**Table 1.** Cluster memberships, ages, means and standard deviations for performance on nonverbal intelligence (TONI-3), nonword reading and backward digit span, Phoneme Manipulation (QUIL subtest), Receptive language (CELF-IV) scores, attention and Frequency Pattern Test (FPT).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cluster, *n* | Age years | Gender M/F | TONI (SS) | Bkward Digit Span (ScS) | Nword Reading (z-score) | Phon. Mpln (ScS) | Rptive Lang (SS) | Auditory  Attention (SS) | FPT  (Raw%) |
| 1, *n*=34 | 9.5  1.37 | 21/  13 | 90.9  7.4 | 7.2  2.0 | -1.8  0.50 | 4.9  2.9 | 78.9 11.5 | 64.3  35.9 | 28.9 17.0 |
| 2, *n*=19 | 10.5 1.24 | 13/  6 | 98.5  8.6 | 8.7  2.2 | -0.04  0.7 | 9.4  2.2 | 87.5 10.0 | 97.5  20.9 | 62.7 24.5 |
| 3, *n*=14 | 10.2 1.67 | 11/  3 | 118.2 13.2 | 7.3  2.2 | -1.1  0.6 | 7.5  2.7 | 95.7 14.0 | 75.7  30.1 | 48.9  26.7 |
| 4, *n*=18 | 9.3  1.66 | 10/  8 | 103.7  1.0 | 12.1  2.3 | -0.7  1.0 | 9.7  2.3 | 94.9  15.3 | 83.2  32.5 | 45.7 30.8 |

*SS: Standard score; ScS: Scaled Score; RAW%: Raw score in percent*

Bkward Digit Span: Backward Digit Span test (CELF-IV)

Nw Reading: Nonword reading (Castles and Coltheart word-nonword test)

Phon Mpln: Phoneme Manipulation (subtest from QUIL)

Rptive Lang: Receptive Language (CELF-IV)

FPT: Frequency Pattern Test

**Table 2:** The mean and standard deviation of accepted epochs for each cluster, stimulus type and visits at Cz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **Visit 1** | | **Visit 2** | |
|  |  | *M* | *SD* | *M* | *SD* |
| **Cluster 1** | Deviant | 174.09 | 13.64 | 178.76 | 10.14 |
|  | Control | 182.76 | 10.41 | 179.21 | 11.00 |
| **Cluster 2** | Deviant | 177.68 | 11.15 | 174.89 | 14.91 |
|  | Control | 179.79 | 14.96 | 181.26 | 10.03 |
| **Cluster 3** | Deviant | 182.71 | 10.78 | 177.93 | 13.64 |
|  | Control | 182.36 | 10.64 | 181.57 | 6.25 |
| **Cluster 4** | Deviant | 176.94 | 14.05 | 176.56 | 11.11 |
|  | Control | 175.94 | 8.30 | 177.28 | 11.05 |

**Table 3.** MMN and LDN mean amplitudes (and standard deviation) in µV for the four clusters for the two visits at ~~Fz and~~ Cz

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Visit** | **Overall** | **Cluster 1**  **N=34** | **Cluster 2**  **N=19** | **Cluster 3**  **N=14** | **Cluster 4**  **N=18** |
| **MMN** | ~~1~~ |  | ~~-4.2 (3.3)~~ | ~~-1.8 (3.0)~~ | ~~-3.6 (4.0)~~ | ~~-3.7 (4.1)~~ |
|  | ~~2~~ |  | ~~-3.6 (2.8)~~ | ~~-2.6 (3.7)~~ | ~~-4.5 (1.9)~~ | ~~-3.2 (3.7)~~ |
|  | 1 | -3.61 (3.70) | -4.2 (3.7) | -2.1 (3.2) | -3.8 (3.5) | -3.8 (4.1) |
|  | 2 | -3.24 (3.16) | -3.3 (2.8) | -2.5 (3.8) | -3.9 (2.7) | -3.3 (3.8) |
|  | ~~1~~ |  | ~~-4.2 (3.4)~~ | ~~-1.9 (3.0)~~ | ~~-3.7 (3.6)~~ | ~~-3.8 (4.0)~~ |
|  | ~~2~~ |  | ~~-3.5 (2.7)~~ | ~~-2.6 (3.5)~~ | ~~-4.2 (2.2)~~ | ~~-3.2 (3.6)~~ |
| **LDN** | ~~1~~ |  | ~~-4.1 (3.5)~~ | ~~-3.3 (3.0)~~ | ~~-3.4 (3.1)~~ | ~~-3.5 (3.2)~~ |
|  | ~~2~~ |  | ~~-0.5 (3.9)~~ | ~~-1.7 (3.6)~~ | ~~-0.8 (2.3)~~ | ~~-1.4 (3.6)~~ |
|  | 1 | -3.77 (3.30) | -4.3 (3.3) | -3.1 (3.0) | -3.5 (3.4) | -3.7 (3.7) |
|  | 2 | -1.28 (3.48) | -0.9 (3.9) | -1.7 (3.3) | -0.9 (2.8) | -1.9 (3.3) |
|  | ~~1~~ |  | ~~-4.2 (3.3)~~ | ~~-3.2 (2.9)~~ | ~~-3.5 (3.1)~~ | ~~-3.6 (3.4)~~ |
|  | ~~2~~ |  | ~~-0.7 (3.9)~~ | ~~-1.7 (3.4)~~ | ~~-0.9 (2.4)~~ | ~~-1.7 (3.3)~~ |

**Table 4.** ICC coefficient (95% confidence Intervals) for MMN and LDN at Cz for the two visits for each cluster

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Cluster 1**  **N=34** | **Cluster 2**  **N=19** | **Cluster 3**  **N=14** | **Cluster 4**  **N=18** |
| **MMN** | 0.36  (-0.26 to 0.68) | 0.53  (-0.27 to 0.82) | 0.74  (0.14 to 0.92) | 0.76  (0.36 to 0.91) |
| **LDN** | 0.54  (-0.11 to 0.80) | 0.21  (-0.89 to 0.69) | 0.31  (-0.49 to 0.74) | 0.37  (-0.49 to 0.75) |

**Table 5.** MMN and LDN % detectability across clusters based on point-by-point t-test comparing deviant and control ERPs at ~~Fz and~~ Cz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Visit | Cluster 1  N=34 | Cluster 2  N=19 | Cluster 3  N=14 | Cluster 4  N=18 |
| *~~Fz~~* |  |  |  |  |  |
| ~~MMN~~ | ~~1~~ | ~~21 (62%)~~ | ~~8 (42%)~~ | ~~11 (79%)~~ | ~~12 (67%)~~ |
|  | ~~2~~ | ~~22 (65%)~~ | ~~12 (63%)~~ | ~~13 (93%)~~ | ~~12 (67%)~~ |
|  | ~~Both~~ | ~~11 (32%)~~ | ~~6 (32%)~~ | ~~10 (71%)~~ | ~~8 (44%)~~ |
|  |  | ~~Χ~~~~2~~ ~~(1) = 3.65,~~  ~~p =0.06~~ | ~~Fisher (2-sided), p=0.63~~ | ~~Fisher (2-sided), p=1.0~~ | ~~Fisher (2-sided), p=1.0~~ |
| ~~LDN~~ | ~~1~~ | ~~17 (50%)~~ | ~~7 (37%)~~ | ~~7 (50%)~~ | ~~8 (44%)~~ |
|  | ~~2~~ | ~~12 (35%)~~ | ~~10 (53%)~~ | ~~7 (50%)~~ | ~~8 (44%)~~ |
|  | ~~Both~~ | ~~5 (15%)~~ | ~~3 (32%)~~ | ~~5 (36%)~~ | ~~2 (11%)~~ |
|  |  | ~~Χ~~~~2~~ ~~(1) = 0.52,~~  ~~p =0.47~~ | ~~Fisher (2-sided), p=0.65~~ | ~~Fisher (2-sided), p=0.28~~ | ~~Fisher (2-sided), p=0.19~~ |
| *Cz* |  |  |  |  |  |
| MMN | 1 | 20 (59%) | 10 (53%) | 13 (93%) | 10 (56%) |
|  | 2 | 23 (68%) | 13 (68%) | 9 (64%) | 12 (67%) |
|  | Both | 13 (38%) | 8 (42%) | 9 (64%) | 6 (33%) |
|  |  | Fisher (2-sided),  p =1.0 | Fisher (2-sided), p=0.35 | Fisher (2-sided), p=0.36 | Fisher (2-sided), p=0.64 |
| LDN | 1 | 20 (59%) | 8 (42%) | 9 (94%) | 10 (56%) |
|  | 2 | 10 (29%) | 11 (58%) | 6 (43%) | 7 (39%) |
|  | Both | 7 (21%) | 4 (21%) | 5 (36%) | 3 (17%) |
|  |  | Fisher (2-sided),  p =0.47 | Fisher (2-sided), p=0.66 | Fisher (2-sided), p=0.30 | Fisher (2-sided), p=0.63 |

**Figure 1.** Grand averaged (n=85) control (red) and deviant waveforms (blue) at ~~Fz (top row)~~ ~~and~~ Cz ~~(bottom row)~~ for visit 1 (first left column) and visit 2 (middle column) as well as the control-deviant difference wave (third right column). The dark lines show the grand averaged waveform, and the shading depicts 95% confidence intervals.

**Figure 2.** Depiction of results for four clusters. Grand averaged difference waveforms for visit 1 (orange) and visit 2 (green) for the four clusters at ~~Fz and~~ Cz. The dark lines show the grand averaged waveform, and the shading depicts 95% confidence intervals. Boxplots representing the MMN amplitudes for visit 1 and 2 for ~~Fz and~~ Cz for 4 clusters.