**Table 1.** General, sleep, and electronic media usage characteristics in 18-month and 42-month-old participants

**18M Group 42M Group n = 183 n = 215 Mean (SD) Mean (SD)**

**Age (months)** 18.2 (1.2) 42.3 (1.1)

**Sex (boy/girl)** 93/90 104/111

**Firstborns (n/%)** 84 (45.9%) 91 (42.3%)

**Respondent (mother/father)** 179/4 207/8

**Sleep duration**

**Weekdays (minutes)** 680 (110) 638 (55)

**Weekends (minutes)** 680 (113) 632 (73)

**Weekend - weekday difference (minutes)** -8.0 (87.3) -1.9 (51.5)

**Bedtime**

**Weekdays** 8:51 PM (0:54) 8:59 PM (0:39)

**Weekends** 9:10 PM (0:53) 9:15 PM (0:46)

**Weekend - weekday difference (minutes)** 9.6 (30.2) 15.5 (26.3)

**Wake time**

**Weekdays** 6:53 AM (0:44) 6:58 AM (0:37)

**Weekends** 7:16 AM (0:46) 7:33 AM (0:49)

**Weekend - weekday difference (minutes)** 22.2 (34.0) 34.6 (37.7)

**Naps**

**Days with naps /week** 6.7 (0.9) 4.2 (2.4)

**Main nap duration (minutes)** 93.7 (33.3) 86.2 (37.1)

**Electronic media usage (n/%)**

**Television** 139 (76.8%) 175 (84.5%) **Laptop/computer** 9 (5.0%) 14 (6.8%)

**Tablet device**  18 (10.2%) 38 (18.6%)

**Music player** 1 (0.6%) 1 (0.5%)

**Smartphone** 39 (21.8%) 94 (45.6%)

**Mobile phone**  1 (0.6%) 0 (0.0%)

**Portable game** 5 (2.9%) 18 (8.8%)

**Home videogame** 2 (1.1%) 22 (10.8%)

**S**D, standard deviation; 18M, 18-month-old group; 42M, 42-month-old group

**Table 2.** Sleep habits and electronic usage of 18-month-old children

**Nursery School Group Home Group**

**n = 79 n = 104**

**Mean (SD) Mean (SD) *p*-value**

**Age (months)** 18.3 (1.4) 18.1 (1.0) 0.185

**Sex (boys/girls)** 34/45 59/45 0.075

**Sleep duration**

**Weekdays (minutes)** 661 (128) 694 (94)0.060

**Weekends (minutes)** 658 (132) 696 (95) 0.023\*

**Weekend - weekday difference (minutes)** - 3.2 (46.3) - 11.6 (108.3) 0.572

**Bedtime**

**Weekdays** 8:49 PM (0:43) 8:52 PM (0:61)0.796

**Weekends** 9:03 PM (0:44) 9:00 PM (0:59) 0.304

**Weekend - weekday difference (minutes)** 14.1 (27.9) 6.3 (31.5) 0.084

**Wake time**

**Weekdays** 6:35 AM (0:44) 7:05 AM (0:40)<0.001\*\*

**Weekends** 7:11 AM (0:48) 7:20 AM (0:45) 0.233

**Weekend - weekday difference (minutes)** 34.0 (41.2) 13.8 (24.6) <0.001\*\*

**Naps**

**Days with naps/week** 6.7 (0.7) 6.7 (1.0) 0.080

**Main nap duration (minutes)** 103.2 (30.0) 87.3 (34.0)0.002\*

**Electronic media usage (n/%)**

**Television** 61 (78.2%) 78 (75.7%) 0.726 **Laptop/computer** 6 (7.8%) 3 (2.9%) 0.177

**Tablet device** 9 (11.7%) 9 (9.1%) 0.622

**Music player** 0 (0.0%) 1 (1.0%) 1.000  **Smartphone** 21 (26.9%) 18 (17.8%) 0.150

**Mobile phone** 0 (0.0%) 1 (1.0%) 1.000 **Portable game** 0 (0.0%) 5 (5.2%)0.068

**Home videogame** 1 (1.3%) 1 (1.0%) 1.000

**Electronic media use time (minutes/day)**

**Television** 92.9 (91.5) 121.0 (151.8) 0.724 **Laptop/computer** 1.6 (7.9) 1.7 (13.2) 0.138

**Tablet device** 4.2 (21.0) 2.5 (10.0) 0.438

**Music player** 0 0.6 (5.9) 0.381

**Smartphone** 3.4 (8.8) 7.5 (42.6) 0.072

**Mobile phone** 0 0 1.000 **Portable game** 0 1.1 (6.8)0.048\*

**Home videogame** 1.5 (13.5) 0 (0.5) 0.844

\*P < 0.05, \*\*P < 0.01, significant data are indicated with asterisks

Mann-Whitney *U*-test, chi-square test

SD, standard deviation

**Table 3.** Comparison of Sleep habits and electronic media of 42-month-old children

**Kindergarten Nursery School Home**

**Group Group Group**

**(A) (B) (C)**

**n = 66 n = 114 n = 35 Mean (SD) Mean (SD) Mean (SD) F *p* a**

**Age (months)** 42.6 (1.3) 42.2 (1.0) 42.0 (1.0) 4.091

**Sex (boys/girls)** 33/33 62/52 16/19 0.449

**Sleep duration**

**Weekdays (minutes)** 630 (52) 648 (55)628 (55) 2.66

**Weekends (minutes)** 631 (95) 637 (64) 622 (46) 0.46

**Weekend - weekday difference (minutes)**

11.5 (46.2) -9.02 (56.2) -5.8 (41.3)3.10 <0.05b

**Bedtime**

**Weekdays** 8:39 PM (0:36) 9:11 PM (0:35) 9:04 PM (0:42) 15.07 <0.001c

<0.05d

**Weekends** 8:58 PM (0:39) 9:24 PM (0:45) 9:20 PM (0:55) 6.99 <0.05c

**Weekend - weekday difference** **(minutes)**

18.9 (24.1) 13.6 (28.7) 15.5 (22.6) 0.84

**Wake time**

**Weekday**6:55 AM (0:31) 6:54 AM (0:38) 7:18 AM (0:39) 6.03 <0.05d,e

**Weekends**7:25 AM (0:53) 7:31 AM (0:43) 7:54 AM (0:55) 4.19 <0.05d

**Weekend - weekday difference (minutes)**

29.5 (39.0) 37.7 (38.0) 34.9 (33.9) 0.95

**Naps**

**Days with naps/week (day)** 2.3 (2.0) 5.6 (1.5) 3.5 (2.5) 62.93 <0.05f,g,h

**Main nap duration (minutes)** 77.1 (42.8) 94.8 (29.8) 72.2 (42.1) 6.90 <0.05f,g

**Electronic media usage (n/%)**

**Television** 57 (87.7%) 90 (82.6%) 28 (84.8%) 0.663

**Laptop/computer** 5 (7.7%) 8 (7.5%) 1 (3.1%) 0.660

**Tablet device** 16 (25.4%) 18 (16.7%) 4 (12.1%)0.212

**Music player** 0 (0.0%) 0 (0.0%) 1 (3.0%) 0.074

**Smartphone** 31 (47.7%) 50 (46.3%) 13 (39.4%)0.723

**Mobile phone** 0 (0.0%) 0 (0.0%) 0 (0.0%) -

**Portable game** 12 (18.8%) 5 (4.6%) 1 (3.1%) 0.003\*

**Home videogame**  12 (18.8%) 9 (8.3%) 1 (3.1%)0.033\*

**Electronic media use time (minutes/day)**

**Television** 127.8 (104.2) 104.7 (96.3) 151.8 (153.7) 0.234

**Laptop/computer** 9.2 (35.1) 5.1 (19.8) 1.5 (6.2) 0.670

**Tablet device** 9.6 (21.4) 10.5 (29.6) 2.3 (7.7)0.180

**Music player** 0 0 0.9 (5.2) 0.071

**Smartphone** 17.3 (25.4) 11.6 (21.2) 27.5 (132.2)0.076

**Mobile phone** 0 1.2 (11.5) 0 0.256

**Portable game** 8.5 (25.0) 1.7 (8.0) 1.1 (4.6) 0.001 b,c

**Home videogame**  8.7 (21.5) 2.2 (8.7) 1.4 (5.6)0.029 b

Chi-square test; \* <0.05, significant data are indicated with asterisks

Mann-Whitney *U*-test, Bonferroni-Dunn post-hoc analysis

aAdjusted for multiple comparison, p < 0.05

bThe value of A was significantly higher than that of B

cThe time of A was significantly earlier than that of B

dThe time of A was significantly earlier than that of C.

eThe time of B was significantly earlier than that of C

fThe value of A was significantly lower than that of B

gThe value of B was significantly higher than that of C

hThe value of A was significantly lower than that of C

SD, standard deviation