Appendix 1: Table of instruments administered at each BLS assessment wave

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Domain** | **Assessment** | **0 - 4 y** | **6;3 y** | **8;5 y** | **13 y** |
| **Neonatal information** | Gestational age, birth weight, SGA status, INTI, parity, singleton/multiple | X |  |  |  |
| **Social information** | Family Adversity Index (FAI) | X |  |  |  |
| Maternal education | X |  |  |  |
| **Parenting** | AMCIES videotaped observations |  | X |  |  |
| **Attention and activity measures** | Tester’s Rating of Child Behavior (TRCB) |  | X | X |  |
| TEAM Rating of Child Behavior |  | X | X |  |
| AMCIES videotaped observations |  | X | X |  |
| Child Behavior Checklist (CBCL) |  | X | X |  |
| ADHD diagnoses (Mannheimer Parent Interview) |  | X | X |  |
| **Intellectual function and academic achievement** | K-ABC |  | X |  |  |
| Reading, writing, and mathematic tests |  |  | X |  |
| School reports (marks)\* |  |  |  | X |

Appendix 2: Biological, medical, and social variables of the participating VLBW/VP and VLBW/VP dropout children\*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **VLBW / VP Participants (*n* = 281)** | | **VLBW / VP Dropouts (*n* = 167)** | | ***Mean Difference (95% CI)*** | ***p*** |
| **Biological and Medical Variables** | | | | | | | |
| Birth weight (g) | | 1303 (313) | | 1305 (290) | | 1.8 (-56.5 – 60.2) | .95 |
| Gestational age (weeks) | | 30.5 (2.3) | | 30.5 (2.3) | | 0.0 (-0.4 – 0.5) | .85 |
| SGA birth (% < 10th percentile) | | 42 | | 42 | | 1.0† (0.7 – 1.5) | .972 |
| Intensity of Neonatal Treatment (INTI, *Median*) | | 10 | | 10 | |  | .88‡ |
| Hospitalization length after birth (days, *Median*) | | 70 | | 69 | |  | .78‡ |
| Child’s sex (% Male) | | 52 | | 52 | | 1.0† (0.9 – 1.5) | .99 |
| Multiples (%) | | 24 | | 23 | | 1.0† (0.6 – 1.5) | .84 |
| Maternal age at birth (years) | | 29.0 (5.0) | | 27.5 (5.0) | | -1.5 (-2.5 – (-0.6)) | .002 |
| **Social Variables** | | | | | | | |
| Maternal education (*min*=1, *max*=11) | 4.5 (2.2) | | 4.4 (1.9) | | -0.1 (-0.6 – 0.4) | | .71 |
| Family adversity after birth (FAI, *Median*) | 1.0 | | 1.0 | |  | | .17‡ |

Please note: \* *Mean (SD*) and 2-tailed significance based on a T-test if not stated otherwise  
† Odds Ratio and 2-tailed significance based on a χ²-test  
‡ 2-tailed significance based on a *Mann-Whitney U-*test

Appendix 3: Correlation matrix of attention and activity measures administered at 6;3 and 8;5 years (VLBW/VP and fullterm (in italic) children separately)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** |
| 1. TRCB Task Orientation 6y | - | *.76\*\** | *.24\*\** | *-.23\*\** | *-.08* | *-.23\*\** | *-.17\*\** | *.01* | *.46\*\** | *.43\*\** | *.11* | *-.23\*\** | *-.19\*\** | *-.17\*\** | *-.06* | *-.04* |
| 2. TEAM Rating Attention 6y | .78\*\* | - | *.16\*\** | *-.23\*\** | *-.10* | *-.24\*\** | *-.20\*\** | *-.03* | *.44\*\** | *.52\*\** | *.10* | *-.25\*\** | *-.16\*\** | *-.22\*\** | *-.01* | *-.09* |
| 3. AMCIES Task Persistence 6y | .22\*\* | .29\*\* | - | *-.13\** | *-.11* | *-.05* | *-.30\*\** | *-.04* | *.13\** | *.11* | *.21\*\** | *-.19\*\** | *-.12* | *-.01* | *-.17\*\** | *-.01* |
| 4. CBCL Attention Problems 6y | -.33\*\* | -.29\*\* | -.18\*\* | - | *.41\*\** | *.07* | *.05* | *.17\*\** | *-.14\** | *-.20\*\** | *.01* | *.66\*\** | *.40\*\** | *.19\*\** | *.00* | *.06* |
| 5. ADHD inattentive subtype 6y | -.21\*\* | -.22\*\* | -.17\*\* | .39\*\* | - | *-.01* | *.03* | *-.05* | *-.07* | *-.08* | *-.08* | *.27\*\** | *.37\*\** | *.04* | *-.01* | *-.04* |
| 6. TRCB Activity 6y | -.25\*\* | -.21\*\* | .00 | .11 | .01 | - | *.17\*\** | *.04* | *-.04* | *-.09* | *-.07* | *-.01* | *.11* | *.37\*\** | *.15\** | *.06* |
| 7. AMCIES Activity 6y | -.19\*\* | -.24\*\* | -.41\*\* | .12 | .11 | .24\*\* | - | *-.02* | *-.13\** | *-.23\*\** | *.01* | *.06* | *.12* | *.10* | *-.02* | *-.02* |
| 8. ADHD hyp./imp. subtype 6y | .06 | .08 | .11 | .08 | -.10 | .03 | -.10 | - | *.05* | *-.02* | *.06* | *.01* | *-.08* | *.07* | *-.01* | *.08* |
| 9. TRCB Task Orientation 8y | .66\*\* | .64\*\* | .25\*\* | -.38\*\* | -.18\*\* | -.06 |  | -.01 | - | *.67\*\** | *.12* | *-.17\*\** | *-.12\** | *-.18\*\** | *-.09* | *.03* |
| 10. TEAM Rating Attention 8y | .62\*\* | .67\*\* | .30\*\* | -.43\*\* | -.25\*\* | -.10 | -.18\*\* | .02 | .84\*\* | - | *.15\** | *-.25\*\** | *-.18\*\** | *-.25\*\** | *-.08* | *-.05* |
| 11. AMCIES Task Persistence 8y | .25\*\* | .26\*\* | .20\*\* | -.17\*\* | -.19\*\* | .07 | -.17\*\* | -.09 | .25\*\* | .29\*\* | - | *-.04* | *-.05* | *-.06* | *-.42\*\** | *.02* |
| 12. CBCL Attention Problems 8y | -.29\*\* | -.32\*\* | -.16\*\* | .64\*\* | .30\*\* | .10 | .11 | .03 | -.36\*\* | -.46\*\* | -.10 | - | *.52\*\** | *.16\*\** | *.02* | *.03* |
| 13. ADHD inattentive subtype 8y | -.05 | -.16\*\* | -.18\*\* | .20\*\* | .16\*\* | .10 | .16\* | -.12\* | -.11 | -.14\* | -.09 | .40\*\* | - | *.02* | *.05* | *-.07* |
| 14. TRCB Activity 8y | -.24\*\* | -.32\*\* | -.13\* | .22\*\* | .14\* | .36\*\* | .20\*\* | .01 | -.32\*\* | -.40\*\* | -.12 | .26\*\* | .19\*\* | - | *.04* | *.09* |
| 15. AMCIES Activity 8y | .03 | .01 | .01 | .05 | .03 | .05 | .08 | .11 | .00 | .01 | -.22\*\* | -.08 | .04 | .14\* | - | *.13\** |
| 16. ADHD hyp./imp. subtype 8y | .04 | .04 | -.06 | -.03 | -.07 | .01 | -.02 | .17\*\* | .00 | -.05 | -.06 | -.06 | -.08 | .06 | .02 | - |

Appendix 4: Results of univariate regressions of aggregated multiple data-source attention and activity measures on VLBW/VP and fullterm children’s experimentally assessed academic achievement (Overall Achievement Test score) at 8;5 years

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **VLBW / VP** (*n* = 281) | | | **Fullterm** (*n* = 286) | | |
| *Criterion* | *R²* | *F* | *β* | *R²* | *F* | *β* |
| **Overall Achievement Test score at 8;5 y #** |  |  |  |  |  |  |
| **Attention Predictor Variables** |  |  |  |  |  |  |
| (1) TRCB Task Orientation | .39 | 121.20\*\*\* | .62\*\*\* | .11 | 28.89\*\*\* | .32\*\*\* |
| (1) TEAM Rating Attention | .44 | 149.12\*\*\* | .66\*\*\* | .17 | 50.58\*\*\* | .41\*\*\* |
| (1) AMCIES Task Persistence | .09 | 17.74\*\*\* | .29\*\*\* | .00 | .18 | -.03 |
| (1) CBCL Attention Problems Scale | .20 | 49.06\*\*\* | -.45\*\*\* | .02 | 4.34\* | -.13\* |
| (1) DSM-IV Diagnosis ADHD  inattentive subtype | .14 | 30.55\*\*\* | -.37\*\*\* | .02 | 4.86\* | -.14\* |
| **Activity Predictor Variables** |  |  |  |  |  |  |
| (1) TRCB Activity | .00 | .00 | .00 | .01 | 3.00 | -.11 |
| (1) AMCIES Activity | .02 | .00 | -.05 | .00 | .07 | -.02 |
| (1) DSM-IV Diagnosis ADHD  hyperactive-impulsive subtype | .00 | .43 | .05 | .01 | -.07 | -.02 |

Please note: # The dependent variable of experimentally assessed academic achievement at 8;5 years is a combined Overall Achievement Test score of six individual tests of child reading, writing, and mathematic abilities (Cronbach’s α = .76); \* *p* <.05; \*\* *p* <.01; \*\*\* *p* <.001

Appendix 5: Results of univariate regressions of aggregated multiple data-source attention and activity measures on VLBW/VP and fullterm children’s math school marks (subsample of “Hauptschüler”)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **VLBW / VP** (*n* = 74) | | | **Fullterm** (*n* = 86) | | |
| *Criterion* | *R²* | *F* | *β* | *R²* | *F* | *β* |
| **Math grades at 13 years** |  |  |  |  |  |  |
| **Attention Predictor Variables** |  |  |  |  |  |  |
| (1) TRCB Task Orientation | .13 | 10.40\*\* | -.36\*\*\* | .00 | .10 | .04 |
| (1) TEAM Rating Attention | .16 | 13.28\*\*\* | -.40\*\*\* | .00 | .08 | -.03 |
| (1) AMCIES Task Persistence | .07 | 5.48\* | -.27\* | .00 | .34 | -.06 |
| (1) CBCL Attention Problems Scale | .08 | 6.01\* | .28\* | .00 | .02 | .02 |
| (1) DSM-IV Diagnosis ADHD  inattentive subtype | .08 | 6.13\* | .28\* | .01 | .08 | .03 |
| **Activity Predictor Variables** |  |  |  |  |  |  |
| (1) TRCB Activity | .06 | 4.70\* | .25\* | .03 | 2.78 | -.18 |
| (1) AMCIES Activity | .02 | 1.44 | .14 | .02 | 1.27 | .12 |
| (1) DSM-IV Diagnosis ADHD  hyperactive-impulsive subtype | .00 | .24 | .06 | .00 | .03 | -.02 |

\* *p* <.05; \*\* *p* <.01; \*\*\* *p* <.001

Appendix 6: Results of univariate regressions of aggregated multiple data-source attention and activity measures on SGA VLBW/VP and AGA VLBW/VP children’s academic achievement

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **SGA VLBW / VP** (*n* = 117) | | | **AGA VLBW / VP** (*n* = 164) | | |
| *Criterion* | *R²* | *F* | *β* | *R²* | *F* | *β* |
| **Academic Achievement at 13 Years** |  |  |  |  |  |  |
| **Attention Predictor Variables** |  |  |  |  |  |  |
| (1) TRCB Task Orientation | .17 | 24.89\*\*\* | .41\*\*\* | .31 | 75.84\*\*\* | .56\*\*\* |
| (1) TEAM Rating Attention | .27 | 44.48\*\*\* | .52\*\*\* | .31 | 77.31\*\*\* | .56\*\*\* |
| (1) AMCIES Task Persistence | .08 | 11.05\*\* | .29\*\* | .03 | 5.78\* | .18\* |
| (1) CBCL Attention Problems Scale | .11 | 15.16\*\*\* | -.34\*\*\* | .13 | 25.12\*\*\* | -.36\*\*\* |
| (1) DSM-IV Diagnosis ADHD  inattentive subtype | .07 | 9.48\*\* | -.27\*\* | .05 | 8.89\*\* | -.22\*\* |
| **Activity Predictor Variables** |  |  |  |  |  |  |
| (1) TRCB Activity | .00 | 1.54 | -.11 | .01 | 1.00 | .08 |
| (1) AMCIES Activity | .03 | 3.09 | -.17 | .00 | .30 | .05 |
| (1) DSM-IV Diagnosis ADHD  hyperactive-impulsive subtype | .01 | 1.18 | .10 | .00 | .24 | .04 |

\* *p* <.51; \*\* *p* <.01; \*\*\* *p* <.001