**Supplemental Table 1. Difference in characteristics between included participants (N=127) and excluded participants (N=201).**

|  |  |  |  |
| --- | --- | --- | --- |
| Parental characteristics  |   | Mean ±SD or number (%) | p-value |
|  |  | **Included (N=127)** | **Excluded (N=201)** |  |
| Maternal age (years) |  | 30.6 ± 4.7 | 30.0 ± 4.8 | 0.252 |
| Maternal education (years) |  ≦ 12 | 45 (35.4) | 102 (50.7) | 0.007 |
|  |  > 12  | 82 (64.6) | 99 (49.3) |  |
| Parity |  0 | 68 (54.0) | 99(49.3) | 0.407 |
|  |  ≧ 1 | 58 (46.0) | 102 (50.7) |  |
| Maternal smoking during pregnancy |  Yes | 17 (13.4) | 42 (20.9) | 0.085 |
| Alcohol consumption during pregnancy |  Yes | 42 (33.1) | 66 (32.8) | 0.965 |
| Maternal work during pregnancy | Yes | 15 (7.5) | 16 (12.6) | 0.121 |
| Caffeine intake during pregnancy (mg/day) |  | 136.8 ± 93.3 | 146.9 ± 135.3 | 0.463 |
| Maternal pre-pregnancy BMI (kg/m2) |  | 21.4 ± 2.7 | 21.7 ± 3.6 | 0.507 |
| Family income (million yen) |  < 5 | 78 (61.4) | 147 (73.5) | 0.022 |
|  |  ≧ 5 | 49 (38.6) | 53 (26.5) |  |
| MEHP (ng/ml) |  | 15.6 ± 13.3 | 12.6 ± 10.6 | 0.022 |
| Paternal age (years) |  | 32.7 ± 5.3 | 31.3 ± 5.7 | 0.030 |
| Paternal education (years) |  ≦ 12  | 45 (35.4) | 101 (50.5) | 0.008 |
|  |  > 12  | 82 (64.6) | 99 (49.5) |  |
| Paternal smoke during pregnancy |  Yes | 93 (73.2) | 144 (72.0) | 0.808 |
| Infant characteristics |  |  |  |  |
| Birth weight (g) |   | 3147 ± 329 | 3064 ± 385 | 0.044 |
| Birth length (cm) |  | 48.5 ± 1.6 | 48.1 ± 2.0 | 0.078 |
| Gestational age (days) |   | 278.2 ± 8.3 | 276.5 ± 9.2 | 0.099 |
| Sex |  Boy | 64 (50.4) | 94 (46.8) | 0.522 |
|  |  Girl  | 63 (49.6) | 107 (53.2) |  |
| TSH (μU/ml) |  | 2.54 ± 1.86 | 3.09 ± 2.67 | 0.043 |
| FT4 (ng/ml) |  | 2.03 ± 0.39 | 2.07 ± 0.38 | 0.404 |

Student’s t test or chi-square test.

**Supplemental Table 2. Difference in characteristics of participants with 2 times neurodevelopmental assessments (6 and 18 months) and with only one (6 month) assessment.**

|  |  |  |  |
| --- | --- | --- | --- |
| Parental characteristics  |   | Mean ±SD or number (%) | p-value |
|  |  | **Both assessment (N=97)** | **Only 6 month assessment (N=30)** |  |
| Maternal age (years) |  | 31.1 ± 4.6 | 28.9 ± 4.7 | 0.021 |
| Maternal education (years) |  ≦ 12 | 33 (34.0) | 12 (40.0) | 0.550 |
|  |  > 12  | 64 (66.0) | 18 (60.0) |  |
| Parity |  0 | 50 (51.5) | 19 (63.3) | 0.257 |
|  |  ≧ 1 | 47 (48.5) | 11 (36.7) |  |
| Maternal smoking during pregnancy |  Yes | 9 (9.3) | 8 (26.7) | 0.015 |
| Alcohol consumption during pregnancy |  Yes | 33 (34.0) | 9 (30.0) | 0.682 |
| Maternal work during pregnancy | Yes | 10 (10.3) | 6 (20.0) | 0.162 |
| Caffeine intake during pregnancy (mg/day) |  | 131.7 ± 89.6 | 153.4 ± 104.3 | 0.268 |
| Maternal pre-pregnancy BMI (kg/m2) |  | 21.4 ± 2.6 | 21.4 ± 3.2 | 0.918 |
| Family income (million yen) |  < 5 | 50 (59.8) | 20 (66.7) | 0.499 |
|  |  ≧ 5 | 39 (40.2) | 10 (33.3) |  |
| MEHP (ng/ml) |  | 14.9 ± 11.7 | 17.5 ± 17.7 | 0.357 |
| Paternal age (years) |  | 33.3 ± 5.3 | 30.8 ± 5.0 | 0.022 |
| Paternal education (years) |  ≦ 12  | 34 (35.1) | 11 (36.7) | 0.872 |
|  |  > 12  | 63 (64.9) | 19 (63.3) |  |
| Paternal smoke during pregnancy |  Yes | 72 (74.2) | 21 (70.0) | 0.648 |
| Infant characteristics |  |  |  |  |
| Birth weight (g) |   | 3123 ± 302 | 3226 ± 398 | 0.133 |
| Birth length (cm) |  | 48.4 ± 1.6 | 48.5 ± 1.7 | 0.958 |
| Gestational age (days) |   | 278.2 ± 8.3 | 278.0 ± 8.3 | 0.907 |
| Sex | Boy | 50 (51.5) | 14 (46.7) | 0.640 |
|  | Girl | 47 (48.5) | 16 (53.3) |  |
| TSH (μU/ml) |  | 2.53 ± 1.77 | 2.43 ± 1.95 | 0.786 |
| FT4 (ng/ml) |  | 2.00 ± 0.38 | 2.10 ± 0.44 | 0.223 |
| ICCE at 6 montha |  | 23.0 ± 2.5 | 22.2 ± 4.8 | 0.252 |
| MDI at 6 month |  | 90.3 ± 5.0 | 90.0 ± 6.5 | 0.783 |
| PDI at 6 month |  | 89.7 ± 10.0 | 85.2 ± 11.4 | 0.038 |

a Maximum score is 30.

MEHP; Mono-2-ethylhexyl phthalate, MDI; Mental Development Index, PDI; Psychomotor Development index, ICCE; Index of Child Care Environment, TSH; Thyroid Stimulating Hormone, FT4; Free Thyroxine

Student’s t test or chi-square test.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | MDI at 6 month | PDI at 6 month | MDI at 18 month | PDI at 18 month |
| Parental characteristics | mean (SD) | p-value | mean (SD) | p-value | mean (SD) | p-value | mean (SD) | p-value |
| Maternal age (years) |  | ρ = 0.044 | 0.620 | ρ = 0.021 | 0.811 | ρ = -0.010 | 0.926 | ρ = -0.065 | 0.527 |
| Maternal education (years) | ≦ 12  | 90.7 (4.3) | 0.476 | 89.0 (11.0) | 0.787 | 84.2 (12.2) | 0.827 | 86.3 (12.4) | 0.675 |
|  | > 12  | 90.0 (5.9) |  | 88.5 (10.2) |  | 84.8 (12.6) |  | 87.3 (10.9) |  |
| Paternal age (years) |  | ρ = 0.019 | 0.835 | ρ = -0.076 | 0.395 | ρ = -0.135 | 0.189 | ρ = -0.104 | 0.310 |
| Paternal education | ≦ 12 | 90.1 (5.1) | 0.885 | 87.5 (9.7) | 0.379 | 82.9 (11.9) | 0.311 | 85.3 (11.7) | 0.233 |
|  | > 12 | 90.3 (5.5) |  | 89.2 (10.8) |  | 85.7 (12.6) |  | 87.9 (11.3) |  |
| Family income (million yen) | < 5  | 90.2 (5.3) | 0.999 | 88.4 (10.4) | 0.785 | 83.3 (13.0) | 0.200 | 85.1 (11.7) | 0.045 |
|  | ≧ 5 | 90.2 (5.6) |  | 89.0 (10.6) |  | 86.6 (11.1) |  | 89.9 (10.6) |  |
| Maternal working during pregnancy | Yes | 91.6 (6.1) | 0.282 | 85.9 (7.6) | 0.270 | 93.0 (12.5) | 0.022 | 85.1 (13.1) | 0.603 |
| Maternal smoking during pregnancy | Yes | 89.5 (6.3) | 0.548 | 85.8 (9.8) | 0.234 | 86.7 (12.3) | 0.567 | 84.9 (11.3) | 0.564 |
| Parity | 0 | 90.6 (5.4) | 0.394 | 89.2 (10.4) | 0.476 | 84.0 (13.9) | 0.564 | 84.7 (11.6) | 0.053 |
| Caffeine intake during pregnancy (mg/day) | ρ = -0.026 | 0.773 | ρ = -0.278 | 0.002 | ρ = 0.020 | 0.847 | ρ =-0.062 | 0.547 |
| Alcohol intake during pregnancy | Yes | 90.2 (5.6) | 0.983 | 88.6 (11.5) | 0.997 | 83.8 (9.4) | 0.603 | 86.9 (11.6) | 0.965 |
|  | ≧ 1 | 89.8 (5.3) |  | 87.9 (10.5) |  | 85.3 (10.6) |  | 89.2 (11.0) |  |
| Maternal pre-pregnancy BMI (kg/m2) |  | ρ = 0.006 | 0.947 | ρ = 0.038 | 0.670 | ρ = -0.097 | 0.342 | ρ = -0.186 | 0.068 |
| Paternal smoke during pregnancy | Yes | 90.6 (5.3) | 0.148 | 89.1 (10.5) | 0.448 | 85.2 (12.2) | 0.399 | 87.7 (10.7) | 0.239 |
| Infant characteristics |  |  |  |  |  |  |  |  |
| Sex | Boy | 90.3 (5.4) | 0.898 | 87.3 (9.4) | 0.132 | 82.2 (11.5) | 0.053 | 84.4 (11.4) | 0.029 |
|  | Girl | 90.1 (5.4) |  | 90.0 (11.3) |  | 87.1 (12.9) |  | 89.5 (11.1) |  |
| Birth weight (g) |   | ρ = 0.184 | 0.038 | ρ = 0.152 | 0.089 | ρ = 0.140  | 0.171 | ρ = 0.053 | 0.540 |
| Birth length (cm) |   | ρ = 0.122 | 0.173 | ρ = 0.225 | 0.011 | ρ = 0.028 | 0.783 | ρ = 0.058 | 0.576 |
| Mode of delivery | Vaginal | 90.4 (5.4) | 0.176 | 88.8 (10.4) | 0.571 | 85.3 (12.4) | 0.177 | 86.5 (11.6) | 0.461 |
|  | Cesarean section | 88.5 (5.2) |  | 87.3 (10.9) |  | 80.4 (11.6) |  | 89.0 (10.6) |  |
| Gestational age (days) |   | ρ = 0.201 | 0.023 | ρ = 0.352 | < 0.001 | ρ = 0.184 | 0.071 | ρ =0.087 | 0.395 |
| ICCE at 6 month |  | ρ = -0.068 | 0.450 | ρ = -0.132 | 0.139 |  |  |  |  |
| ICCE at 18 month |  |  |  |  |  | ρ = 0.102 | 0.333 | ρ = 0.070 | 0.509 |
| TSH (μU/ml) |  | ρ = 0.062 | 0.491 | ρ = 0.137 | 0.125 | ρ = -0.038 | 0.713 | ρ = 0.031 | 0.766 |
| FT4 (ng/ml) |  | ρ = 0.056 | 0.535 | ρ = -0.010 | 0.907 | ρ = 0.009 | 0.932 | ρ =-0.103 | 0.315 |

**Supplemental Table 3. Characteristics of participants in relation to BSID-II at 6 and 18 months.**

Mann-Whitney test and Spearman’s coefficients.

**Supplemental Figure 1. Participants’ selection flowchart.**

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