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| **Supplementary Table 1:** Transformations of dependent variables | | | |
|  | % missings | % truncated | Transformation |
| **IQ** | | | |
| Nonverbal IQ | 3 | 1.1 | none |
| Verbal IQ | 6 | 0.4 | none |
| **Executive Functions** | | | |
| ToH total time | 11 | 2.7 | none |
| ToH 4 and 5 disc moves | 10 | 2.7 | none |
| WCS total assignments | 5 | 0.0 | -1/x1/3 |
| WCS perseveration score | 5 | 0.0 | (x+1)2 |
| Go/NoGo reaction time | 4 | 1.8 | none |
| Go/NoGo c (response Bias) | 5 | 2.2 | none |
| Go/NoGo d' (sensitivity) | 5 | 3.6 | x2 |
| **Attention & Working Memory** | | | |
| WM reaction time | 3 | 1.8 | none |
| WM c (response Bias) | 3 | 0.7 | none |
| WM d' (sensitivity) | 3 | 0.4 | none |
| CPT reaction time | 7 | 2.2 | none |
| CPT slowing | 6 | 1.1 | none |
| CPT c (response Bias) | 6 | 0.7 | none |
| CPT d' (sensitivity) | 6 | 1.5 | x2 |
| **Verbal Learning & Memory** | | | |
| CVLT total correct trial 1-5 | 29 | 0.5 | none |
| CVLT long delay free recall | 44 | 1.2 | x2 |
| CVLT Semantic cluster ratio | 29 | 0.0 | none |
| CVLT Serial cluster ratio | 29 | 2.4 | -1/(x+1)2 |
| CVLT Percent primacy recall | 29 | 1.4 | none |
| CVLT Percent middle recall | 29 | 1.9 | none |
| CVLT Percent recency recall | 29 | 0.5 | none |
| CVLT proactive interference | 29 | 0.5 | none |
| CVLT retroactive interference | 29 | 1.4 | none |
| **Composite** | | | |
| Total score | 51 | 1.4 | none |
| CPT = Continuous Performance Task; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CVLT = California Verbal Learning Task | | | |

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| **Supplementary Table 2:** Sex differences in the ARMS group | | | | | | | |
|  | Cohen's *d* | 95% CI | *t* | *df* | *p*-value | corr. *p*-value | FMI |
| **IQ** | | | | | | | |
| Nonverbal IQ | -0.205 | [-0.565, 0.154] | -1.131 | 106.5 | 0.261 | 0.857 | 0.057 |
| Verbal IQ | -0.286 | [-0.630, 0.057] | -1.653 | 104.3 | 0.101 | 0.784 | 0.075 |
| **Executive Functions** | | | | | | | |
| - ToH total time | -0.183 | [-0.601, 0.234] | -0.874 | 77.3 | 0.385 | 0.862 | 0.282 |
| - ToH 4 and 5 disc moves | 0.004 | [-0.442, 0.451] | 0.019 | 88.0 | 0.985 | 0.993 | 0.201 |
| - WCS total assignments | 0.093 | [-0.263, 0.448] | 0.516 | 103.9 | 0.607 | 0.868 | 0.078 |
| - WCS perseveration score | 0.288 | [-0.079, 0.655] | 1.554 | 103.8 | 0.123 | 0.784 | 0.080 |
| - Go/NoGo reaction time | -0.147 | [-0.516, 0.222] | -0.788 | 108.9 | 0.432 | 0.862 | 0.037 |
| - Go/NoGo c (response Bias) | 0.110 | [-0.242, 0.462] | 0.621 | 108.3 | 0.536 | 0.862 | 0.042 |
| Go/NoGo d' (sensitivity) | -0.162 | [-0.525, 0.200] | -0.887 | 107.1 | 0.377 | 0.862 | 0.052 |
| **Attention & Working Memory** | | | | | | | |
| - WM reaction time | -0.310 | [-0.696, 0.076] | -1.590 | 107.4 | 0.115 | 0.784 | 0.049 |
| - WM c (response Bias) | 0.283 | [-0.091, 0.657] | 1.500 | 105.6 | 0.137 | 0.784 | 0.064 |
| WM d' (sensitivity) | -0.069 | [-0.453, 0.315] | -0.357 | 106.0 | 0.722 | 0.884 | 0.061 |
| - CPT reaction time | -0.299 | [-0.689, 0.091] | -1.522 | 100.1 | 0.131 | 0.784 | 0.109 |
| - CPT slowing | -0.204 | [-0.615, 0.208] | -0.981 | 97.8 | 0.329 | 0.862 | 0.126 |
| - CPT c (response Bias) | 0.283 | [-0.087, 0.653] | 1.516 | 102.7 | 0.133 | 0.784 | 0.088 |
| - CPT d' (sensitivity) | 0.270 | [-0.118, 0.658] | 1.379 | 102.0 | 0.171 | 0.846 | 0.094 |
| **Verbal Learning & Memory** | | | | | | | |
| CVLT total correct trial 1-5 | 0.302 | [-0.118, 0.722] | 1.431 | 83.1 | 0.156 | 0.812 | 0.238 |
| CVLT long delay free recall | 0.119 | [-0.292, 0.530] | 0.577 | 71.8 | 0.565 | 0.862 | 0.325 |
| CVLT Semantic cluster ratio | 0.094 | [-0.347, 0.534] | 0.423 | 79.9 | 0.674 | 0.884 | 0.262 |
| CVLT Serial cluster ratio | -0.089 | [-0.571, 0.394] | -0.366 | 75.9 | 0.715 | 0.884 | 0.293 |
| CVLT Percent primacy recall | -0.130 | [-0.578, 0.319] | -0.575 | 79.4 | 0.567 | 0.862 | 0.266 |
| CVLT Percent middle recall | -0.060 | [-0.516, 0.396] | -0.261 | 81.7 | 0.795 | 0.950 | 0.249 |
| CVLT Percent recency recall | 0.153 | [-0.313, 0.620] | 0.654 | 79.0 | 0.515 | 0.862 | 0.269 |
| - CVLT proactive interference | 0.108 | [-0.351, 0.566] | 0.467 | 83.7 | 0.642 | 0.878 | 0.233 |
| - CVLT retroactive interference | 0.123 | [-0.309, 0.555] | 0.567 | 80.3 | 0.573 | 0.862 | 0.260 |
| **Composite** | | | | | | | |
| Total score | -0.034 | [-0.352, 0.284] | -0.212 | 99.6 | 0.833 | 0.960 | 0.113 |
| CI = Confidence Interval; FMI = Fraction of Missing Information; WM = Working Memory; CPT = Continuous Performance Task; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CVLT = California Verbal Learning Task; \* p < 0.05. Variables with a minus sign were reversed such that high scores always represent good performance. Standardized group differences (Cohen's *d*) are adjusted for the influence of years of education and antipsychotics. | | | | | | | |

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| **Supplementary Table 3:** Sex differences in the FEP group | | | | | | | |
|  | Cohen's *d* | 95% CI | *t* | *df* | *p*-value | corr. *p*-value | FMI |
| **IQ** | | | | | | | |
| Nonverbal IQ | 0.155 | [-0.292, 0.601] | 0.690 | 79.5 | 0.492 | 0.862 | 0.043 |
| Verbal IQ | -0.168 | [-0.617, 0.281] | -0.744 | 76.8 | 0.459 | 0.862 | 0.075 |
| **Executive Functions** | | | | | | | |
| - ToH total time | -0.223 | [-0.817, 0.371] | -0.748 | 70.9 | 0.457 | 0.862 | 0.140 |
| - ToH 4 and 5 disc moves | 0.482 | [-0.026, 0.990] | 1.893 | 67.1 | 0.063 | 0.784 | 0.182 |
| - WCS total assignments | 0.023 | [-0.345, 0.392] | 0.125 | 78.6 | 0.901 | 0.974 | 0.054 |
| - WCS perseveration score | 0.168 | [-0.248, 0.584] | 0.804 | 78.4 | 0.424 | 0.862 | 0.056 |
| - Go/NoGo reaction time | 0.006 | [-0.461, 0.473] | 0.026 | 75.1 | 0.979 | 0.993 | 0.094 |
| - Go/NoGo c (response Bias) | -0.007 | [-0.658, 0.643] | -0.022 | 73.4 | 0.983 | 0.993 | 0.113 |
| Go/NoGo d' (sensitivity) | -0.003 | [-0.572, 0.567] | -0.009 | 73.2 | 0.993 | 0.993 | 0.115 |
| **Attention & Working Memory** | | | | | | | |
| - WM reaction time | -0.123 | [-0.603, 0.356] | -0.513 | 76.6 | 0.609 | 0.868 | 0.077 |
| - WM c (response Bias) | 0.190 | [-0.330, 0.711] | 0.728 | 78.2 | 0.469 | 0.862 | 0.058 |
| WM d' (sensitivity) | -0.159 | [-0.654, 0.335] | -0.642 | 77.8 | 0.523 | 0.862 | 0.063 |
| - CPT reaction time | -0.175 | [-0.677, 0.327] | -0.695 | 76.4 | 0.489 | 0.862 | 0.079 |
| - CPT slowing | -0.402 | [-0.882, 0.078] | -1.670 | 75.4 | 0.099 | 0.784 | 0.090 |
| - CPT c (response Bias) | -0.455 | [-0.938, 0.028] | -1.874 | 77.6 | 0.065 | 0.784 | 0.065 |
| - CPT d' (sensitivity) | 0.220 | [-0.276, 0.716] | 0.884 | 76.7 | 0.380 | 0.862 | 0.076 |
| **Verbal Learning & Memory** | | | | | | | |
| CVLT total correct trial 1-5 | 0.331 | [-0.179, 0.841] | 1.296 | 68.3 | 0.199 | 0.846 | 0.169 |
| CVLT long delay free recall | 0.286 | [-0.239, 0.810] | 1.089 | 65.5 | 0.280 | 0.857 | 0.199 |
| CVLT Semantic cluster ratio | 0.259 | [-0.148, 0.665] | 1.269 | 68.1 | 0.209 | 0.846 | 0.171 |
| CVLT Serial cluster ratio | -0.165 | [-0.576, 0.245] | -0.805 | 62.2 | 0.424 | 0.862 | 0.235 |
| CVLT Percent primacy recall | -0.052 | [-0.621, 0.517] | -0.181 | 67.2 | 0.857 | 0.960 | 0.181 |
| CVLT Percent middle recall | 0.245 | [-0.273, 0.763] | 0.944 | 66.5 | 0.349 | 0.862 | 0.188 |
| CVLT Percent recency recall | -0.227 | [-0.723, 0.268] | -0.915 | 70.2 | 0.364 | 0.862 | 0.148 |
| - CVLT proactive interference | -0.120 | [-0.565, 0.325] | -0.537 | 67.7 | 0.593 | 0.868 | 0.176 |
| - CVLT retroactive interference | 0.457 | [-0.071, 0.985] | 1.726 | 68.6 | 0.089 | 0.784 | 0.166 |
| **Composite** | | | | | | | |
| Total score | 0.080 | [-0.382, 0.543] | 0.345 | 75.7 | 0.731 | 0.884 | 0.087 |
| CI = Confidence Interval; FMI = Fraction of Missing Information; WM = Working Memory; CPT = Continuous Performance Task; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CVLT = California Verbal Learning Task; \* p < 0.05. Variables with a minus sign were reversed such that high scores always represent good performance. Standardized group differences (Cohen's *d*) are adjusted for the influence of years of education and antipsychotics. | | | | | | | |

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| **Supplementary Table 4:** Sex differences in the HC group | | | | | | | |
|  | Cohen's *d* | 95% CI | *t* | *df* | *p*-value | corr. *p*-value | FMI |
| **IQ** | | | | | | | |
| Nonverbal IQ | 0.294 | [-0.054, 0.641] | 1.684 | 77.2 | 0.096 | 0.784 | 0.059 |
| Verbal IQ | 0.177 | [-0.145, 0.498] | 1.093 | 76.0 | 0.278 | 0.857 | 0.073 |
| **Executive Functions** | | | | | | | |
| - ToH total time | -0.053 | [-0.345, 0.238] | -0.366 | 75.4 | 0.716 | 0.884 | 0.080 |
| - ToH 4 and 5 disc moves | -0.064 | [-0.427, 0.300] | -0.348 | 78.2 | 0.729 | 0.884 | 0.047 |
| - WCS total assignments | 0.154 | [-0.270, 0.579] | 0.724 | 78.9 | 0.471 | 0.862 | 0.038 |
| - WCS perseveration score | -0.040 | [-0.490, 0.411] | -0.175 | 78.9 | 0.861 | 0.960 | 0.039 |
| - Go/NoGo reaction time | -0.009 | [-0.402, 0.384] | -0.045 | 78.5 | 0.964 | 0.993 | 0.043 |
| - Go/NoGo c (response Bias) | -0.352 | [-0.621, -0.083] | -2.612 | 72.8 | 0.011\* | 0.784 | 0.110 |
| Go/NoGo d' (sensitivity) | 0.230 | [-0.036, 0.497] | 1.721 | 75.9 | 0.089 | 0.784 | 0.074 |
| **Attention & Working Memory** | | | | | | | |
| - WM reaction time | -0.110 | [-0.440, 0.220] | -0.663 | 78.1 | 0.509 | 0.862 | 0.048 |
| - WM c (response Bias) | -0.099 | [-0.450, 0.251] | -0.565 | 77.8 | 0.574 | 0.862 | 0.051 |
| WM d' (sensitivity) | -0.238 | [-0.591, 0.116] | -1.339 | 78.6 | 0.184 | 0.846 | 0.042 |
| - CPT reaction time | 0.146 | [-0.143, 0.434] | 1.006 | 80.1 | 0.318 | 0.862 | 0.024 |
| - CPT slowing | 0.078 | [-0.341, 0.497] | 0.372 | 80.1 | 0.711 | 0.884 | 0.024 |
| - CPT c (response Bias) | -0.082 | [-0.449, 0.286] | -0.442 | 80.1 | 0.660 | 0.880 | 0.024 |
| - CPT d' (sensitivity) | -0.141 | [-0.500, 0.218] | -0.781 | 80.1 | 0.437 | 0.862 | 0.024 |
| **Verbal Learning & Memory** | | | | | | | |
| CVLT total correct trial 1-5 | 0.188 | [-0.230, 0.607] | 0.904 | 47.5 | 0.370 | 0.862 | 0.391 |
| CVLT long delay free recall | 0.311 | [-0.109, 0.732] | 1.488 | 48.5 | 0.143 | 0.784 | 0.379 |
| CVLT Semantic cluster ratio | 0.220 | [-0.352, 0.792] | 0.772 | 51.3 | 0.443 | 0.862 | 0.348 |
| CVLT Serial cluster ratio | -0.061 | [-0.637, 0.514] | -0.214 | 53.1 | 0.831 | 0.960 | 0.328 |
| CVLT Percent primacy recall | -0.036 | [-0.490, 0.418] | -0.159 | 46.7 | 0.874 | 0.960 | 0.400 |
| CVLT Percent middle recall | 0.015 | [-0.463, 0.493] | 0.062 | 43.9 | 0.951 | 0.993 | 0.433 |
| CVLT Percent recency recall | 0.002 | [-0.469, 0.474] | 0.011 | 48.5 | 0.992 | 0.993 | 0.379 |
| - CVLT proactive interference | -0.056 | [-0.564, 0.452] | -0.222 | 56.6 | 0.825 | 0.960 | 0.288 |
| - CVLT retroactive interference | 0.294 | [-0.205, 0.793] | 1.185 | 48.2 | 0.242 | 0.857 | 0.384 |
| **Composite** | | | | | | | |
| Total score | 0.174 | [-0.125, 0.474] | 1.160 | 70.3 | 0.250 | 0.857 | 0.138 |
| CI = Confidence Interval; FMI = Fraction of Missing Information; WM = Working Memory; CPT = Continuous Performance Task; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CVLT = California Verbal Learning Task; \* p < 0.05. Variables with a minus sign were reversed such that high scores always represent good performance. Standardized group differences (Cohen's *d*) are adjusted for the influence of years of education and antipsychotics. | | | | | | | |

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| **Supplementary Table 5:** Sex differences in the total group | | | | | | | |
|  | Cohen's *d* | 95% CI | *t* | *df* | *p*-value | corr. *p*-value | FMI |
| **IQ** | | | | | | | |
| Nonverbal IQ | 0.065 | [-0.154, 0.283] | 0.582 | 273.5 | 0.561 | 0.862 | 0.038 |
| Verbal IQ | -0.110 | [-0.322, 0.102] | -1.020 | 266.9 | 0.308 | 0.862 | 0.057 |
| **Executive Functions** | | | | | | | |
| - ToH total time | -0.166 | [-0.417, 0.084] | -1.310 | 229.1 | 0.192 | 0.846 | 0.155 |
| - ToH 4 and 5 disc moves | 0.123 | [-0.132, 0.378] | 0.949 | 228.8 | 0.344 | 0.862 | 0.156 |
| - WCS total assignments | 0.075 | [-0.141, 0.291] | 0.681 | 271.6 | 0.496 | 0.862 | 0.044 |
| - WCS perseveration score | 0.130 | [-0.102, 0.362] | 1.101 | 269.6 | 0.272 | 0.857 | 0.050 |
| - Go/NoGo reaction time | -0.074 | [-0.307, 0.159] | -0.628 | 273.6 | 0.530 | 0.862 | 0.038 |
| - Go/NoGo c (response Bias) | -0.070 | [-0.317, 0.178] | -0.554 | 265.5 | 0.580 | 0.862 | 0.061 |
| Go/NoGo d' (sensitivity) | -0.019 | [-0.253, 0.216] | -0.155 | 266.3 | 0.877 | 0.960 | 0.059 |
| **Attention & Working Memory** | | | | | | | |
| - WM reaction time | -0.236 | [-0.468, -0.004] | -2.006 | 272.2 | 0.046\* | 0.784 | 0.042 |
| - WM c (response Bias) | 0.112 | [-0.128, 0.352] | 0.920 | 272.8 | 0.358 | 0.862 | 0.040 |
| WM d' (sensitivity) | -0.139 | [-0.369, 0.092] | -1.181 | 274.2 | 0.239 | 0.857 | 0.036 |
| - CPT reaction time | -0.148 | [-0.381, 0.085] | -1.252 | 263.8 | 0.212 | 0.846 | 0.066 |
| - CPT slowing | -0.184 | [-0.429, 0.061] | -1.476 | 263.0 | 0.141 | 0.784 | 0.069 |
| - CPT c (response Bias) | -0.057 | [-0.289, 0.175] | -0.487 | 269.2 | 0.627 | 0.878 | 0.051 |
| - CPT d' (sensitivity) | 0.119 | [-0.119, 0.356] | 0.984 | 269.6 | 0.326 | 0.862 | 0.050 |
| **Verbal Learning & Memory** | | | | | | | |
| CVLT total correct trial 1-5 | 0.258 | [ 0.005, 0.512] | 2.011 | 194.8 | 0.046\* | 0.784 | 0.239 |
| CVLT long delay free recall | 0.214 | [-0.040, 0.467] | 1.665 | 178.6 | 0.098 | 0.784 | 0.280 |
| CVLT Semantic cluster ratio | 0.161 | [-0.109, 0.431] | 1.177 | 184.3 | 0.241 | 0.857 | 0.265 |
| CVLT Serial cluster ratio | -0.092 | [-0.373, 0.190] | -0.642 | 178.5 | 0.522 | 0.862 | 0.280 |
| CVLT Percent primacy recall | -0.066 | [-0.341, 0.209] | -0.474 | 190.0 | 0.636 | 0.878 | 0.251 |
| CVLT Percent middle recall | 0.050 | [-0.222, 0.323] | 0.364 | 186.0 | 0.716 | 0.884 | 0.261 |
| CVLT Percent recency recall | -0.016 | [-0.282, 0.251] | -0.115 | 204.7 | 0.908 | 0.974 | 0.214 |
| - CVLT proactive interference | -0.022 | [-0.288, 0.244] | -0.163 | 203.0 | 0.870 | 0.960 | 0.218 |
| - CVLT retroactive interference | 0.270 | [ 0.003, 0.536] | 1.992 | 200.2 | 0.048\* | 0.784 | 0.225 |
| **Composite** | | | | | | | |
| Total score | 0.046 | [-0.159, 0.251] | 0.443 | 251.9 | 0.658 | 0.880 | 0.098 |
| CI = Confidence Interval; FMI = Fraction of Missing Information; WM = Working Memory; CPT = Continuous Performance Task; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CVLT = California Verbal Learning Task; \* p < 0.05. Variables with a minus sign were reversed such that high scores always represent good performance. Standardized group differences (Cohen's *d*) are adjusted for the influence of patient group, years of education and antipsychotics. | | | | | | | |

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| **Supplementary Table 6**: *P*-values of ANCOVAs with ARMS-T and ARMS-NT | | | | | | | |
|  | not corrected | | |  | corrected | | |
| group | sex | group x sex |  | group | sex | group x sex |
| IQ | | | | | | | |
| Nonverbal IQ | 0.141 | 0.242 | 0.354 |  | 0.908 | 0.953 | 0.997 |
| Verbal IQ | 0.054 | 0.753 | 0.271 |  | 0.772 | 0.953 | 0.997 |
| Executive Functions | | | | | | | |
| ToH total time | 0.298 | 0.596 | 0.523 |  | 0.908 | 0.953 | 0.997 |
| ToH 4 and 5 disc moves | 0.946 | 0.994 | 0.762 |  | 0.984 | 0.994 | 0.997 |
| WCS total assignments | 0.760 | 0.757 | 0.705 |  | 0.908 | 0.953 | 0.997 |
| WCS perseveration score | 0.503 | 0.950 | 0.182 |  | 0.908 | 0.994 | 0.997 |
| Go/NoGo reaction time | 0.451 | 0.531 | 0.974 |  | 0.908 | 0.953 | 0.997 |
| Go/NoGo c (response Bias) | 0.596 | 0.731 | 0.997 |  | 0.908 | 0.953 | 0.997 |
| Go/NoGo d' (sensitivity) | 0.651 | 0.806 | 0.658 |  | 0.908 | 0.953 | 0.997 |
| Attention & Working Memory | | | | | | | |
| WM reaction time | 0.323 | 0.372 | 0.964 |  | 0.908 | 0.953 | 0.997 |
| WM c (response Bias) | 0.228 | 0.294 | 0.604 |  | 0.908 | 0.953 | 0.997 |
| WM d' (sensitivity) | 0.544 | 0.373 | 0.828 |  | 0.908 | 0.953 | 0.997 |
| CPT reaction time | 0.059 | 0.379 | 0.252 |  | 0.772 | 0.953 | 0.997 |
| CPT slowing | 0.686 | 0.726 | 0.889 |  | 0.908 | 0.953 | 0.997 |
| CPT c (response Bias) | 0.182 | 0.982 | 0.709 |  | 0.908 | 0.994 | 0.997 |
| CPT d' (sensitivity) | 0.992 | 0.378 | 0.029\* |  | 0.992 | 0.953 | 0.750 |
| Verbal Learning & Memory | | | | | | | |
| CVLT total correct trial 1-5 | 0.295 | 0.370 | 0.902 |  | 0.908 | 0.953 | 0.997 |
| CVLT long delay free recall | 0.803 | 0.971 | 0.293 |  | 0.908 | 0.994 | 0.997 |
| CVLT Semantic cluster ratio | 0.539 | 0.753 | 0.669 |  | 0.908 | 0.953 | 0.997 |
| CVLT Serial cluster ratio | 0.614 | 0.679 | 0.954 |  | 0.908 | 0.953 | 0.997 |
| CVLT Percent primacy recall | 0.789 | 0.307 | 0.143 |  | 0.908 | 0.953 | 0.997 |
| CVLT Percent middle recall | 0.414 | 0.547 | 0.404 |  | 0.908 | 0.953 | 0.997 |
| CVLT Percent recency recall | 0.731 | 0.693 | 0.478 |  | 0.908 | 0.953 | 0.997 |
| CVLT proactive interference | 0.919 | 0.309 | 0.479 |  | 0.984 | 0.953 | 0.997 |
| CVLT retroactive interference | 0.618 | 0.619 | 0.282 |  | 0.908 | 0.953 | 0.997 |
| Composite | | | | | | | |
| Total score | 0.464 | 0.779 | 0.356 |  | 0.908 | 0.953 | 0.997 |
| ARMS-T = at-risk mental state of psychosis patients with later transition; ARMS-NT = at-risk mental state of psychosis patients with non-transition; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CPT = Continuous performance Task; CVLT = California Verbal Learning Task; \* *p* < 0.05; \*\* *p* < 0.01; \*\*\* *p* < 0.001 | | | | | | | |

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| **Supplementary Table 7:** Means and standard deviations of neuropsychological test data in ARMS-T and ARMS-NT | | | | | | | |
|  | ARMS-T | | |  | ARMS-NT | | | |
|  | [ALL] | Men | Women |  | [ALL] | Men | Women | |
|  | N=30 | N=17 | N=13 |  | N=64 | N=39 | N=25 | |
| Nonverbal IQ | 26.8 (6.16) | 26.5 (7.11) | 27.2 (4.75) |  | 28.0 (5.13) | 29.0 (5.11) | 26.4 (4.83) | |
| Verbal IQ | 28.6 (3.49) | 28.6 (3.65) | 28.6 (3.42) |  | 28.7 (4.41) | 29.5 (4.04) | 27.4 (4.73) | |
| ToH total time | 529 (240) | 555 (214) | 477 (294) |  | 607 (373) | 576 (343) | 667 (430) | |
| ToH 4 and 5 disc moves | 82.9 (39.5) | 85.4 (44.0) | 77.8 (30.8) |  | 84.3 (38.7) | 85.2 (40.6) | 82.7 (35.8) | |
| WCS total assignments | 82.4 (10.6) | 84.1 (12.0) | 79.4 (7.46) |  | 83.0 (11.0) | 82.3 (11.1) | 84.1 (10.9) | |
| WCS perseveration score | 19.8 (14.4) | 25.9 (13.9) | 9.44 (8.33) |  | 23.2 (18.5) | 24.6 (19.9) | 21.0 (16.3) | |
| Go/NoGo reaction time | 582 (97.9) | 580 (109) | 584 (84.6) |  | 563 (110) | 552 (102) | 581 (120) | |
| Go/NoGo c (response Bias) | 0.05 (0.21) | 0.06 (0.24) | 0.03 (0.17) |  | 0.05 (0.20) | 0.05 (0.14) | 0.05 (0.27) | |
| Go/NoGo d' (sensitivity) | 3.82 (0.88) | 3.93 (0.63) | 3.66 (1.16) |  | 4.02 (0.47) | 4.07 (0.34) | 3.95 (0.61) | |
| WM reaction time | 778 (292) | 765 (321) | 798 (257) |  | 677 (218) | 643 (218) | 728 (212) | |
| WM c (response Bias) | 0.65 (0.30) | 0.72 (0.32) | 0.55 (0.24) |  | 0.56 (0.33) | 0.59 (0.32) | 0.51 (0.35) | |
| WM d' (sensitivity) | 2.69 (0.74) | 2.70 (0.67) | 2.68 (0.85) |  | 2.94 (0.92) | 3.03 (0.96) | 2.81 (0.86) | |
| CPT reaction time | 468 (160) | 470 (162) | 464 (164) |  | 456 (124) | 425 (105) | 501 (138) | |
| CPT slowing | 1.03 (0.09) | 1.03 (0.10) | 1.04 (0.08) |  | 1.04 (0.11) | 1.03 (0.10) | 1.05 (0.13) | |
| CPT c (response Bias) | 0.10 (0.19) | 0.11 (0.15) | 0.09 (0.24) |  | 0.08 (0.19) | 0.11 (0.17) | 0.05 (0.22) | |
| CPT d' (sensitivity) | 4.89 (0.75) | 5.11 (0.56) | 4.54 (0.89) |  | 4.99 (0.44) | 4.99 (0.47) | 5.00 (0.41) | |
| CVLT total correct trial 1-5 | 60.7 (6.14) | 60.1 (5.38) | 61.4 (7.17) |  | 58.1 (11.0) | 57.2 (10.5) | 59.9 (11.9) | |
| CVLT long delay free recall | 14.2 (1.59) | 14.0 (1.53) | 14.5 (1.76) |  | 13.7 (2.08) | 13.8 (2.10) | 13.5 (2.11) | |
| CVLT Semantic cluster ratio | 1.67 (0.74) | 1.78 (0.74) | 1.54 (0.77) |  | 1.79 (1.03) | 1.73 (0.97) | 1.89 (1.14) | |
| CVLT Serial cluster ratio | 0.17 (0.16) | 0.17 (0.19) | 0.16 (0.13) |  | 0.13 (0.11) | 0.13 (0.12) | 0.11 (0.09) | |
| CVLT Percent primacy recall | 27.8 (3.60) | 28.8 (3.61) | 26.7 (3.42) |  | 27.6 (3.91) | 27.3 (2.73) | 28.1 (5.52) | |
| CVLT Percent middle recall | 47.4 (2.40) | 47.2 (1.75) | 47.7 (3.08) |  | 47.3 (4.51) | 47.7 (4.57) | 46.6 (4.43) | |
| CVLT Percent recency recall | 24.8 (3.42) | 24.1 (3.16) | 25.6 (3.70) |  | 25.1 (3.82) | 25.0 (4.08) | 25.3 (3.39) | |
| CVLT proactive interference | 1.27 (2.85) | 1.75 (2.42) | 0.70 (3.33) |  | 0.62 (2.44) | 0.59 (2.65) | 0.67 (2.06) | |
| CVLT retroactive interference | 0.86 (1.39) | 1.17 (1.27) | 0.50 (1.51) |  | 1.08 (1.72) | 0.94 (1.70) | 1.33 (1.78) | |
| Total score | -0.09 (0.67) | -0.19 (0.68) | 0.04 (0.66) |  | -0.12 (0.94) | 0.00 (0.87) | -0.30 (1.04) | |
| WM = Working Memory; CPT = Continuous Performance Task; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CVLT = California Verbal Learning Task. | | | | | | | | |

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| **Supplementary Table 8:** Sex differences in the ARMS-T group | | | | | | | |
|  | Cohen's *d* | 95% CI | *t* | *df* | *p*-value | corr. *p*-value | FMI |
| IQ | | | | | | | |
| Nonverbal IQ | -0.059 | [-0.928, 0.810] | -0.140 | 23.0 | 0.890 | 0.985 | 0.087 |
| Verbal IQ | 0.038 | [-0.683, 0.759] | 0.109 | 22.0 | 0.914 | 0.985 | 0.126 |
| Executive Functions | | | | | | | |
| - ToH total time | 0.012 | [-0.816, 0.839] | 0.031 | 13.5 | 0.976 | 0.985 | 0.476 |
| - ToH 4 and 5 disc moves | 0.133 | [-0.899, 1.165] | 0.271 | 17.5 | 0.790 | 0.985 | 0.311 |
| - WCS total assignments | 0.028 | [-0.776, 0.831] | 0.072 | 20.6 | 0.944 | 0.985 | 0.187 |
| - WCS perseveration score | 0.782 | [ 0.063, 1.500] | 2.279 | 18.7 | 0.035\* | 0.599 | 0.262 |
| - Go/NoGo reaction time | -0.122 | [-0.956, 0.713] | -0.302 | 22.4 | 0.765 | 0.985 | 0.110 |
| - Go/NoGo c (response Bias) | 0.007 | [-0.714, 0.727] | 0.019 | 22.1 | 0.985 | 0.985 | 0.121 |
| Go/NoGo d' (sensitivity) | -0.282 | [-1.332, 0.768] | -0.556 | 22.5 | 0.584 | 0.985 | 0.106 |
| Attention & Working Memory | | | | | | | |
| - WM reaction time | -0.211 | [-1.194, 0.773] | -0.443 | 23.0 | 0.662 | 0.985 | 0.087 |
| - WM c (response Bias) | 0.671 | [-0.049, 1.391] | 1.930 | 22.6 | 0.066 | 0.688 | 0.101 |
| WM d' (sensitivity) | 0.007 | [-0.694, 0.708] | 0.020 | 22.6 | 0.984 | 0.985 | 0.101 |
| - CPT reaction time | 0.064 | [-0.923, 1.050] | 0.134 | 21.9 | 0.895 | 0.985 | 0.131 |
| - CPT slowing | -0.255 | [-1.005, 0.494] | -0.709 | 20.8 | 0.486 | 0.985 | 0.178 |
| - CPT c (response Bias) | 0.196 | [-0.611, 1.002] | 0.503 | 22.0 | 0.620 | 0.985 | 0.129 |
| - CPT d' (sensitivity) | 1.222 | [ 0.321, 2.123] | 2.815 | 21.6 | 0.010\* | 0.530 | 0.144 |
| Verbal Learning & Memory | | | | | | | |
| CVLT total correct trial 1-5 | 0.348 | [-0.329, 1.024] | 1.081 | 17.8 | 0.294 | 0.985 | 0.300 |
| CVLT long delay free recall | 0.415 | [-0.346, 1.176] | 1.152 | 16.7 | 0.265 | 0.985 | 0.344 |
| CVLT Semantic cluster ratio | -0.060 | [-0.814, 0.694] | -0.166 | 18.4 | 0.870 | 0.985 | 0.276 |
| CVLT Serial cluster ratio | -0.151 | [-1.106, 0.805] | -0.330 | 19.1 | 0.745 | 0.985 | 0.246 |
| CVLT Percent primacy recall | -0.787 | [-1.629, 0.055] | -1.964 | 18.0 | 0.065 | 0.688 | 0.291 |
| CVLT Percent middle recall | 0.239 | [-0.469, 0.948] | 0.710 | 17.8 | 0.487 | 0.985 | 0.301 |
| CVLT Percent recency recall | 0.564 | [-0.303, 1.431] | 1.368 | 17.8 | 0.188 | 0.985 | 0.299 |
| - CVLT proactive interference | 0.558 | [-0.380, 1.496] | 1.242 | 19.6 | 0.229 | 0.985 | 0.228 |
| - CVLT retroactive interference | 0.387 | [-0.505, 1.279] | 0.914 | 17.2 | 0.373 | 0.985 | 0.327 |
| Composite | | | | | | | |
| Total score | 0.205 | [-0.405, 0.814] | 0.698 | 21.1 | 0.493 | 0.985 | 0.164 |
| CI = Confidence Interval; FMI = Fraction of Missing Information; WM = Working Memory; CPT = Continuous Performance Task; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CVLT = California Verbal Learning Task. Variables with a minus sign were reversed such that high scores always represent good performance. Standardized group differences (Cohen's *d*) are adjusted for the influence of years of education and antipsychotics. | | | | | | | |

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| **Supplementary Table 9:** Sex differences in the ARMS-NT group | | | | | | | |
|  | Cohen's *d* | 95% CI | *t* | *df* | *p*-value | corr. *p*-value | FMI |
| IQ | | | | | | | |
| Nonverbal IQ | -0.382 | [-0.839, 0.074] | -1.680 | 55.1 | 0.099 | 0.733 | 0.068 |
| Verbal IQ | -0.447 | [-0.948, 0.054] | -1.788 | 54.8 | 0.079 | 0.688 | 0.073 |
| Executive Functions | | | | | | | |
| - ToH total time | -0.279 | [-0.869, 0.311] | -0.951 | 48.0 | 0.346 | 0.985 | 0.183 |
| - ToH 4 and 5 disc moves | -0.023 | [-0.655, 0.609] | -0.072 | 51.5 | 0.943 | 0.985 | 0.127 |
| - WCS total assignments | -0.051 | [-0.558, 0.456] | -0.202 | 55.1 | 0.841 | 0.985 | 0.067 |
| - WCS perseveration score | 0.196 | [-0.337, 0.729] | 0.737 | 55.4 | 0.464 | 0.985 | 0.062 |
| - Go/NoGo reaction time | -0.204 | [-0.699, 0.290] | -0.828 | 56.4 | 0.411 | 0.985 | 0.045 |
| - Go/NoGo c (response Bias) | 0.066 | [-0.418, 0.549] | 0.272 | 56.1 | 0.787 | 0.985 | 0.050 |
| Go/NoGo d' (sensitivity) | -0.088 | [-0.523, 0.346] | -0.407 | 56.3 | 0.685 | 0.985 | 0.047 |
| Attention & Working Memory | | | | | | | |
| - WM reaction time | -0.248 | [-0.765, 0.269] | -0.960 | 55.8 | 0.341 | 0.985 | 0.056 |
| - WM c (response Bias) | 0.336 | [-0.192, 0.865] | 1.275 | 54.9 | 0.208 | 0.985 | 0.071 |
| WM d' (sensitivity) | -0.118 | [-0.646, 0.409] | -0.450 | 55.7 | 0.655 | 0.985 | 0.057 |
| - CPT reaction time | -0.521 | [-1.002, -0.039] | -2.166 | 56.1 | 0.035\* | 0.599 | 0.051 |
| - CPT slowing | -0.103 | [-0.633, 0.427] | -0.391 | 56.0 | 0.697 | 0.985 | 0.052 |
| - CPT c (response Bias) | 0.347 | [-0.175, 0.868] | 1.332 | 55.9 | 0.188 | 0.985 | 0.054 |
| - CPT d' (sensitivity) | -0.022 | [-0.493, 0.450] | -0.092 | 55.9 | 0.927 | 0.985 | 0.055 |
| Verbal Learning & Memory | | | | | | | |
| CVLT total correct trial 1-5 | 0.289 | [-0.309, 0.887] | 0.971 | 48.9 | 0.336 | 0.985 | 0.169 |
| CVLT long delay free recall | -0.075 | [-0.628, 0.477] | -0.275 | 44.3 | 0.784 | 0.985 | 0.242 |
| CVLT Semantic cluster ratio | 0.168 | [-0.447, 0.782] | 0.549 | 48.5 | 0.586 | 0.985 | 0.175 |
| CVLT Serial cluster ratio | -0.154 | [-0.790, 0.482] | -0.488 | 46.7 | 0.628 | 0.985 | 0.204 |
| CVLT Percent primacy recall | 0.074 | [-0.517, 0.665] | 0.252 | 46.5 | 0.802 | 0.985 | 0.208 |
| CVLT Percent middle recall | -0.232 | [-0.852, 0.389] | -0.750 | 49.1 | 0.457 | 0.985 | 0.166 |
| CVLT Percent recency recall | 0.108 | [-0.525, 0.740] | 0.343 | 47.7 | 0.733 | 0.985 | 0.188 |
| - CVLT proactive interference | 0.021 | [-0.574, 0.616] | 0.071 | 46.5 | 0.944 | 0.985 | 0.207 |
| - CVLT retroactive interference | -0.151 | [-0.734, 0.432] | -0.520 | 49.2 | 0.605 | 0.985 | 0.164 |
| Composite | | | | | | | |
| Total score | -0.148 | [-0.603, 0.307] | -0.653 | 53.5 | 0.517 | 0.985 | 0.094 |
| CI = Confidence Interval; FMI = Fraction of Missing Information; WM = Working Memory; CPT = Continuous Performance Task; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CVLT = California Verbal Learning Task. Variables with a minus sign were reversed such that high scores always represent good performance. Standardized group differences (Cohen's *d*) are adjusted for the influence of years of education and antipsychotics. | | | | | | | |

**Figure Legend**

**Supplementary Figure 1:** Cognitive performance of women compared to men in at-risk mental state (ARMS) for psychosis individuals, first episode psychosis (FEP) patients, healthy controls (HC) and in the total group. The dotted horizontal line at zero represents the performance of men. Differences are expressed in units of Cohen’s d and are significant if the 95% confidence interval (vertical line) does not overlap with zero. Variables with a minus sign were reversed so that positive scores always represent good performance. Differences are adjusted for the influence of age, years of education and use of antipsychotics.

ARMS-NT = at risk mental state patients who didn’t transition to psychosis after 2 years of follow up; ARMS-T = at risk mental state patients who did transition to psychosis during a 5 year follow up; ToH = Tower of Hanoi; WCS = Wisconsin Card Sorting Test; CPT = Continuous performance Task; CVLT = California Verbal Learning Task.

**Supplementary Figure 1**

