

**Table S1** Model fit indices for path models.

|                                    | S-B $\chi^2$ | $\chi^2$ contribution<br>Y-O/O-O | RMSEA<br>(90% CI) | CFI  | TLI  | SRMR |
|------------------------------------|--------------|----------------------------------|-------------------|------|------|------|
| <b>General Memory Multi-group</b>  | 1.41         | 0.26/1.53                        | .00<br>(.00-.21)  | 1.00 | 1.00 | .018 |
| <b>General EF Multi-group</b>      | 1.41         | 0.26/1.53                        | .00<br>(.00-.21)  | 1.00 | 1.00 | .014 |
| <b>General Combined</b>            | 1.39         | -                                | .06<br>(.00-.23)  | .999 | .910 | .011 |
| <b>Insomnia Memory Multi-group</b> | 2.59         | 0.97/ 1.62                       | .06<br>(.00-.24)  | .998 | .922 | .015 |
| <b>Insomnia EF Multi-group</b>     | 2.61         | 0.97/ 1.62                       | .06<br>(.00-.24)  | .996 | .892 | .018 |
| <b>Insomnia Combined</b>           | 2.36         | -                                | .11<br>(.00-.26)  | .997 | .735 | .016 |
| <b>OSA RBD Memory Multi-group</b>  | 3.29         | 3.61/0.09                        | .10<br>(.00-.27)  | .995 | .768 | .024 |
| <b>OSA RBD EF Multi-group</b>      | 3.29         | 3.61/0.09                        | .10<br>(.00-.27)  | .996 | .660 | .022 |
| <b>OSA RBD Combined</b>            | 1.52         | -                                | .05<br>(.00-.22)  | .999 | .940 | .010 |

*Note:* S-B  $\chi^2$  = Satorra-Bentler Chi Square; RMSEA = Root Mean Squared Error of Approximation; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; SRMR = standardised root mean square residual. Ideal values for fit indices; RMSEA  $\leq$ .05; RMSEA 90% CI must cross 0.05; CFI  $\geq$ .95; TLI  $\geq$ .95; SMSR  $\leq$ .08.

**Table S2** Standardised regression coefficients, standard errors and significance values for the multi-group path models of general factor scores.

|                         | Younger Onset |      |       | Older Onset |      |       |
|-------------------------|---------------|------|-------|-------------|------|-------|
|                         | $\beta$       | SE   | p     | $\beta$     | SE   | p     |
| <b>General</b>          |               |      |       |             |      |       |
| Disease Duration        | -0.05         | 0.19 | .772  | -0.20       | 0.10 | .043  |
| Age                     | 0.12          | 0.19 | .327  | 0.01        | 0.10 | .923  |
| Sex                     | -0.04         | 0.10 | .723  | 0.21        | 0.11 | .052  |
| DASS                    | 0.29          | 0.09 | .001  | 0.46        | 0.11 | <.001 |
| LED                     | 0.21          | 0.14 | .126  | 0.32        | 0.11 | .003  |
| <b>Memory</b>           |               |      |       |             |      |       |
| <b>HVLT Total</b>       |               |      |       |             |      |       |
| <i>General</i>          | 0.13          | 0.08 | .114  | 0.04        | 0.13 | .775  |
| Disease Duration        | -0.22         | 0.10 | .020  | -0.08       | 0.11 | .433  |
| Age                     | -0.19         | 0.10 | .061  | -0.34       | 0.10 | .001  |
| Premorbid IQ            | 0.42          | 0.08 | <.001 | 0.26        | 0.09 | .002  |
| Sex                     | 0.33          | 0.08 | <.001 | 0.38        | 0.10 | <.001 |
| DASS                    | -0.12         | 0.10 | .218  | -0.15       | 0.12 | .192  |
| LED                     | 0.00          | 0.09 | .992  | 0.06        | 0.10 | .542  |
| <b>HVLT Recall</b>      |               |      |       |             |      |       |
| <i>General</i>          | 0.19          | 0.09 | .044  | 0.18        | 0.11 | .099  |
| Disease Duration        | -0.23         | 0.12 | .046  | -0.01       | 0.10 | .941  |
| Age                     | -0.10         | 0.10 | .352  | -0.40       | 0.10 | <.001 |
| Premorbid IQ            | 0.42          | 0.08 | <.001 | 0.12        | 0.08 | .123  |
| Sex                     | 0.36          | 0.08 | <.001 | 0.35        | 0.09 | <.001 |
| DASS                    | -0.18         | 0.10 | .067  | -0.14       | 0.09 | .139  |
| LED                     | -0.06         | 0.11 | .619  | 0.02        | 0.09 | .810  |
| <b>HVLT recognition</b> |               |      |       |             |      |       |
| <i>General</i>          | 0.03          | 0.11 | .787  | 0.17        | 0.10 | .090  |
| Disease Duration        | -0.09         | 0.12 | .462  | 0.01        | 0.11 | .954  |
| Age                     | -0.12         | 0.10 | .259  | -0.26       | 0.13 | .041  |
| Premorbid IQ            | 0.31          | 0.09 | <.001 | 0.05        | 0.11 | .632  |
| Sex                     | 0.31          | 0.08 | <.001 | 0.30        | 0.09 | <.001 |
| DASS                    | -0.18         | 0.14 | .204  | -0.36       | 0.10 | <.001 |
| LED                     | -0.05         | 0.10 | .645  | 0.09        | 0.12 | .443  |
| <b>PRM</b>              |               |      |       |             |      |       |
| <i>General</i>          | -0.06         | 0.10 | .551  | -0.30       | 0.15 | .045  |
| Disease Duration        | -0.29         | 0.14 | .051  | 0.08        | 0.09 | .393  |
| Age                     | -0.06         | 0.11 | .582  | -0.38       | 0.10 | <.001 |
| Premorbid IQ            | 0.32          | 0.10 | .001  | 0.01        | 0.09 | .900  |
| Sex                     | 0.07          | 0.10 | .460  | 0.02        | 0.12 | .851  |
| DASS                    | -0.07         | 0.13 | .589  | 0.03        | 0.12 | .825  |

|                         | Younger Onset |      |       | Older Onset |      |       |
|-------------------------|---------------|------|-------|-------------|------|-------|
|                         | $\beta$       | SE   | $p$   | $\beta$     | SE   | $p$   |
| <b>LED</b>              | 0.01          | 0.13 | .913  | 0.00        | 0.09 | .994  |
| <b>SRM</b>              |               |      |       |             |      |       |
| <i>General</i>          | 0.01          | 0.10 | .964  | -0.36       | 0.10 | <.001 |
| <b>Disease Duration</b> | -0.21         | 0.12 | .086  | -0.20       | 0.12 | .101  |
| <b>Age</b>              | -0.23         | 0.11 | .030  | -0.22       | 0.10 | .027  |
| <b>Premorbid IQ</b>     | 0.19          | 0.13 | .148  | -0.07       | 0.10 | .497  |
| <b>Sex</b>              | -0.08         | 0.11 | .448  | 0.19        | 0.10 | .068  |
| <b>DASS</b>             | 0.06          | 0.14 | .663  | 0.02        | 0.14 | .882  |
| <b>LED</b>              | -0.01         | 0.11 | .942  | 0.24        | 0.11 | .033  |
| <b>EF</b>               |               |      |       |             |      |       |
| <b>COWA</b>             |               |      |       |             |      |       |
| <i>General</i>          | 0.10          | 0.10 | .291  | 0.13        | 0.08 | .120  |
| <b>Disease Duration</b> | -0.23         | 0.11 | .035  | 0.06        | 0.09 | .489  |
| <b>Age</b>              | -0.04         | 0.11 | .732  | -0.11       | 0.08 | .188  |
| <b>Premorbid IQ</b>     | 0.37          | 0.08 | <.001 | 0.54        | 0.08 | <.001 |
| <b>Sex</b>              | 0.18          | 0.10 | .066  | 0.36        | 0.09 | <.001 |
| <b>DASS</b>             | -0.03         | 0.17 | .860  | -0.17       | 0.09 | .063  |
| <b>LED</b>              | -0.08         | 0.12 | .513  | 0.29        | 0.11 | .010  |
| <b>SWM</b>              |               |      |       |             |      |       |
| <i>General</i>          | -0.11         | 0.08 | .198  | 0.00        | 0.11 | .978  |
| <b>Disease Duration</b> | 0.35          | 0.11 | .002  | -0.09       | 0.13 | .481  |
| <b>Age</b>              | 0.28          | 0.09 | .002  | 0.37        | 0.11 | .001  |
| <b>Premorbid IQ</b>     | -0.21         | 0.09 | .020  | -0.12       | 0.10 | .235  |
| <b>Sex</b>              | -0.01         | 0.09 | .903  | 0.07        | 0.12 | .584  |
| <b>DASS</b>             | 0.11          | 0.12 | .332  | 0.04        | 0.10 | .717  |
| <b>LED</b>              | 0.05          | 0.10 | .637  | 0.08        | 0.11 | .427  |
| <b>SOC</b>              |               |      |       |             |      |       |
| <i>General</i>          | 0.05          | 0.10 | .631  | -0.03       | 0.14 | .803  |
| <b>Disease Duration</b> | -0.11         | 0.08 | .197  | 0.08        | 0.13 | .555  |
| <b>Age</b>              | -0.30         | 0.12 | .011  | -0.32       | 0.13 | .010  |
| <b>Premorbid IQ</b>     | 0.32          | 0.09 | <.001 | 0.19        | 0.11 | .086  |
| <b>Sex</b>              | 0.07          | 0.10 | .499  | 0.08        | 0.11 | .461  |
| <b>DASS</b>             | 0.04          | 0.09 | .684  | 0.03        | 0.12 | .835  |
| <b>LED</b>              | -0.12         | 0.11 | .242  | 0.08        | 0.13 | .522  |

**Table S3** Standardised regression coefficients, standard errors and significance values for the multi-group path models of insomnia factor scores.

|                         | Younger Onset |      |          | Older Onset |      |          |
|-------------------------|---------------|------|----------|-------------|------|----------|
|                         | $\beta$       | SE   | <i>p</i> | $\beta$     | SE   | <i>p</i> |
| <b>Insomnia</b>         |               |      |          |             |      |          |
| Disease Duration        | -0.14         | 0.11 | .232     | -0.10       | 0.10 | .296     |
| Age                     | 0.03          | 0.14 | .817     | -0.14       | 0.11 | .201     |
| Sex                     | -0.06         | 0.11 | .593     | 0.26        | 0.09 | .002     |
| DASS                    | 0.11          | 0.10 | .266     | 0.05        | 0.12 | .655     |
| LED                     | 0.09          | 0.12 | .477     | 0.38        | 0.12 | .001     |
| <b>Memory</b>           |               |      |          |             |      |          |
| <b>HVLT Total</b>       |               |      |          |             |      |          |
| <i>Insomnia</i>         | 0.12          | 0.09 | .166     | -0.02       | 0.10 | .880     |
| Disease Duration        | -0.21         | 0.09 | .019     | -0.09       | 0.11 | .396     |
| Age                     | -0.17         | 0.10 | .080     | -0.34       | 0.10 | <.001    |
| Premorbid IQ            | 0.42          | 0.09 | <.001    | 0.26        | 0.09 | .003     |
| Sex                     | 0.34          | 0.08 | <.001    | 0.40        | 0.10 | <.001    |
| DASS                    | -0.10         | 0.10 | .304     | -0.13       | 0.11 | .205     |
| LED                     | 0.02          | 0.08 | .842     | 0.08        | 0.11 | .467     |
| <b>HVLT Recall</b>      |               |      |          |             |      |          |
| <i>Insomnia</i>         | 0.13          | 0.09 | .140     | -0.07       | 0.09 | .456     |
| Disease Duration        | -0.23         | 0.10 | .025     | -0.05       | 0.11 | .645     |
| Age                     | -0.08         | 0.10 | .454     | -0.41       | 0.11 | <.001    |
| Premorbid IQ            | 0.42          | 0.08 | <.001    | 0.09        | 0.09 | .287     |
| Sex                     | 0.36          | 0.09 | <.001    | 0.40        | 0.10 | <.001    |
| DASS                    | -0.14         | 0.09 | .118     | -0.05       | 0.08 | .530     |
| LED                     | -0.03         | 0.10 | .793     | 0.10        | 0.09 | .295     |
| <b>HVLT recognition</b> |               |      |          |             |      |          |
| <i>Insomnia</i>         | 0.18          | 0.08 | .027     | -0.07       | 0.09 | .456     |
| Disease Duration        | -0.07         | 0.11 | .568     | -0.05       | 0.11 | .645     |
| Age                     | -0.12         | 0.11 | .264     | -0.41       | 0.11 | <.001    |
| Premorbid IQ            | 0.32          | 0.08 | <.001    | 0.09        | 0.09 | .287     |
| Sex                     | 0.32          | 0.08 | <.001    | 0.40        | 0.10 | <.001    |
| DASS                    | -0.19         | 0.12 | .135     | -0.05       | 0.08 | .530     |
| LED                     | -0.06         | 0.09 | .539     | 0.10        | 0.09 | .295     |
| <b>PRM</b>              |               |      |          |             |      |          |
| <i>Insomnia</i>         | -0.10         | 0.09 | .299     | 0.01        | 0.11 | .935     |
| Disease Duration        | -0.28         | 0.14 | .049     | -0.02       | 0.11 | .814     |
| Age                     | -0.07         | 0.11 | .560     | -0.26       | 0.13 | .048     |
| Premorbid IQ            | 0.31          | 0.10 | .001     | 0.03        | 0.11 | .772     |
| Sex                     | 0.07          | 0.10 | .492     | 0.34        | 0.09 | <.001    |
| DASS                    | -0.08         | 0.11 | .495     | -0.29       | 0.10 | .003     |

| <b>SRM</b>              |       |       |       |       |      |       |
|-------------------------|-------|-------|-------|-------|------|-------|
| <i>Insomnia</i>         | -0.06 | 0.11  | .562  | 0.04  | 0.10 | .705  |
| <b>Disease Duration</b> | -0.22 | 0.12  | .073  | 0.14  | 0.10 | .170  |
| <b>Age</b>              | -0.23 | 0.11  | .030  | -0.37 | 0.10 | <.001 |
| <b>Premorbid IQ</b>     | 0.19  | 0.13  | .167  | 0.05  | 0.09 | .541  |
| <b>Sex</b>              | -0.08 | 0.11  | .432  | -0.05 | 0.13 | .727  |
| <b>DASS</b>             | 0.07  | 0.13  | .614  | -0.11 | 0.08 | .175  |
| <b>LED</b>              | 0.00  | 0.11  | .988  | -0.10 | 0.10 | .309  |
| <b>EF</b>               |       |       |       |       |      |       |
| <b>COWA</b>             |       |       |       |       |      |       |
| <i>Insomnia</i>         | 0.32  | 0.08  | <.001 | 0.10  | 0.12 | .374  |
| <b>Disease Duration</b> | -0.19 | 0.10  | .057  | -0.12 | 0.13 | .359  |
| <b>Age</b>              | -0.04 | 0.11  | .755  | -0.20 | 0.10 | .049  |
| <b>Premorbid IQ</b>     | 0.40  | 0.07  | <.001 | -0.01 | 0.11 | .937  |
| <b>Sex</b>              | 0.19  | 0.09  | .037  | 0.09  | 0.11 | .375  |
| <b>DASS</b>             | -0.03 | 0.16  | .846  | -0.15 | 0.13 | .250  |
| <b>LED</b>              | -0.08 | 0.11  | .452  | 0.10  | 0.12 | .413  |
| <b>SWM</b>              |       |       |       |       |      |       |
| <i>Insomnia</i>         | -0.04 | 0.09  | .620  | 0.21  | 0.09 | .022  |
| <b>Disease Duration</b> | 0.35  | 0.12  | .002  | -0.08 | 0.13 | .540  |
| <b>Age</b>              | 0.27  | 0.09  | .003  | 0.40  | 0.11 | <.001 |
| <b>Premorbid IQ</b>     | -0.20 | 0.09  | .023  | -0.09 | 0.10 | .365  |
| <b>Sex</b>              | -0.01 | 0.09  | .918  | 0.02  | 0.11 | .869  |
| <b>DASS</b>             | 0.09  | 0.11  | .430  | 0.03  | 0.10 | .783  |
| <b>LED</b>              | 0.03  | 0.10  | .756  | 0.01  | 0.10 | .927  |
| <b>SOC</b>              |       |       |       |       |      |       |
| <i>Insomnia</i>         | -0.02 | 0.09  | .844  | 0.16  | 0.09 | .076  |
| <b>Disease Duration</b> | -0.11 | 0.085 | .190  | 0.05  | 0.09 | .557  |
| <b>Age</b>              | -0.29 | 0.116 | .010  | -0.08 | 0.09 | .322  |
| <b>Premorbid IQ</b>     | 0.31  | 0.088 | <.001 | 0.54  | 0.08 | <.001 |
| <b>Sex</b>              | 0.06  | 0.097 | .520  | 0.34  | 0.08 | <.001 |
| <b>DASS</b>             | 0.05  | 0.085 | .560  | -0.12 | 0.08 | .115  |
| <b>LED</b>              | -0.11 | 0.104 | .280  | 0.27  | 0.12 | .026  |

**Table S4** Standardised regression coefficients, standard errors and significance values for the multi-group path models of OSA and RBD symptoms factor scores.

|                         | Younger Onset |      |       | Older Onset |      |       |
|-------------------------|---------------|------|-------|-------------|------|-------|
|                         | $\beta$       | SE   | $p$   | $\beta$     | SE   | $p$   |
| <b>OSA and RBD</b>      |               |      |       |             |      |       |
| Disease Duration        | 0.11          | 0.18 | .554  | -0.25       | 0.12 | .030  |
| Age                     | 0.02          | 0.13 | .834  | 0.08        | 0.10 | .470  |
| Sex                     | -0.12         | 0.10 | .245  | -0.01       | 0.14 | .921  |
| DASS                    | -0.10         | 0.06 | .103  | 0.25        | 0.18 | .169  |
| LED                     | -0.06         | 0.10 | .569  | 0.01        | 0.13 | .915  |
| <b>Memory</b>           |               |      |       |             |      |       |
| <b>HVLT Total</b>       |               |      |       |             |      |       |
| <i>OSA and RBD</i>      | -0.05         | 0.08 | .534  | 0.00        | 0.09 | .962  |
| Disease Duration        | -0.23         | 0.09 | .010  | -0.09       | 0.11 | .405  |
| Age                     | -0.17         | 0.10 | .098  | -0.34       | 0.10 | .001  |
| Premorbid IQ            | 0.42          | 0.09 | <.001 | 0.26        | 0.09 | .003  |
| Sex                     | 0.32          | 0.08 | <.001 | 0.39        | 0.09 | <.001 |
| DASS                    | -0.10         | 0.10 | .348  | -0.14       | 0.11 | .223  |
| LED                     | 0.03          | 0.09 | .780  | 0.07        | 0.09 | .443  |
| <b>HVLT Recall</b>      |               |      |       |             |      |       |
| <i>OSA and RBD</i>      | -0.07         | 0.09 | .435  | -0.02       | 0.10 | .829  |
| Disease Duration        | -0.24         | 0.10 | .020  | -0.05       | 0.11 | .668  |
| Age                     | -0.07         | 0.11 | .498  | -0.40       | 0.11 | <.001 |
| Premorbid IQ            | 0.42          | 0.09 | <.001 | 0.10        | 0.08 | .232  |
| Sex                     | 0.35          | 0.09 | <.001 | 0.38        | 0.10 | <.001 |
| DASS                    | -0.13         | 0.09 | .150  | -0.05       | 0.09 | .576  |
| LED                     | -0.02         | 0.11 | .861  | 0.07        | 0.08 | .382  |
| <b>HVLT recognition</b> |               |      |       |             |      |       |
| <i>OSA and RBD</i>      | -0.20         | 0.13 | .108  | -0.01       | 0.10 | .949  |
| Disease Duration        | -0.07         | 0.12 | .580  | -0.03       | 0.11 | .805  |
| Age                     | -0.10         | 0.10 | .305  | -0.26       | 0.13 | .049  |
| Premorbid IQ            | 0.35          | 0.08 | <.001 | 0.03        | 0.11 | .782  |
| Sex                     | 0.28          | 0.08 | .001  | 0.34        | 0.09 | <.001 |
| DASS                    | -0.18         | 0.12 | .130  | -0.28       | 0.10 | .005  |
| LED                     | -0.05         | 0.10 | .587  | 0.14        | 0.11 | .195  |
| <b>PRM</b>              |               |      |       |             |      |       |
| <i>OSA and RBD</i>      | -0.12         | 0.08 | .150  | -0.21       | 0.12 | .081  |
| Disease Duration        | -0.25         | 0.14 | .076  | 0.08        | 0.10 | .417  |
| Age                     | -0.06         | 0.11 | .576  | -0.36       | 0.10 | <.001 |
| Premorbid IQ            | 0.34          | 0.10 | .001  | 0.04        | 0.08 | .614  |
| Sex                     | 0.06          | 0.10 | .526  | -0.04       | 0.12 | .730  |
| DASS                    | -0.09         | 0.11 | .393  | -0.06       | 0.10 | .571  |

|                         |       |      |       |       |      |       |
|-------------------------|-------|------|-------|-------|------|-------|
| <b>LED</b>              | 0.00  | 0.13 | .959  | -0.09 | 0.09 | .327  |
| <b>SRM</b>              |       |      |       |       |      |       |
| <b>OSA and RBD</b>      | -0.21 | 0.09 | .013  | -0.11 | 0.13 | .384  |
| <b>Disease Duration</b> | -0.19 | 0.12 | .101  | -0.16 | 0.14 | .267  |
| <b>Age</b>              | -0.22 | 0.10 | .028  | -0.21 | 0.11 | .053  |
| <b>Premorbid IQ</b>     | 0.24  | 0.13 | .067  | -0.03 | 0.11 | .819  |
| <b>Sex</b>              | -0.10 | 0.10 | .327  | 0.12  | 0.10 | .258  |
| <b>DASS</b>             | 0.04  | 0.12 | .715  | -0.12 | 0.13 | .387  |
| <b>LED</b>              | -0.02 | 0.11 | .848  | 0.13  | 0.11 | .235  |
| <hr/>                   |       |      |       |       |      |       |
| <b>EF</b>               |       |      |       |       |      |       |
| <hr/>                   |       |      |       |       |      |       |
| <b>COWA</b>             |       |      |       |       |      |       |
| <b>OSA and RBD</b>      | -0.05 | 0.07 | .481  | -0.05 | 0.06 | .438  |
| <b>Disease Duration</b> | -0.23 | 0.11 | .040  | 0.03  | 0.10 | .781  |
| <b>Age</b>              | -0.03 | 0.11 | .823  | -0.11 | 0.08 | .210  |
| <b>Premorbid IQ</b>     | 0.38  | 0.08 | <.001 | 0.52  | 0.08 | <.001 |
| <b>Sex</b>              | 0.17  | 0.10 | .086  | 0.39  | 0.08 | <.001 |
| <b>DASS</b>             | -0.01 | 0.17 | .973  | -0.10 | 0.08 | .189  |
| <b>LED</b>              | -0.06 | 0.12 | .628  | 0.33  | 0.12 | .004  |
| <br>                    |       |      |       |       |      |       |
| <b>SWM</b>              |       |      |       |       |      |       |
| <b>OSA and RBD</b>      | 0.20  | 0.08 | .015  | 0.02  | 0.10 | .869  |
| <b>Disease Duration</b> | 0.34  | 0.11 | .002  | -0.09 | 0.14 | .514  |
| <b>Age</b>              | 0.25  | 0.09 | .007  | 0.36  | 0.11 | .001  |
| <b>Premorbid IQ</b>     | -0.24 | 0.09 | .004  | -0.12 | 0.10 | .231  |
| <b>Sex</b>              | 0.01  | 0.09 | .887  | 0.07  | 0.12 | .575  |
| <b>DASS</b>             | 0.10  | 0.11 | .359  | 0.03  | 0.10 | .728  |
| <b>LED</b>              | 0.04  | 0.10 | .701  | 0.08  | 0.10 | .408  |
| <br>                    |       |      |       |       |      |       |
| <b>SOC</b>              |       |      |       |       |      |       |
| <b>OSA and RBD</b>      | -0.08 | 0.08 | .344  | -0.15 | 0.09 | .111  |
| <b>Disease Duration</b> | -0.10 | 0.09 | .245  | 0.04  | 0.13 | .729  |
| <b>Age</b>              | -0.28 | 0.11 | .013  | -0.31 | 0.13 | .014  |
| <b>Premorbid IQ</b>     | 0.33  | 0.09 | <.001 | 0.19  | 0.11 | .083  |
| <b>Sex</b>              | 0.06  | 0.10 | .562  | 0.07  | 0.10 | .495  |
| <b>DASS</b>             | 0.04  | 0.08 | .622  | 0.05  | 0.11 | .665  |
| <b>LED</b>              | -0.12 | 0.10 | .240  | 0.075 | 0.11 | .508  |

**Table S5** Standardised regression coefficients, standard errors and significance values for single-sample path models for general, insomnia and, OSA and RBD PDSS-R factors.

|                         | <i>β</i> | <i>SE</i> | <i>p</i> |                  | <i>β</i> | <i>SE</i> | <i>p</i> |                    | <i>β</i> | <i>SE</i> | <i>p</i> |
|-------------------------|----------|-----------|----------|------------------|----------|-----------|----------|--------------------|----------|-----------|----------|
| <b>General</b>          |          |           |          | <b>Insomnia</b>  |          |           |          | <b>OSA and RBD</b> |          |           |          |
| Disease Duration        | -0.09    | 0.11      | .418     | Disease Duration | -0.09    | 0.08      | .233     | Disease Duration   | -0.03    | 0.12      | .833     |
| Age                     | 0.08     | 0.08      | .295     | Age              | -0.11    | 0.08      | .193     | Age                | 0.08     | 0.08      | .358     |
| Sex                     | 0.06     | 0.08      | .437     | Sex              | 0.08     | 0.07      | .266     | Sex                | -0.09    | 0.09      | .308     |
| DASS                    | 0.39     | 0.07      | <.001    | DASS             | 0.11     | 0.08      | .152     | DASS               | 0.07     | 0.10      | .477     |
| LED                     | 0.28     | 0.08      | .001     | LED              | 0.21     | 0.08      | .006     | LED                | -0.01    | 0.08      | .925     |
| <b>Memory</b>           |          |           |          |                  |          |           |          |                    |          |           |          |
| <b>HVLT Total</b>       |          |           |          |                  |          |           |          |                    |          |           |          |
| <b>General</b>          |          |           |          | <b>Insomnia</b>  |          |           |          | <b>OSA and RBD</b> |          |           |          |
| Disease Duration        | 0.09     | 0.07      | .213     | Disease Duration | 0.07     | 0.06      | .245     | Disease Duration   | -0.01    | 0.06      | .817     |
| Age                     | -0.17    | 0.06      | .007     | Age              | -0.17    | 0.06      | .005     | Age                | -0.18    | 0.06      | .003     |
| Premorbid IQ            | -0.33    | 0.06      | <.001    | Premorbid IQ     | -0.31    | 0.06      | <.001    | Premorbid IQ       | -0.32    | 0.06      | <.001    |
| Sex                     | 0.33     | 0.06      | <.001    | Sex              | 0.33     | 0.06      | <.001    | Sex                | 0.32     | 0.06      | <.001    |
| DASS                    | 0.33     | 0.06      | <.001    | DASS             | 0.33     | 0.06      | <.001    | DASS               | 0.34     | 0.06      | <.001    |
| LED                     | -0.15    | 0.08      | .047     | LED              | -0.13    | 0.07      | .082     | LED                | -0.12    | 0.07      | .108     |
|                         | 0.02     | 0.06      | .721     |                  | 0.03     | 0.06      | .587     |                    | 0.05     | 0.06      | .423     |
| <b>HVLT Recall</b>      |          |           |          |                  |          |           |          |                    |          |           |          |
| <b>General</b>          |          |           |          | <b>Insomnia</b>  |          |           |          | <b>OSA and RBD</b> |          |           |          |
| Disease Duration        | 0.20     | 0.07      | .006     | Disease Duration | 0.06     | 0.06      | .366     | Disease Duration   | -0.02    | 0.06      | .711     |
| Age                     | -0.13    | 0.08      | .104     | Age              | -0.14    | 0.07      | .043     | Age                | -0.15    | 0.07      | .034     |
| Premorbid IQ            | -0.33    | 0.07      | <.001    | Premorbid IQ     | -0.31    | 0.07      | <.001    | Premorbid IQ       | -0.32    | 0.07      | <.001    |
| Sex                     | 0.25     | 0.06      | <.001    | Sex              | 0.24     | 0.06      | <.001    | Sex                | 0.24     | 0.06      | <.001    |
| DASS                    | 0.33     | 0.06      | <.001    | DASS             | 0.34     | 0.06      | <.001    | DASS               | 0.34     | 0.06      | <.001    |
| LED                     | -0.18    | 0.07      | .015     | LED              | -0.11    | 0.06      | .084     | LED                | -0.10    | 0.06      | .111     |
|                         | 0.00     | 0.07      | .979     |                  | 0.04     | 0.07      | .511     |                    | 0.06     | 0.06      | .391     |
| <b>HVLT recognition</b> |          |           |          |                  |          |           |          |                    |          |           |          |
| <b>General</b>          |          |           |          | <b>Insomnia</b>  |          |           |          | <b>OSA and RBD</b> |          |           |          |
| Disease Duration        | 0.10     | 0.08      | .198     | Disease Duration | 0.12     | 0.06      | .075     | Disease Duration   | -0.02    | 0.06      | .711     |
|                         | -0.06    | 0.08      | .455     |                  | -0.06    | 0.07      | .434     |                    | -0.15    | 0.06      | .034     |



|             |       |      |       |             |       |      |       |             |       |      |       |
|-------------|-------|------|-------|-------------|-------|------|-------|-------------|-------|------|-------|
| <b>Age</b>  | -0.23 | 0.08 | .004  | <b>Age</b>  | -0.21 | 0.08 | .010  | <b>Age</b>  | -0.32 | 0.07 | <.001 |
| <b>Sex</b>  | 0.15  | 0.08 | .046  | <b>Sex</b>  | 0.16  | 0.08 | .034  | <b>Sex</b>  | 0.24  | 0.06 | <.001 |
| <b>DASS</b> | 0.29  | 0.06 | <.001 | <b>DASS</b> | 0.29  | 0.06 | <.001 | <b>DASS</b> | 0.34  | 0.06 | <.001 |
| <b>LED</b>  | -0.26 | 0.09 | .003  | <b>LED</b>  | -0.24 | 0.08 | .002  | <b>LED</b>  | -0.10 | 0.06 | .111  |

**PRM**

|                         |       |      |      |                         |       |      |      |                         |       |      |      |
|-------------------------|-------|------|------|-------------------------|-------|------|------|-------------------------|-------|------|------|
| <b>General</b>          | -0.17 | 0.10 | .100 | <b>Insomnia</b>         | -0.02 | 0.07 | .778 | <b>OSA and RBD</b>      |       |      |      |
| <b>Disease Duration</b> | -0.17 | 0.10 | .091 | <b>Disease Duration</b> | -0.15 | 0.11 | .151 | <b>Disease Duration</b> | -0.16 | 0.10 | .129 |
| <b>Age</b>              | -0.22 | 0.07 | .002 | <b>Age</b>              | -0.23 | 0.07 | .001 | <b>Age</b>              | -0.22 | 0.07 | .003 |
| <b>Premorbid IQ</b>     | 0.17  | 0.07 | .011 | <b>Premorbid IQ</b>     | 0.18  | 0.07 | .005 | <b>Premorbid IQ</b>     | 0.20  | 0.07 | .002 |
| <b>Sex</b>              | 0.03  | 0.08 | .691 | <b>Sex</b>              | 0.02  | 0.08 | .760 | <b>Sex</b>              | 0.01  | 0.08 | .906 |
| <b>DASS</b>             | -0.06 | 0.10 | .537 | <b>DASS</b>             | -0.12 | 0.08 | .108 | <b>DASS</b>             | -0.11 | 0.08 | .140 |
| <b>LED</b>              | 0.04  | 0.09 | .642 | <b>LED</b>              | 0.00  | 0.08 | .974 | <b>LED</b>              | -0.01 | 0.08 | .931 |

**SRM**

|                         |       |      |       |                         |       |      |       |                         |       |      |      |
|-------------------------|-------|------|-------|-------------------------|-------|------|-------|-------------------------|-------|------|------|
| <b>General</b>          | -0.15 | 0.08 | .050  | <b>Insomnia</b>         | 0.06  | 0.08 | .469  | <b>OSA and RBD</b>      | -0.15 | 0.08 | .064 |
| <b>Disease Duration</b> | -0.20 | 0.08 | .014  | <b>Disease Duration</b> | -0.19 | 0.09 | .038  | <b>Disease Duration</b> | -0.20 | 0.09 | .024 |
| <b>Age</b>              | -0.25 | 0.07 | <.001 | <b>Age</b>              | -0.26 | 0.07 | <.001 | <b>Age</b>              | -0.25 | 0.07 | .001 |
| <b>Premorbid IQ</b>     | 0.04  | 0.08 | .602  | <b>Premorbid IQ</b>     | 0.07  | 0.08 | .423  | <b>Premorbid IQ</b>     | 0.07  | 0.09 | .393 |
| <b>Sex</b>              | 0.00  | 0.08 | .953  | <b>Sex</b>              | -0.02 | 0.08 | .843  | <b>Sex</b>              | -0.02 | 0.07 | .744 |
| <b>DASS</b>             | 0.01  | 0.11 | .906  | <b>DASS</b>             | -0.05 | 0.10 | .616  | <b>DASS</b>             | -0.03 | 0.09 | .720 |
| <b>LED</b>              | 0.06  | 0.08 | .487  | <b>LED</b>              | 0.00  | 0.08 | .970  | <b>LED</b>              | 0.02  | 0.08 | .854 |

**EF**

**COWA**

|                         |       |      |       |                         |       |      |       |                         |       |      |       |
|-------------------------|-------|------|-------|-------------------------|-------|------|-------|-------------------------|-------|------|-------|
| <b>General</b>          | 0.12  | 0.06 | .059  | <b>Insomnia</b>         | 0.27  | 0.06 | <.001 | <b>OSA and RBD</b>      | -0.08 | 0.05 | .148  |
| <b>Disease Duration</b> | -0.09 | 0.07 | .206  | <b>Disease Duration</b> | -0.08 | 0.07 | .261  | <b>Disease Duration</b> | -0.10 | 0.07 | .151  |
| <b>Age</b>              | -0.21 | 0.07 | .002  | <b>Age</b>              | -0.17 | 0.07 | .011  | <b>Age</b>              | -0.20 | 0.07 | .005  |
| <b>Premorbid IQ</b>     | 0.42  | 0.06 | <.001 | <b>Premorbid IQ</b>     | 0.44  | 0.06 | <.001 | <b>Premorbid IQ</b>     | 0.41  | 0.06 | <.001 |
| <b>Sex</b>              | 0.26  | 0.07 | <.001 | <b>Sex</b>              | 0.25  | 0.06 | <.001 | <b>Sex</b>              | 0.26  | 0.07 | <.001 |
| <b>DASS</b>             | -0.05 | 0.10 | .652  | <b>DASS</b>             | -0.03 | 0.09 | .766  | <b>DASS</b>             | 0.01  | 0.09 | .952  |
| <b>LED</b>              | 0.07  | 0.08 | .337  | <b>LED</b>              | 0.05  | 0.07 | .513  | <b>LED</b>              | 0.10  | 0.08 | .170  |

**SWM**

|                |       |      |      |                 |      |      |      |                    |      |      |      |
|----------------|-------|------|------|-----------------|------|------|------|--------------------|------|------|------|
| <b>General</b> | -0.04 | 0.08 | .567 | <b>Insomnia</b> | 0.07 | 0.06 | .297 | <b>OSA and RBD</b> | 0.12 | 0.06 | .047 |
|----------------|-------|------|------|-----------------|------|------|------|--------------------|------|------|------|

|                         |       |      |       |                         |       |       |       |                         |       |      |       |
|-------------------------|-------|------|-------|-------------------------|-------|-------|-------|-------------------------|-------|------|-------|
| <b>Disease Duration</b> | 0.24  | 0.08 | .003  | <b>Disease Duration</b> | 0.25  | 0.08  | .002  | <b>Disease Duration</b> | 0.25  | 0.08 | .001  |
| <b>Age</b>              | 0.40  | 0.07 | <.001 | <b>Age</b>              | 0.40  | 0.07  | <.001 | <b>Age</b>              | 0.39  | 0.07 | <.001 |
| <b>Premorbid IQ</b>     | -0.16 | 0.08 | .014  | <b>Premorbid IQ</b>     | -0.15 | 0.07  | .026  | <b>Premorbid IQ</b>     | -0.17 | 0.07 | .011  |
| <b>Sex</b>              | 0.02  | 0.07 | .758  | <b>Sex</b>              | 0.02  | 0.07  | .818  | <b>Sex</b>              | 0.03  | 0.07 | .679  |
| <b>DASS</b>             | 0.09  | 0.08 | .286  | <b>DASS</b>             | 0.06  | 0.07  | .371  | <b>DASS</b>             | 0.06  | 0.07 | .365  |
| <b>LED</b>              | 0.05  | 0.07 | .503  | <b>LED</b>              | 0.02  | 0.07  | .754  | <b>LED</b>              | 0.04  | 0.07 | .600  |
| <b>SOC</b>              |       |      |       |                         |       |       |       |                         |       |      |       |
| <b>General</b>          | 0.01  | 0.08 | .882  | <b>Insomnia</b>         | -0.04 | 0.078 | .648  | <b>OSA and RBD</b>      | -0.11 | 0.06 | .071  |
| <b>Disease Duration</b> | -0.05 | 0.06 | .383  | <b>Disease Duration</b> | -0.05 | 0.059 | .358  | <b>Disease Duration</b> | -0.06 | 0.06 | .354  |
| <b>Age</b>              | -0.41 | 0.07 | <.001 | <b>Age</b>              | -0.41 | 0.067 | <.001 | <b>Age</b>              | -0.40 | 0.07 | <.001 |
| <b>Premorbid IQ</b>     | 0.23  | 0.07 | .002  | <b>Premorbid IQ</b>     | 0.22  | 0.074 | .003  | <b>Premorbid IQ</b>     | 0.24  | 0.08 | .002  |
| <b>Sex</b>              | 0.06  | 0.07 | .427  | <b>Sex</b>              | 0.06  | 0.069 | .403  | <b>Sex</b>              | 0.05  | 0.07 | .497  |
| <b>DASS</b>             | 0.03  | 0.06 | .591  | <b>DASS</b>             | 0.04  | 0.059 | .481  | <b>DASS</b>             | 0.05  | 0.06 | .407  |
| <b>LED</b>              | -0.04 | 0.08 | .652  | <b>LED</b>              | -0.03 | 0.078 | .747  | <b>LED</b>              | -0.03 | 0.07 | .652  |