**Supplementary Table 1: Multinomial logistic regressions for combined models – young-old vs. old-old**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | No dementia (*n*) | | Incident dementia (*n*) | | OR | | 95% C.I. for Exp (B) | | | | p-value | | BIC | | ROC – AUC | |
| **Lower** | | **Upper** | |
| Young-old (<78) | |  | |  | |  | |  | |  | |  | |  | |  | |
| Model 0 | Covariates | | 1278 | | 38 | |  | |  | |  | |  | | 1073.27 | | .832 | |
| Model 1 | Category fluency | | 1275 | | 37 | | 2.61 | | 1.62 | | 4.22 | | .000 | | 1069.90 | | .867 | |
| Model 2 | Category fluency | | 1271 | | 37 | | 2.10 | | 1.28 | | 3.45 | | .004 | | 1072.74 | | .879 | |
| Word recall | | 1.73 | | 1.14 | | 2.61 | | .009 | |
| Or |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| Model 1 | Number cancellation | | 1272 | | 34 | | 2.81 | | 1.82 | | 4.33 | | .000 | | 1035.13 | | .867 | |
| Model 2 | Number cancellation | | 1269 | | 34 | | 2.60 | | 1.68 | | 4.02 | | .000 | | 1038.76 | | .885 | |
| Word recall | | 1.96 | | 1.29 | | 2.99 | | .002 | |
| Old-old (≥78) | |  | |  | |  | |  | |  | |  | |  | |  | |
| Model 0 | Covariates | 455 | | 87 | |  | |  | |  | |  | | 1008.64 | | .642 | |
| Model 1 | Category fluency | 455 | | 87 | | 2.82 | | 1.98 | | 4.04 | | .000 | | 982.23 | | .731 | |
| Model 2 | Category fluency | 449 | | 85 | | 2.21 | | 1.52 | | 3.20 | | .000 | | 955.56 | | .750 | |
| Word recall | 2.03 | | 1.47 | | 2.81 | | .000 | |
| Model 3 | Category fluency | 385 | | 56 | | 1.77 | | 1.13 | | 2.78 | | .013 | | 722.73 | | .764 | |
| Word recall | 2.02 | | 1.36 | | 3.00 | | .001 | |
| TMT B | 1.68 | | 1.19 | | 2.36 | | .003 | |

**Supplementary Table 2: Multinomial logistic regressions for combined models – female vs. male**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | No dementia (*n*) | Incident dementia (*n*) | OR | 95% C.I. for Exp (B) | | p-value | BIC | ROC – AUC |
| Lower | Upper |
| Female |  |  |  |  |  |  |  |  |  |
| Model 0 | Covariates | 1063 | 178 |  |  |  |  | 1752.76 | .866 |
| Model 1 | Category fluency | 1060 | 176 | 3.56 | 2.69 | 4.69 | .000 | 1670.14 | .905 |
| Model 2 | Category fluency | 1043 | 151 | 2.75 | 2.01 | 3.78 | .000 | 1501.44 | .911 |
| Pattern comparison | 2.37 | 1.73 | 3.25 | .000 |
| Model 3 | Category fluency | 1040 | 150 | 2.19 | 1.57 | 3.06 | .000 | 1491.99 | .914 |
| Pattern comparison | 2.21 | 1.60 | 3.04 | .000 |
| Word recall | 1.76 | 1.34 | 2.32 | .000 |
| Male |  |  |  |  |  |  |  |  |  |
| Model 0 | Covariates | 670 | 68 |  |  |  |  | 1127.76 | .878 |
| Model 1 | TMT A | 657 | 58 | 2.08 | 1.53 | 2.83 | .000 | 1013.49 | .909 |
| Model 2 | TMT A | 655 | 58 | 1.81 | 1.29 | 2.52 | .001 | 995.56 | .923 |
| Word recall | 2.85 | 1.90 | 4.27 | .000 |
| Model 3 | TMT A | 655 | 57 | 1.53 | 1.07 | 2.19 | .019 | 987.90 | .930 |
| Word recall | 2.63 | 1.72 | 4.00 | .000 |
| Category fluency | 1.73 | 1.12 | 2.67 | .013 |

**Supplementary Table 3: Multinomial logistic regressions for combined models – low vs. high education**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | No dementia (*n*) | Incident dementia (*n*) | OR | 95% C.I. for Exp (B) | | p-value | BIC | ROC – AUC |
| **Lower** | **Upper** |
| Low Education | |  |  |  |  |  |  |  |  |
| Model 0 | Covariates | 863 | 182 |  |  |  |  | 1814.21 | .820 |
| Model 1 | Category fluency | 862 | 180 | 3.66 | 2.79 | 4.79 | .000 | 1843.28 | .878 |
| Model 2 | Category fluency | 847 | 154 | 2.96 | 2.19 | 4.00 | .000 | 1660.62 | .887 |
| Number cancellation | 2.00 | 1.53 | 2.61 | .000 |
| Model 3 | Category fluency | 845 | 153 | 2.17 | 1.58 | 2.99 | .000 | 1645.34 | .896 |
| Number cancellation | 1.93 | 1.47 | 2.53 | .000 |
| Word recall | 1.99 | 1.51 | 2.62 | .000 |
| High Education | |  |  |  |  |  |  |  |  |
| Model 0 | Covariates | 870 | 64 |  |  |  |  | 905.87 | .902 |
| Model 1 | Category fluency | 868 | 63 | 2.62 | 1.77 | 3.86 | .000 | 923.55 | .924 |
| Model 2 | Category fluency | 863 | 60 | 2.15 | 1.42 | 3.27 | .000 | 898.42 | .933 |
| Word recall | 2.38 | 1.62 | 3.48 | .000 |
| Model 3 | Category fluency | 859 | 57 | 1.73 | 1.12 | 2.70 | .014 | 868.65 | .937 |
| Word recall | 2.15 | 1.44 | 3.20 | .000 |
| Pattern comparison | 2.51 | 1.56 | 4.04 | .000 |

**Supplementary Table 4: Multinomial logistic regressions for combined models – no ɛ4 vs. any ε4**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | No dementia (*n*) | Incident dementia (*n*) | OR | 95% C.I. for Exp (B) | | p-value | BIC | ROC – AUC |
| **Lower** | **Upper** |
| No ɛ4 | |  |  |  |  |  |  |  |  |
| Model 0 | Covariates | 1223 | 137 |  |  |  |  | 1814.26 | .887 |
| Model 1 | Category fluency | 1221 | 137 | 3.85 | 2.83 | 5.23 | .000 | 1741.57 | .922 |
| Model 2 | Category fluency | 1207 | 116 | 3.38 | 2.40 | 4.76 | .000 | 1593.83 | .927 |
| Number cancellation | 1.74 | 1.30 | 2.33 | .000 |
| Model 3 | Category fluency | 1205 | 115 | 2.52 | 1.76 | 3.61 | .000 | 1583.93 | .930 |
| Number cancellation | 1.65 | 1.23 | 2.21 | .001 |
| Word recall | 1.93 | 1.43 | 2.61 | .000 |
| Any ɛ4 | |  |  |  |  |  |  |  |  |
| Model 0 | Covariates | 485 | 87 |  |  |  |  | 778.65 | .866 |
| Model 1 | Word recall | 482 | 86 | 2.92 | 2.06 | 4.15 | .000 | 727.21 | .899 |
| Model 2 | Word recall | 474 | 79 | 2.53 | 1.73 | 3.71 | .000 | 692.94 | .908 |
| Pattern comparison | 2.65 | 1.68 | 4.17 | .000 |
| Model 3 | Word recall | 474 | 79 | 2.25 | 1.52 | 3.34 | .000 | 698.52 | .910 |
| Pattern comparison | 2.19 | 1.36 | 3.53 | .001 |
| Category fluency | 1.70 | 1.10 | 2.62 | .018 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | No dementia (*n*) | Incident dementia (*n*) | OR | 95% C.I. for Exp (B) | | p-value | BIC | ROC – AUC |
| Lower | Upper |
| Model 0 | Covariates | 1733 | 96 |  |  |  |  | 2256.72 | .873 |
| Cognitive base | |  |  |  |  |  |  |  |  |
| Model 1 | Word recall | 1722 | 94 | 3.50 | 2.62 | 4.67 | .000 | 2157.21 | .905 |
| Or | |  |  |  |  |  |  |  |  |
| Model 1 | Category fluency | 1730 | 95 | 3.97 | 2.86 | 5.51 | .000 | 2168.45 | .905 |
| Model 2 | Category fluency | 1720 | 93 | 2.63 | 1.85 | 3.73 | .000 | 2110.57 | .914 |
| Word recall | 2.54 | 1.86 | 3.46 | .000 |
| Model 3 | Category fluency | 1687 | 83 | 2.32 | 1.58 | 3.40 | .000 | 1960.32 | .920 |
| Word recall | 2.41 | 1.73 | 3.37 | .000 |
| TMT A | 1.61 | 1.23 | 2.11 | .000 |

**Supplementary Table 5: Multinomial logistic regressions for combined models – AD type dementia**

**Supplementary Table 6: Multinomial regressions for individual variables – 12 year time to diagnosis subsample**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 12 years before diagnosis | | | | | 6 years before diagnosis | | | | | 6 years before diagnosis | | | | |
|  | **No dementia (*n*)** | **Incident dementia (*n*)** | **Exp(B)**  **(C.I)** | **p-value** | **ROC - AUC** | **No dementia**  **(*n*)** | **Incident dementia (*n*)** | **Exp(B)**  **(C.I)** | **p-value** | **ROC - AUC** | **No dementia**  **(*n*)** | **Incident dementia (*n*)** | **Exp(B)**  **(C.I)** | **p-value** | **ROC - AUC** |
| Covariates | 284 | 48 |  |  | .629 | 284 | 48 |  |  | .613 | 284 | 48 |  |  | .617 |
| Episodic Memory |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Word recall | 283 | 47 | 1.56  (1.10-2.22) | .012 | .662 | 283 | 47 | 1.76  (1.24-2.50) | .001 | .692 | 281 | 44 | 2.14  (1.50-3.05) | .000 | .712 |
| Word recognition | 283 | 47 | 1.33  (.98-1.79) | .068 | .628 | 283 | 47 | 1.40  (1.01-1.94) | .047 | .655 | 280 | 43 | 1.67  (1.26-2.23) | .000 | .690 |
| Semantic Memory |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vocabulary | 283 | 47 | 1.41  (1.03-1.92) | .033 | .640 | 282 | 47 | 1.58  (1.12-2.24) | .009 | .648 | 280 | 45 | 1.67  (1.19-2.34) | .003 | .657 |
| General knowledge | 281 | 48 | 1.43  (1.04-1.97) | .026 | .639 | 284 | 48 | 1.24 (.90-1.72) | .189 | .614 | 284 | 48 | 1.50 (1.10-2.05) | .010 | .659 |
| Verbal Fluency |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Letter fluency | 284 | 47 | 1.36  (.97-1.89) | .072 | .624 | 284 | 48 | 1.84  (1.28-2.65) | .001 | .676 | 284 | 47 | 2.15  (1.50-3.09) | .000 | .696 |
| Category fluency | 284 | 48 | 1.46  (1.03-2.07) | .032 | .641 | 284 | 48 | 2.17  (1.49-3.16) | .000 | .733 | 284 | 48 | 3.09  (2.12-4.49) | .000 | .781 |
| Perceptual Speed |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Number cancellation | 282 | 45 | 1.21  (.86-1.69) | .281 | .618 | 279 | 46 | 1.40  (1.00-1.96) | .050 | .633 | 277 | 41 | 2.06  (1.43-2.97) | .000 | .700 |
| Pattern comparison | 281 | 46 | 2.00  (1.36-2.94) | .000 | .686 | 281 | 46 | 1.61  (1.14-2.26) | .007 | .675 | 275 | 41 | 2.62  (1.77-3.89) | .000 | .735 |
| Trail Making Task A | 279 | 45 | 1.26  (.92-1.71) | .148 | .628 | 279 | 44 | 1.65  (1.12-2.45) | .012 | .651 | 273 | 39 | 2.30  (1.60-3.30) | .000 | .748 |
| Executive Function |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Trail Making Task B | 257 | 42 | 1.91  (1.35-2.69) | .000 | .663 | 251 | 38 | 2.22  (1.45-3.38) | .000 | .715 | 247 | 26 | 1.95  (1.24-3.06) | .004 | .711 |

**Supplementary Table 7 – Multinomial regressions for individual variables – participants with complete cognitive data**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | No dementia (*n*) | Incident dementia (*n*) | Exp(B) | 95% C.I. for Exp (B) | | p-value | ROC – AUC |
| Lower | Upper |
| Covariates | 1556 | 132 |  |  | |  | .865 |
| Episodic Memory |  |  |  |  | |  |  |
| Word recall | 1556 | 132 | 2.74 | 2.14 | 3.52 | .000 | .889 |
| Word recognition | 1556 | 132 | 1.94 | 1.61 | 2.34 | .000 | .884 |
| Semantic Memory |  |  |  |  | |  |  |
| Vocabulary | 1556 | 132 | 1.37 | 1.10 | 1.69 | .004 | .870 |
| General knowledge | 1556 | 132 | 1.44 | 1.18 | 1.75 | .000 | .871 |
| Verbal Fluency |  |  |  |  | |  |  |
| Letter fluency | 1556 | 132 | 1.39 | 1.11 | 1.74 | .004 | .868 |
| Category fluency | 1556 | 132 | 2.97 | 2.23 | 3.95 | .000 | .886 |
| Perceptual Speed |  |  |  |  | |  |  |
| Number cancellation | 1556 | 132 | 2.03 | 1.57 | 2.63 | .000 | .884 |
| Pattern comparison | 1556 | 132 | 2.66 | 1.99 | 3.56 | .000 | .883 |
| Trail-making task A | 1556 | 132 | 1.93 | 1.54 | 2.41 | .000 | .882 |
| Executive Function |  |  |  |  |  |  |  |
| Trail Making Task B | 1556 | 132 | 2.02 | 1.63 | 2.52 | .000 | .883 |