Internal consistency of the MPS was assessed using self-ratings by participants and informants, a total of 30 responses, and yielded α of .93. More recent data from the Memory Impairment and Dementia Awareness Study (MIDAS; Clare et al., 2011) with 101 people with dementia and their carers found that self- and informant ratings showed good internal consistency (α = .87 and .92, respectively). The self-ratings of performance also demonstrated good internal consistency (α = .85).

**Test-retest reliability** was evaluated by reassessing 10 participants and 9 informants after a one week interval. For the MFS, test-retest reliability was .91 for participant self-rating, .90 for informant rating of the participant, and .63 for informant self-rating. For the MPS, test-retest reliability was .97 for participant self-rating and .73 for informant self-rating. Prior administration of the MPS affects informant’s ratings of their own functioning on reassessment.

**Criterion validity** of the MARS-MFS was evaluated in relation to the Memory Insight Questionnaire (MIQ; Marková, 1997) and the Memory Symptoms Questionnaire (MSQ; Kapur & Pearson, 1983), using participant self-ratings and informant ratings of participants from 12 couples. The MSQ relates solely to memory functioning while the MIQ asks about broader domains of functioning. The correlations are summarised below.

|  |  |  |
| --- | --- | --- |
|  | MSQ | MIQ |
| MFS participant self-rating | -.71 | -.74 |
| MFS informant rating of participant | -.70 | -.56 |

**Memory Functioning Scale Self-Report (MFS-S)**

**Name/Code:**

**Date:**

**Date of Birth:**

**I’m going to give you some examples of everyday situations where you might need to use your memory. I want you to think about your own memory, as it is now, and tell me how you think you would manage in that situation. I want you to choose the answer which best describes how you would do. The answers are on the card here. These are the situations.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SITUATION: | FREQUENCY  0 = Never  1 = Rarely  2 = Sometimes  3 = Often  4 = Always | | | | |
| 1. You meet someone and are told their name. Later on you meet them again, and you need to remember their name. | 0 | 1 | 2 | 3 | 4 |
| 1. You have made an appointment and need to remember to go along. | 0 | 1 | 2 | 3 | 4 |
| 1. You have promised to do something later in the day and need to remember to do it at the right time. | 0 | 1 | 2 | 3 | 4 |
| 1. You have got a set of items to sort out, some of which you have seen before and some of which are new to you. You need to pick out the ones you have seen before. | 0 | 1 | 2 | 3 | 4 |
| 1. You hear a news item on the radio. 2. One of your family comes in at the end and asks you what was said. 3. Later on - say half an hour later - someone else asks you what you heard. | 0  0 | 1  1 | 2  2 | 3  3 | 4  4 |
| 1. You meet up with a group of people. Some of them you’ve met before, others you haven’t. You need to recognise which ones you’ve met before. | 0 | 1 | 2 | 3 | 4 |
| 1. You go to a new building and you are learning to find the way around. Someone shows you a short route which you will need to remember. 2. You need to retrace the route immediately. 3. You need to retrace the route again later on - say half an hour later. | 0  0 | 1  1 | 2  2 | 3  3 | 4  4 |
| 1. You have been given a message to deliver to someone. You need to remember to give that person the message when you see them. 2. You see them right away. 3. You see them later on. | 0  0 | 1  1 | 2  2 | 3  3 | 4  4 |
| 1. You are being asked to give some information about yourself, such as age, address, date of birth, and so on, and to answer a few basic general knowledge questions. | 0 | 1 | 2 | 3 | 4 |
| 1. Someone asks you for today’s date. | 0 | 1 | 2 | 3 | 4 |

**Memory Functioning Scale Informant Version (MFS-I)**

**Name/Code:**

**Date:**

**Date of Birth:**

**Below are some examples of everyday situations where a person might need to use his/her memory. I want you to think about your [partner’s/relative’s] memory, as it is now, and tell me how you think he/she would manage in that situation. I want you to choose the answer on the card which best describes how he/she would do. These are the situations.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SITUATION: | FREQUENCY  0 = Never  1 = Rarely  2 = Sometimes  3 = Often  4 = Always | | | | |
| 1. S/he meets someone and is told their name. Later on s/he meets them again and needs to remember their name. | 0 | 1 | 2 | 3 | 4 |
| 1. S/he has made an appointment and needs to remember to go along. | 0 | 1 | 2 | 3 | 4 |
| 1. S/he has promised to do something later in the day and needs to remember to do it at the right time. | 0 | 1 | 2 | 3 | 4 |
| 1. S/he has got a set of items to sort out, some of which s/he has seen before and some of which are new to him/her. S/he needs to pick out the ones s/he has seen before. | 0 | 1 | 2 | 3 | 4 |
| 1. S/he hears a news item on the radio. 2. One of the family comes in at the end and asks what was said. 3. Later on - say half an hour later - someone else asks what was said. | 0  0 | 1  1 | 2  2 | 3  3 | 4  4 |
| 1. S/he meets up with a group of people. Some of them s/he has met before, others are new. S/he needs to recognise which ones s/he has met before. | 0 | 1 | 2 | 3 | 4 |
| 1. S/he goes to a new building and is learning to find the way around. Someone shows him/her a short route which s/he needs to remember. 2. S/he needs to retrace the route immediately. 3. S/he needs to retrace the route again later on - say half an hour later. | 0  0 | 1  1 | 2  2 | 3  3 | 4  4 |
| 1. S/he has been given a message to deliver to someone and needs to remember to give that person the message when s/he sees them. 2. S/he sees them right away. 3. S/he sees them later on. | 0  0 | 1  1 | 2  2 | 3  3 | 4  4 |
| 1. S/he is being asked to give some information about him/herself, such as age, address, date of birth, and so on, and to answer a few basic general knowledge questions. | 0 | 1 | 2 | 3 | 4 |
| 1. Someone asks him/her for today’s date. | 0 | 1 | 2 | 3 | 4 |

**MARS - Memory Performance Scale (MARS-MPS)**

**Name/Code: RBMT Version**

**Date: Standard a b c d  
Date of Birth: Extended 1 2**

**We are going to do a memory task that looks at how your memory works in everyday situations. The task has several different parts. As we go through the task and finish each part, I’m going to ask you to tell me how you think you have done on that particular part. I want you to choose the answer that best matches how you think you have done. The answers are on the card here.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TASK | SCORE  0 = Very poor  1 = Poor  2 = Alright  3 = Good  4 = Very good | | | | |
| 1. **Story - Immediate.** I read you a short story and asked you to remember as much as you could from it. | 0 | 1 | 2 | 3 | 4 |
| 1. **Picture recognition.** I asked you to pick out those of the pictures you had seen earlier on. | 0 | 1 | 2 | 3 | 4 |
| 1. **Route - Immediate.** I asked you to watch me tracing a short route around the room and then asked you to follow the same route. | 0 | 1 | 2 | 3 | 4 |
| 1. **Message - Immediate.** I also asked you to deliver a message along the way. | 0 | 1 | 2 | 3 | 4 |
| 1. **Face recognition.** I asked you to pick out those of the faces you had seen earlier on. | 0 | 1 | 2 | 3 | 4 |
| 1. **Orientation.** I asked you for some information about yourself and there were a few general knowledge questions to answer as well. | 0 | 1 | 2 | 3 | 4 |
| 1. **Date.** I also asked you for today’s date. | 0 | 1 | 2 | 3 | 4 |
| 1. **Appointment.** I asked you to remember to ask me a question when the timer sounded. | 0 | 1 | 2 | 3 | 4 |
| 1. **Story - Delayed.** I asked you how much you could remember of the story I read you earlier on. | 0 | 1 | 2 | 3 | 4 |
| 1. **Route - Delayed.** I asked you to see how much you could remember of the route I showed you earlier. | 0 | 1 | 2 | 3 | 4 |
| 1. **Message - delayed.** I also wanted to see if you would remember to deliver the message along the way. | 0 | 1 | 2 | 3 | 4 |
| 1. **Names.** I asked you for the name of the person whose picture I showed you earlier. | 0 | 1 | 2 | 3 | 4 |
| 1. **Belonging.** I asked you to remind me to give you back your *(name of item)* which I had put away, and also to remind me where I had put it. | 0 | 1 | 2 | 3 | 4 |

***MARS-MFS-S***

**I think I would be able to do this:**

**** **Always**

** Often**

** Sometimes**

** Rarely**

** Never**

***MARS-MFS-I***

**I think my partner would be able to do this:**

**** **Always**

** Often**

** Sometimes**

** Rarely**

** Never**

***MARS- MPS***

**I think my score on this was:**

**** **Very good**

** Good**

** Alright**

** Poor**

** Very poor**

**MARS:** **SCORE SHEET FOR INTERVIEW ADMINISTRATION WITH STANDARD RBMT-II (Wilson, Cockburn, & Baddeley, 2003)**

**Name/Code: RBMT Version**

**Date: Standard a b c d  
Date of Birth:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Q | MFS-S | | | | | MFS-I | | | | | ***MFS-D***  (S-I) | Q *(MPS)* | MPS | | | | | RBMT  Standardised Profile Score | | | Conversion | Converted score | | | ***MPS-D***  (MPS -Converted scores) |
| 1 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 12 names | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 2 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 8 appoint | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 3 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 13 belong | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 4 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 2 picture | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 5a | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 1 story- immediate | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 5b | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 9 story - delayed | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 6 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 5 face | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 7a | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 3 route - immediate | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 7b | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 10 route delayed | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 8a | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 4 ***mess immediate ®*** | 0 | 1 | 2 | 3 | 4 | Raw: | | | 0=0;1/2=2;3=4 | 0 | 2 | 4 |  |
| 8b | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 11 ***mess delayed ®*** | 0 | 1 | 2 | 3 | 4 | Raw: | | | 0=0;1/2=2;3=4 | 0 | 2 | 4 |  |
| 9 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 6 orient | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| 10 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 7 ***date*** | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | X2 | 0 | 2 | 4 |  |
| Total | | | | | |  | | | | |  | Total |  | | | | |  | | |  |  | | |  |

**Scoring Rules:**

***®*** Based on raw scores

* RBMT standardised profile scores are based on a 0 - 2 scale and require conversion to a 0 - 4 scale.
* To make this conversion, the tester should multiply the standardised profile score by 2. This is straightforward for all sub-tests except Message Delayed and Message Immediate.
* For Message Immediate and Message Delayed, take the raw score in each case and convert as follows: 0 = 0; 1 or 2 = 2; 3 = 4, giving two separate converted profile scores, one for Message Immediate and one for Message Delayed.

**MARS:** **SCORE SHEET FOR INTERVIEW ADMINISTRATION WITH STANDARD RBMT-E (Wilson et al., 1999)**

**Name/Code: RBMT Extended 1 2**

**Date: NART Score:   
Date of Birth:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Q | MFS-S | | | | | MFS-I | | | | | MFS-D  (S-I) | Q | MPS | | | | | RBMT-E  Standardised Profile Score | | | | | MPS-D  (MPS -SPS) |
| 1 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 12 names (***Average* 1st + 2nd**) | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 2 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 8 appoint | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 3 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 13 belong | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 4 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 2 picture | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 5a | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 1 story- immediate | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 5b | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 9 story - delayed | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 6 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 5 face | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 7a | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 3 route - immediate | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 7b | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 10 route delayed | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 8a | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 4 mess immediate | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 8b | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 11 mess delayed | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  |
| 9 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 6 orientation  (raw score - date score + convert:  ***0-10=0; 11=2;12=4*)** | 0 | 1 | 2 | 3 | 4 | 0 |  | 2 |  | 4 |  |
| 10 | 0 | 1 | 2 | 3 | 4 | 0 | 1 | 2 | 3 | 4 |  | 7 date (***0=0;1=2;2=4***) | 0 | 1 | 2 | 3 | 4 | 0 |  | 2 |  | 4 |  |
| Total | | | | | |  | | | | |  | Total |  | | | | |  | | | | |  |

* For **Names** - take the two profile scores and get the average (first names + second names profile score) /2 - round to the higher number.
* Enter the same profile score for **belonging and appointment.**
* RBMT-E profile scores are based on a 0 - 4 scale and require no adjustment except in the case of the Orientation and Date subtest, where it is necessary to create separate profile scores for Orientation and Date.
* For the **Orientation** subtest, deduct the score for date (up to 2 points), leaving a total score out of a possible maximum of 12, and convert as follows: 0-10 = 0; 11 = 2; 12 = 4.
* For **Date**, take the raw score out of a possible maximum of 2 and convert as follows: 0 = 0; 1 = 2; 2 = 4

**REFERENCES:**

Clare, L., Wilson, B.A., Carter, G., Roth, I., & Hodges, J.R. (2002). Assessing awareness in early-stage Alzheimer’s disease: development and piloting of the Memory Awareness Rating Scale. *Neuropsychological Rehabilitation*, *12,* 341-362. doi: 10.1080/09602010244000129

Clare, L., Whitaker, C.J., & Nelis, S.M. (2010). Appraisal of memory functioning and memory performance in healthy ageing and early-stage Alzheimer’s disease, *Aging, Neuropsychology, and Cognition*, *17*, 462-491. doi: 10.1080/13825580903581558

Clare, L., Whitaker, C., Nelis, S.M., Martyr, A., Marková, I., Roth, I., Woods, R.T., & Morris, R.G. (2011). Multi-dimensional assessment of awareness in early-stage dementia: a cluster analytic approach. *Dementia and Geriatric Cognitive Disorders, 31*, 317-327. doi: 10.1159/000327356

Kapur, N. & Pearson, D. (1983). Memory symptoms and memory performance of neurological patients. *British Journal of Psychology*, *74*, 409-415. doi: 10.1111/j.2044-8295.1983.tb01872.x

Marková, I. S. (1997). *Towards a structure of insight: a clinical and conceptual analysis*, University of Glasgow. Unpublished MD thesis.

Nelson, H. E., & Willison, J. R. (1991). *National Adult Reading Test (NART) (2nd ed.).* Windsor, UK: NFER-Nelson.

Trosset, M.W. & Kaszniak, A.W. (1996). Measures of deficit unawareness for predicted performance experiments. *Journal of the International Neuropsychological Society, 2*, 315-322. doi: 10.1017/S1355617700001338

Wilson, B. A., Clare, L., Cockburn, J., Baddeley, A. D., Tate, R., & Watson, P. (1999). The Rivermead Behavioural Memory Test - Extended Version. Bury St Edmunds, UK: Thames Valley Test Company.

Wilson, B. A., Cockburn, J., & Baddeley, A. (2003). Rivermead Behavioural Memory Test, 2nd edition (RBMT-II). London: Harcourt Assessment.

Wilson, B. A., Cockburn, J., & Baddeley, A. (1985). Rivermead Behavioural Memory Test (RBMT). Bury St Edmunds: Thames Valley Test Company.