**Suppl Table 1A: Antenatal and perinatal history**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Obese** **n (%)** | **Overweight****n (%)** | **Normal BMI****n (%)** | **p-value** |
| **Conception** NormalIVF | 525 (58.9)42 (48.3) | 260 (29.1)32 (36.8) | 107 (12.0)13 (14.9) | 0.162 |
| **Delivery (number)****I****II****III****IV** | 318 (58.3)200 (57.0)37 (61.7)5 (62.5) | 161 (29.5)101 (28.8)21 (35.0)2 (25.0) | 66 (12.1)50 (14.2)2 (3.3)1 (12.5) | 0.306**°** |
| **Gestation (weeks)** | 38.21 ± 1.75 | 38.02 ± 1.90 | 38.07 ± 1.95 | 0.293 |
| **Complications during pregnancy**YesNo**If yes,**Diabetes mellitusHypertensionSmokingOther  | 205 (56.8)331 (58.9)68 (55.3)25 (73.5)19 (54.3)93 (55.0) | 114 (31.6)159 (28.3)43 (35.0)6 (17.6)9 (25.7)56 (33.1) | 42 (11.6)72 (12.8)12 (9.8)3 (8.8) 7 (20.0)20 (11.8) | 0.5440.286**°** |
| **Birth weight (g)** | 3215.81 ± 521.22 | 3117.41 ± 569.37 | 3062.64 ± 560.86 | **0.003** |
| **Birth length (cm)** | 50.41 ± 2.91 | 50.32 ± 2.85 | 50.07 ± 2.69 | 0.173 |
| **Birth HC (cm)** | 34.28 ± 1.44 | 34.17 ± 1.49 | 34.04 ± 1.40 | 0.125 |
| **Mode of delivery**Normal DeliveryCesarean SectionVacuum Extraction | 266 (59.2)270 (56.5)12 (63.2) | 126 (28.1)148 (31.0)6 (31.6) | 57 (12.7)60 (12.6)1 (5.3) | 0.807**°** |
| **SGA**Yes No |  24 (50)368 (59.5) | 19 (39.6)184 (29.8) | 5 (10.4)66 (10.7) | 0.350 |
| **LBW**YesNo | 17 (60.7)373 (58.4) | 8 (28.6)199 (31.1) | 3 (10.7)67 (10.5) | 0.961**°** |
| **Hospitalization in NICU**YesNo**If yes, duration of hospitalization in NICU (days)** | 100 (56.5)387 (58.8)9.42±13.71 | 52 (29.4)197 (29.9)12.75±17.25 | 25 (14.1)74 (11.2)12.55 ±17.77 | 0.5720.290• |
| **Hypoglycemia**Yes No | 5 (83.3)542 (58.5) | 1 (16.7)269 (29.0) | 0 (0.0)116 (12.5) | 0.599**°** |
| **Neonatal Jaundice**YesNo | 299 (58.4)262 (57.8) | 149 (29.1)134 (29.6) | 64 (12.5)57 (12.6) | 0.984 |
| **Phototherapy** Yes No **If yes, duration (days)**1 23≥4 | 82 (55.0)475 (59.2)18 (51.4)21 (55.3)10 (58.8)7 (46.7) | 45 (30.2)231 (28.8)10 (28.6)12 (31.6)4 (23.5)7 (46.7) | 22 (14.8)97 (12.1)7 (20.0)5 (13.2)3 (17.6)1 (6.7) | 0.5550.821**°** |

Abbreviations: HC: Head Circumference, NICU: Neonatal Intensive Care Unit, LBW: Large Birth Weight, SGA: Small for Gestational Age; Continuous variables are presented as mean ± standard error of the mean (SEM) and categorical as frequencies (percentages); p values were derived by comparisons between the three categories of BMI using one-way ANOVA for normally distributed variables and ∙ Kruskal-Wallis H test for skewed variables; Pearson’s χ2 or ◦ Monte Carlo test for categorical variables; Statistically significant associations are shown in bold.

**Suppl Table 1B: Past medical history and systems review**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Obese** **n (%)** | **Overweight****n (%)** | **Normal-BMI****n (%)** | **p-value** |
| **Hypertension**YesNo | 16 (88.9)528 (56.8) | 2 (11.1)279 (30.0) | 0 (0.0)123 (13.2) | **0.021°** |
| **Congenital Heart Diseases**YesNo | 26 (59.1)512 (57.5) | 14 (31.8)262 (29.4) | 4 (9.1)117 (13.1) | 0.729 |
| **Arrhythmias**YesNo | 1 (16.7)539 (58.1) | 4 (66.7)268 (28.9) | 1 (16.7)121 (13.0) | 0.073**°** |
| **Dyslipidemia**YesNo | 65 (53.3)479 (58.2) | 42 (34.4)240 (29.2) | 15 (12.3)104 (12.6) | 0.486 |
| **Peripheral Vascular Disease**YesNo | 1 (50.0)531 (57.3) | 1 (50.0)273 (29.5) | 0 (0.0)122 (13.2) | 0.999**°** |
| **Bronchial Asthma** YesNo | 76 (62.8)485 (56.7) | 36 (29.8)254 (29.7) | 9 (7.4)116 (13.6) | 0.150 |
| **Respiratory Infections**YesNo | 163 (65.7)396 (54.5) | 66 (26.6)225 (30.9) | 19 (7.7)106 (14.6) | **0.002** |
| **Snoring**YesNo | 139 (66.8)426 (55.2) | 45 (21.6)245 (31.7) | 24 (11.5)101 (13.1) | **0.007** |
| **Obstructive Sleep Apnea**YesNo |  11 (91.7)538 (56.8) |  0 (0.0)286 (30.2) |  1 (8.3)124 (13.1) |  **0.029°** |
| **Hyperthyroidism or Hypothyroidism**YesNo | 47 (54.7)479 (58.1) | 35 (40.7)237 (28.8) | 4 (4.7)108 (13.1) | **0.015** |
| **Diabetes Mellitus**YesNo | 1 (100.0)547 (57.5) | 0 (0.0)284 (29.8) | 0 (0.0)121 (12.7) | 0.999**°** |
| **Hypopituitarism**YesNo | 1 (100)554 (57.4) | 0 (0.0)288 (29.8) | 0 (0.0)123 (12.7) | 0.999**°** |
| **Precocious Puberty**YesNo | 7 (46.7)545 (57.7) | 6 (40.0)280 (29.7) | 2 (13.3)119 (12.6) | 0.605**°** |
| **Premature Adrenarche**YesNo | 18 (54.5)534 (57.4) | 14 (42.4)275 (29.6) | 1 (3.0)121 (13.0) | 0.103**°** |
| **CAH or PCOS**YesNo | 1 (50.0)554 (57.8) | 1 (50.0)283 (29.5) | 0 (0.0)121 (12.6) | 0.999**°** |
| **Celiac Disease**YesNo | 0 (0.0)554 (57.7) | 0 (0.0)287 (29.9) | 1 (100)119 (12.4) | 0.124**°** |
| **IBD**YesNo | 1 (50)560 (57.9) | 0 (0.0)288 (29.8) | 1 (50)120 (12.4) | 0.323**°** |
| **Hepatitis or Pancreatitis**YesNo | 3 (100.0)555 (57.7) | 0 (0.0)286 (29.7) | 0 (0.0)121 (12.6) | 0.703**°** |
| **Esophagitis or Gastritis**YesNo | 24 (64.9)534 (57.3) | 10 (27.0)280 (30.0) | 3 (8.1)118 (12.7) | 0.678**°** |
| **Inflammatory Bowel Disease**YesNo | 5 (71.4)551 (57.6) | 2 (28.6)285 (29.8) | 0 (0.0)121 (12.6) | 0.873° |
| **Rheumatic Disease**YesNo | 3 (60.0)553 (57.5) | 2 (40.0)285 (29.6) | 0 (0.0)124 (12.9) | 0.999**°** |
| **Osteomyelitis or Infectious Arthritis**YesNo | 1 (100.0)555 (57.4) | 0 (0.0)288 (29.8) | 0 (0.0)124 (12.8) | 0.999**°** |
| **Arthralgia** YesNo | 45 (58.4)515 (57.3) | 21 (27.3)269 (30.0) | 11 (14.3)114 (12.7) | 0.849 |
| **Injuries or Fractures**YesNo | 70 (70.7)495 (56.3) | 24 (24.2)267 (30.4) | 5 (5.1)117 (13.3) | **0.010** |
| **Epilepsy**YesNo | 8 (61.5)556 (57.6) | 2 (15.4)289 (29.9) | 3 (23.1)120 (12.4) | 0.310**°** |
| **Headaches**YesNo | 48 (55.8)520 (57.8) | 28 (32.6)265 (29.4) | 10 (11.6)115 (12.8) | 0.823 |
| **Myopathy**YesNo | 0 (0.0)567 (57.9) | 1 (100.0)288 (29.4) | 0 (0.0)124 (12.7) | 0.416**°** |
| **Traumatic Brain Injury**YesNo | 0 (0.0)570 (57.9) | 1 (100.0)290 (29.5) | 0 (0.0)124 (12.6) | 0.416**°** |
| **Meningitis or Encephalitis**YesNo  | 1 (50.0)569 (57.8) | 1 (50.0)292 (29.6) | 0 (0.0)124 (12.6) | 0.999**°** |
| **UTI or VUR**YesNo  | 58 (62.4)510 (57.2) | 22 (23.7)271 (30.4) | 13 (14.0)111 (12.4) | 0.400 |
| **Congenital Malformations**YesNo  | 7 (63.6)562 (57.9) | 2 (18.2)288 (29.7) | 2 (18.2)121 (12.5) | 0.684**°** |
| **CKD**YesNo | 1 (100)568 (57.8) | 0 (0.0)290 (29.5) | 0 (0.0)124 (12.6) | 0.999**°** |
| **Nephrotic Syndrome or Glomerulonephritis** Yes No  | 0 (0.0)568 (58.0) | 1 (100.0)290 (29.6) | 0 (0.0)122 (12.4) | 0.415**°** |
| **Other Infectious Diseases**YesNo | 1 (100.0)543 (57.8) | 0 (0.0)279 (29.7) | 0 (0.0)118 (12.6) | 0.999**°** |
| **Hematologic Disorders**Yes No  | 45 (58.4)514 (57.7) | 21 (27.3)266 (29.9) | 11 (14.3)111 (12.5) | 0.838 |
| **Coagulation Disturbances**YesNo | 0 (0.0)559 (57.7) | 1 (100.0)288 (29.8) | 0 (0.0)121 (12.5) | 0.422**°** |
| **Hematologic Malignancies**YesNo  | 1 (50.0)556 (57.7) | 0 (0.0)287 (29.8) | 1 (50.0)120 (12.5) | 0.321**°** |
| **Affective Disorders**YesNo  | 82 (60.3)443 (56.9) | 36 (26.5)235 (30.2) | 18 (13.2)100 (12.9) | 0.676 |
| **Behavioral or Sleep Disorders** YesNo  | 110 (61.1)412 (56.1) | 44 (24.4)232 (31.6) | 26 (14.4)91 (12.4) | 0.169 |
| **Psychosis**YesNo  | 2 (50.0)512 (57.0) | 2 (50.0)269 (30.0) | 0 (0.0)117 (13.0) | 0.771**°** |
| **Eczema**YesNo  | 31 (49.2)521 (58.2) | 20 (31.7)261 (29.2) | 12 (19.0)113 (12.6) | 0.244 |
| **Psoriasis or Alopecia or Vitiligo**YesNo  | 2 (100.0)547 (57.1) | 0 (0.0)287 (30.0) | 0 (0.0)124 (12.9) | 0.658**°** |
| **Acne or Hirsutism**YesNo  | 46 (65.7)510 (56.6) | 15 (21.4)274 (30.4) | 9 (12.9)117 (13.0) | 0.259 |
| **Acanthosis Nigricans**YesNo  | 49 (86.0)509 (55.9) | 8 (14.0)277 (30.4) | 0 (0.0)125 (13.7) | **<0.001°** |
| **Red Purple or white streaks**YesNo  | 72 (80.9)483 (55.0) | 14 (15.7)273 (31.1) | 3 (3.4)122 (13.9) | **<0.001** |

Abbreviations: CAH: Congenital Adrenal Hyperplasia, CKD: Chronic Kidney Disease, PCOS: Polycystic Ovary Syndrome, UTI: Urinary Tract Infection, VUR: Vesicoureteric reflux; Data presented as frequencies (percentages); p values were calculated using the Pearson’s χ2 test; **°** Monte Carlo test; Statistically significant associations are shown in bold.

**Suppl Table 1C: Diet, exercise and lifestyle habits**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Obese****n (%)** | **Overweight****n (%)** | **Normal-BMI****n (%)** | **p-value** |
| **Exclusive Breastfeeding**YesNo **If yes, duration of Exclusive Breastfeeding (mo)** | 342 (57.2)211 (59.8)5.58 ± 5.80 | 180 (30.1)97 (27.5)4.99 ± 4.28 | 76 (12.7)45 (12.7)6.20 ± 4.73 | 0.678 0.057• |
| **Mixed Diet**YesNo**If yes, duration of Mixed Diet (mo)** | 294 (59.5)131 (55.0)4.24 ± 5.87 | 146 (29.6)75 (31.5)3.99 ± 4.39 | 54 (10.9)32 (13.4)5.64 ± 8.62 | 0.4450.278• |
| **Sweets** YesNo | 540 (57.8)15 (57.7) | 278 (29.8)7 (26.9) | 116 (12.4)4 (15.4) | 0.846**°** |
| **Frequency of Sweets’ Consumption**1-2 times per week3-5 times per weekdaily | 106 (62.4)138 (56.6)290 (56.6) | 48 (28.2)70 (28.7)160 (31.3) | 16 (9.4)36 (14.8)62 (12.1) | 0.443 |
| **Fruits**Yes No  | 480 (56.3)71 (68.9) | 262 (30.8)22 (21.4) | 110 (12.9)10 (9.7) | 0.050 |
| **Frequency of Fruits’ Consumption**1-2 times per week3-5 times per weekdaily | 57 (60.0)133 (61.9)284 (53.8) | 27 (28.4)57 (26.5)174 (33.0) | 11 (11.6)25 (11.6)70 (13.3) | 0.324 |
| **Vegetables**YesNo  | 447 (57.2)104 (60.8) | 235 (30.1)47 (27.5) | 100 (12.8)20 (11.7) | 0.681 |
| **Frequency of Vegetables’ Consumption**1-2 times per week3-5 times per weekdaily | 62 (67.4)141 (63.8)231 (52.1) | 20 (21.7)60 (27.1)146 (33.0) | 10 (10.9)20 (9.0)66 (14.9) | **0.009** |
| **Soft drinks**YesNo  | 269 (64.4)253 (51.5) | 112 (26.8)160 (32.6) | 37 (8.9)78 (15.9) | **<0.0001** |
| **Frequency of Soft drinks’ Consumption**1-2 times per week3-5 times per weekdaily | 118 (58.4)67 (72)61 (70.9) | 68 (33.7)17 (18.3)18 (20.9) | 16 (7.9)9 (9.7)7 (8.1) | **0.043** |
| **Vaccination** CompleteIncomplete  | 503 (57.5)62 (60.8) | 257 (29.4)29 (28.4) | 115 (13.1)11 (10.8) | 0.743 |
| **Place of Residence**Urban areaRural area | 504 (57.5)64 (60.4) | 261 (29.8)28 (26.4) | 112 (12.8)14 (13.2) | 0.774 |
| **Residence** Block of flatsDetached house | 343 (55.6)228 (61.8) | 186 (30.1)104 (28.2) | 88 (14.3)37 (10.0) | 0.078 |
| **Stay in an Institution**YesNo |  4 (100.0)560 (57.7) |  0 (0.0)287 (29.6) |  0 (0.0)123 (12.7) | 0.439**°** |
| **Adoption**YesNo  | 3 (50.0)562 (58.1) | 2 (33.3)286 (29.5) | 1 (16.7)120 (12.4) | 0.855**°** |
| **Single parent family**YesNo  | 79 (56.8)488 (58.0)  | 47 (33.8)242 (28.8) | 13 (9.4)111 (13.2) | 0.294 |
| **Stay with Relatives**YesNo **If yes, Relatives:**Grandparents Aunt-Uncle | 142 (57.5)423 (58.3)131 (58) 7 (58.3) | 76 (30.8)210 (28.9)66 (29.2)5 (41.7) | 29 (11.7)93 (12.8)29 (12.8)0 (0.0) | 0.8190.430**°** |
| **School** Yes No **If yes, type of school**PrivatePublic | 555 (57.5)9 (90.0)42 (59.2)264 (54.3) | 286 (29.6)0 (0.0)13 (18.3)158 (32.5) | 125 (12.9)1 (10.0)16 (22.5)64 (13.2) | 0.063**°****0.017** |
| **School Record** GoodModerate/Bad | 304 (52.8)109 (70.3) | 192 (33.3)32 (20.6) | 80 (13.9)14 (9.0) | **<0.001** |
| **Foreign Languages**NoneEnglishEnglish and FrenchEnglish and GermanOther | 114 (59.4)92 (47.9)29 (46.0)32 (52.5)6 (50.0) | 59 (30.7)70 (36.5)25 (39.7)21 (34.4)4 (33.3) | 19 (9.9)30 (15.6)9 (14.3)8 (13.1)2 (16.7) | 0.463**°** |
| **Regular Exercise** Yes No  | 288 (51.2)260 (67.7) | 183 (32.5)96 (25.0) | 92 (16.3)28 (7.3) | **<0.001** |
| **Sports at school**YesNo | 441 (55.7)59 (67.0) | 249 (31.4)20 (22.7) | 102 (12.9)9 (10.2) | 0.122 |
| **Sports** NoYes**If yes, the sport was:**BasketFootballRunning/ Walking/ CyclingSwimmingMartial arts TennisVoleyballOtherCombination | 121 (68.0)291 (51.1)54 (59.3)33 (55.0)8 (53.3)46 (56.1)49 (53.8)10 (41.7)14 (36.8)32 (42.7)45 (48.4) | 45 (25.3)188 (33.0)26 (28.6)21 (35.0)3 (20.0)24 (29.3)31 (34.1)9 (37.5)18 (47.4)24 (32.0)32 (34.4) | 12 (6.7)90 (15.8)11 (12.1)6 (10.0)4 (26.7)12 (14.6)11 (12.1)5 (20.8)6 (15.8)19 (25.3)16 (17.2) | **<0.001**0.332**°** |
| **Sports’ Frequency**1 time per week2 times per week3 times per week≥4 times per week | 15 (48.4)64 (50.0)112 (49.3)75 (52.4) | 11 (35.5)43 (33.6)74 (32.6)50 (35.0) | 5 (16.1)21 (16.4)41 (18.1)18 (12.6) | 0.913**°** |
| **Hobbies**NoYes **If yes, the hobby was:**MusicDancingChessOther  | 87 (58.8)201 (52.5)17 (68.0)65 (45.1)8 (80.0)111 (54.4) | 42 (28.4)130 (33.9)6 (24.0)53 (36.8)1 (10.0)70 (34.3) | 19 (12.8)52 (13.6)2 (8.0)26 (18.1)1 (10.0)23 (11.3) | 0.3970.114° |
| **Hobby Frequency**1 time per week2 times per week3 times per week>3 times per week | 25 (51.0)22 (48.9)11 (44.0)3 (25.0) | 17 (34.7)14 (31.1)10 (40.0)7 (58.3) | 7 (14.3)9 (20.0)4 (16.0)2 (16.7) | 0.680**°** |
| **Smoking**YesNo  | 3 (75.0)554 (57.6) | 1 (25.0)285 (29.6) | 0 (0.0)123 (12.8) | 0.999° |
| **Alcohol**YesNo  | 3 (60.0)555 (57.7) | 0 (0.0)286 (29.7) | 2 (40.0)121 (12.6) | 0.104° |

Abbreviations: mo: months; Continuous variables are presented as mean ± standard error of the mean (SEM) and categorical as frequencies (percentages); p values were derived by comparisons between the three categories of BMI using ∙ Kruskal-Wallis H test for skewed variables; Pearson’s χ2 or ◦ Monte Carlo test for categorical variables; Statistically significant associations are shown in bold.