Table X

Descriptive Statistics of Outcome Variables

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | TranS-C | | | | | | PE | | | | |
|  | Baseline | Post-treatment | | | 6-month follow-up | | Baseline | Post-treatment | | 6-month follow-up | |
| Outcome | *Mean (SD)* | *Mean (SD)* | *d* | | *Mean (SD)* | *d* | *Mean (SD)* | *Mean (SD)* | *d* | *Mean (SD)* | *d* |
| Sleep and Circadian Outcomes | | | | | | | | | | | |
| TST weeknights\* | 459.06 (64.92) | 482.76 (82.55) | 0.37 | | 436.63 (58.15) | -0.35 | 454.96 (61.51) | 464.81 (76.01) | 0.16 | 430.57 (60.63) | -0.40 |
| BT weeknights\* | 22.87 (1.07) | 22.85 (0.98) | -0.03 | | 22.98 (1.16) | 0.10 | 22.99 (1.05) | 23.04 (1.12) | 0.04 | 22.94 (0.94) | -0.05 |
| TST weeknight-weekend discrepancy | -70.39 (113.10) | -31.16 (115.19) | 0.35 | | -74.21 (70.71) | -0.03 | -48.91 (89.28) | -56.46 (106.25) | -0.08 | -70.98 (133.91) | -0.25 |
| BT weeknight-weekend discrepancy | -0.79 (1.23) | -0.68 (1.41) | 0.09 | | -0.39 (0.98) | 0.32 | -0.58 (1.13) | -0.51 (1.09) | 0.06 | -0.55 (1.89) | 0.03 |
| WUP weeknight-weekend discrepancy | -1.91 (1.36) | -1.13 (1.29) | 0.58 | | -1.55 (1.19) | 0.26 | -1.42 (1.28) | -1.32 (1.55) | 0.08 | -1.78 (1.38) | -0.28 |
| Sleepiness | 6.20 (4.52) | 4.67 (3.98) | -0.34 | | 3.56 (4.02) | -0.58 | 6.15 (4.01) | 6.37 (4.71) | 0.06 | 4.80 (4.84) | -0.34 |
| PSQI | 7.58 (2.99) | 5.85 (2.56) | -0.58 | | 4.88 (3.03) | -0.90 | 7.58 (3.03) | 6.75 (3.48) | -0.28 | 6.00 (3.97) | -0.52 |
| CBCL Sleep Composite | 3.32 (2.03) | 1.84 (1.86) | -0.73 | | 2.10 (2.14) | -0.60 | 3.24 (2.13) | 2.54 (1.92) | -0.33 | 2.11 (1.95) | -0.53 |
| CMEP\* | 21.09 (3.76) | 25.08 (4.86) | 1.06 | | 25.33 (4.77) | 1.13 | 21.52 (3.86) | 23.44 (4.82) | 0.49 | 23.93 (4.32) | 0.62 |
|  |  |  |  | |  |  |  |  |  |  |  |
| Youth Self-Report Composite Risk Score\* | | | | | | | | | | | |
| *Emotional health* |  |  |  | |  |  |  |  |  |  |  |
| CDRS | 33.90 (9.34) | 27.01 (8.72) | -0.74 | | 25.87 (7.68) | -0.86 | 33.08 (9.90) | 27.00 (8.16) | -0.61 | 26.63 (10.08) | -0.65 |
| MASC | 46.51 (17.73) | 45.45 (17.10) | -0.06 | | 42.28 (20.28) | -0.24 | 45.98 (15.99) | 44.74 (18.03) | -0.08 | 40.63 (18.18) | -0.33 |
| Composite | 0.36 (0.90) | -0.07 (0.79) | -0.48 | | -0.24 (0.82) | -0.66 | 0.28 (0.81) | -0.11 (0.79) | -0.47 | -0.25 (0.89) | -0.65 |
| *Cognitive health* |  |  |  | |  |  |  |  |  |  |  |
| ACS | 50.56 (8.23) | 52.18 (8.09) | 0.20 | | 51.25 (8.67) | 0.08 | 51.24 (7.22) | 51.29 (7.77) | 0.01 | 52.70 (10.10) | 0.20 |
| YSAS (school/cognitive) | 11.68 (2.95) | 11.69 (3.14) | 0.00 | | 10.21 (3.65) | -0.50 | 11.90 (2.83) | 12.49 (2.94) | 0.21 | 10.68 (3.72) | -0.43 |
| Composite | 0.10 (0.79) | -0.001 (0.82) | -0.13 | | -0.18 (0.75) | -0.36 | 0.07 (0.65) | 0.17 (0.80) | 0.14 | -0.19 (1.00) | -0.40 |
| *Behavioral health* |  |  |  | |  |  |  |  |  |  |  |
| Sensation Seeking Scale | 27.28 (5.97) | 27.35 (6.61) | 0.01 | | 26.50 (6.45) | -0.13 | 26.36 (6.22) | 27.51 (7.04) | 0.18 | 25.96 (6.65) | -0.06 |
| Alcohol and Substance Use | 5.76 (8.24) | 5.51 (8.10) | -0.03 | | 5.60 (7.93) | -0.02 | 5.67 (6.62) | 6.26 (8.37) | 0.09 | 5.46 (7.68) | -0.03 |
| Composite | 0.03 (0.80) | 0.02 (0.83) | -0.02 | | -0.03 (0.79) | -0.08 | -0.04 (0.77) | 0.09 (0.92) | 0.16 | -0.08 (0.85) | -0.06 |
| *Social health* |  |  |  | |  |  |  |  |  |  |  |
| YSAS: Friends | 18.53 (4.58) | 17.73 (3.69) | -0.18 | | 17.22 (4.21) | -0.29 | 18.81 (4.98) | 18.68 (4.82) | -0.03 | 17.12 (4.94) | -0.34 |
| YSAS: Family | 11.92 (3.50) | 11.33 (3.56) | -0.17 | | 10.97 (3.29) | -0.27 | 12.34 (3.67) | 11.68 (4.17) | -0.18 | 10.74 (3.70) | -0.44 |
| YSAS: Romantic | 7.34 (2.03) | 7.62 (1.78) | 0.14 | | 6.79 (2.41) | -0.27 | 7.59 (1.69) | 7.62 (1.85) | 0.02 | 6.80 (2.36) | -0.47 |
| Composite | 0.06 (0.59) | -0.0001 (0.60) | -0.10 | | -0.20 (0.62) | -0.43 | 0.18 (0.70) | 0.11 (0.68) | -0.10 | -0.22 (0.72) | -0.58 |
| *Physical health* |  |  |  | |  |  |  |  |  |  |  |
| MAQ | 3.36 (5.35) | 4.20 (8.22) | 0.16 | | 5.31 (8.78) | 0.37 | 2.83 (4.31) | 3.40 (5.11) | 0.13 | 3.58 (3.97) | 0.17 |
| PHQ | 9.30 (5.37) | 7.97 (5.01) | -0.25 | | 6.42 (4.88) | -0.54 | 8.58 (4.40) | 7.01 (4.33) | -0.36 | 6.00 (5.09) | -0.59 |
| Composite | 0.20 (0.68) | 0.01 (0.87) | -0.27 | | -0.25 (0.93) | -0.67 | 0.18 (0.58) | -0.02 (0.57) | -0.34 | -0.15 (0.63) | -0.56 |
|  |  |  |  | |  |  |  |  |  |  |  |
| Parent-Reported Composite Risk Score | | | | | | | | | | | |
| *Emotional Health* |  |  |  |  | |  |  |  |  |  |  |
| Anxious/Depressed | 3.13 (3.48) | 2.61 (2.97) | -0.15 | 2.79 (3.22) | | -0.10 | 4.11 (3.78) | 3.61 (3.56) | -0.13 | 3.36 (2.88) | -0.20 |
| Withdrawn/Depressed | 2.83 (2.84) | 2.49 (2.54) | -0.12 | 2.57 (2.88) | | -0.09 | 3.14 (2.77) | 2.99 (2.72) | -0.06 | 3.09 (2.68) | -0.02 |
| Composite | -0.03 (0.94) | -0.17 (0.80) | -0.15 | -0.13 (0.92) | | -0.10 | 0.17 (0.93) | 0.07 (0.89) | -0.11 | 0.05 (0.83) | -0.13 |
| *Cognitive Health* |  |  |  |  | |  |  |  |  |  |  |
| Thought problems | 3.56 (2.59) | 2.38 (2.31) | -0.46 | 2.57 (2.78) | | -0.38 | 3.75 (2.73) | 3.60 (2.90) | -0.05 | 2.92 (2.63) | -0.30 |
| Attention problems | 4.23 (3.61) | 4.01 (3.85) | -0.06 | 4.03 (3.86) | | -0.05 | 4.17 (4.13) | 4.33 (4.30) | 0.04 | 4.07 (4.26) | -0.02 |
| Composite | 0.08 (0.80) | -0.16 (0.81) | -0.30 | -0.12 (0.90) | | -0.26 | 0.11 (0.89) | 0.10 (0.96) | -0.01 | -0.05 (0.91) | -0.19 |
| *Behavioral Health* |  |  |  |  | |  |  |  |  |  |  |
| Rule-Breaking Behavior | 1.91 (2.31) | 1.39 (1.87) | -0.22 | 1.97 (2.31) | | 0.03 | 1.98 (2.16) | 2.31 (2.61) | 0.16 | 1.85 (2.33) | -0.06 |
| Aggressive Behavior | 3.84 (4.02) | 3.62 (4.22) | -0.05 | 3.84 (4.32) | | 0.00 | 4.54 (4.52) | 3.76 (3.73) | -0.17 | 3.69 (3.85) | -0.19 |
| Composite | -0.005 (0.91) | -0.14 (0.86) | -0.15 | 0.01 (0.96) | | 0.01 | 0.09 (0.88) | 0.07 (0.92) | -0.02 | -0.03 (0.87) | -0.15 |
| *Social Health* |  |  |  |  | |  |  |  |  |  |  |
| Social Problems | 1.36 (1.52) | 1.24 (1.81) | -0.08 | 1.25 (1.72) | | -0.07 | 1.86 (2.15) | 1.83 (2.49) | -0.01 | 1.44 (1.91) | -0.19 |
| Composite | -0.07 (0.77) | -0.13 (0.92) | -0.08 | -0.13 (0.88) | | -0.07 | 0.18 (1.09) | 0.16 (1.27) | -0.01 | -0.03 (0.97) | -0.19 |
| *Physical Health* |  |  |  |  | |  |  |  |  |  |  |
| Somatic Complaints | 2.89 (3.11) | 2.14 (2.75) | -0.24 | 1.94 (2.45) | | -0.30 | 2.49 (2.74) | 2.01 (2.43) | -0.17 | 1.93 (2.12) | -0.20 |
| Composite | 0.24 (1.17) | -0.04 (1.04) | -0.24 | -0.12 (0.93) | | -0.30 | 0.09 (1.04) | -0.09 (0.92) | -0.17 | -0.12 (0.80) | -0.20 |

Table X

Effect Sizes of Between groups

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Between-group difference at each time point (TranS-C vs. PE) | | | Between-group treatment effect on change (TranS-C vs. PE) | | |
| Outcome | *d*pre | *d*post | *d*6m | *d*pre-post | *d*pre-6m | *d*post-6m |
| Sleep and Circadian Outcomes |  |  |  |  |  |  |
| SD-TST weeknights\* | 0.06 | 0.23 | 0.10 | 0.20 | 0.05 | -0.15 |
| SD-BT weeknights\* | -0.11 | -0.18 | 0.04 | -0.07 | 0.15 | 0.22 |
| SD-TST weeknight-weekend discrepancy | -0.21 | 0.23 | -0.03 | 0.43 | 0.21 | -0.22 |
| SD-BT weeknight-weekend discrepancy | -0.18 | -0.14 | 0.10 | 0.03 | 0.30 | 0.27 |
| SD-WUP weeknight-weekend discrepancy | -0.37 | 0.14 | 0.18 | 0.50 | 0.54 | 0.04 |
| Sleepiness | 0.01 | -0.39 | -0.28 | -0.39 | -0.25 | 0.15 |
| PSQI | 0.00 | -0.29 | -0.32 | -0.30 | -0.38 | -0.08 |
| CBCL Sleep Composite | 0.04 | -0.37 | 0.00 | -0.40 | -0.07 | 0.33 |
| CMEP\* | -0.11 | 0.34 | 0.31 | 0.57 | 0.51 | -0.06 |
|  |  |  |  |  |  |  |
| Youth Self-Report Composite Risk Score\* | | | | | | |
| *Emotional health:* |  |  |  |  |  |  |
| CDRS | 0.09 | 0.00 | -0.08 | -0.12 | -0.21 | -0.08 |
| MASC | 0.03 | 0.04 | 0.09 | 0.02 | 0.10 | 0.08 |
| Composite | 0.09 | 0.04 | 0.01 | -0.01 | -0.02 | -0.01 |
| *Cognitive health:* |  |  |  |  |  |  |
| ACS | -0.09 | 0.11 | -0.15 | 0.19 | -0.12 | -0.31 |
| YSAS (school/cognitive items) | -0.08 | -0.26 | -0.13 | -0.21 | -0.07 | 0.14 |
| Composite | 0.04 | -0.21 | 0.01 | -0.27 | 0.04 | 0.31 |
| *Behavioral health:* |  |  |  |  |  |  |
| Sensation Seeking Scale | 0.15 | -0.02 | 0.08 | -0.17 | -0.07 | 0.11 |
| Alcohol and Substance Use | 0.01 | -0.09 | 0.02 | -0.12 | 0.01 | 0.13 |
| Composite | 0.09 | -0.08 | 0.06 | -0.18 | -0.02 | 0.16 |
|  |  |  |  |  |  |  |
| *Social health:* |  |  |  |  |  |  |
| YSAS: Friends | -0.06 | -0.22 | 0.02 | -0.15 | 0.05 | 0.20 |
| YSAS: Family | -0.12 | -0.09 | 0.07 | 0.01 | 0.17 | 0.15 |
| YSAS: Romantic | -0.14 | 0.00 | 0.00 | 0.12 | 0.20 | 0.08 |
| Composite | -0.19 | -0.17 | 0.04 | 0.00 | 0.15 | 0.14 |
| *Physical health:* |  |  |  |  |  |  |
| MAQ | 0.11 | 0.12 | 0.25 | 0.03 | 0.19 | 0.17 |
| PHQ | 0.15 | 0.20 | 0.08 | 0.11 | 0.05 | -0.06 |
| Composite | 0.04 | 0.04 | -0.13 | 0.06 | -0.11 | -0.17 |
|  |  |  |  |  |  |  |
| Parent-Reported Composite Risk Score | | | | | | |
| *Emotional Health* |  |  |  |  |  |  |
| Anxious/Depressed | -0.27 | -0.31 | -0.19 | -0.02 | 0.10 | 0.12 |
| Withdrawn/Depressed | -0.11 | -0.19 | -0.19 | -0.06 | -0.07 | -0.01 |
| Composite | -0.22 | -0.28 | -0.21 | -0.04 | 0.03 | 0.06 |
| *Cognitive Health* |  |  |  |  |  |  |
| Thought problems | -0.07 | -0.47 | -0.13 | -0.40 | -0.08 | 0.32 |
| Attention problems | 0.02 | -0.08 | -0.01 | -0.10 | -0.03 | 0.07 |
| Composite | -0.03 | -0.30 | -0.08 | -0.30 | -0.07 | 0.23 |
| *Behavioral Health* |  |  |  |  |  |  |
| Rule-Breaking Behavior | -0.03 | -0.40 | 0.05 | -0.38 | 0.08 | 0.46 |
| Aggressive Behavior | -0.16 | -0.04 | 0.04 | 0.12 | 0.19 | 0.07 |
| Composite | -0.11 | -0.25 | 0.05 | -0.13 | 0.16 | 0.29 |
| *Social Health* |  |  |  |  |  |  |
| Social Problems | -0.27 | -0.27 | -0.10 | -0.07 | 0.12 | 0.19 |
| Composite | -0.27 | -0.27 | -0.10 | -0.07 | 0.12 | 0.19 |
| *Physical Health* |  |  |  |  |  |  |
| Somatic Complaints | 0.14 | 0.05 | 0.00 | -0.07 | -0.10 | -0.03 |
| Composite | 0.14 | 0.05 | 0.00 | -0.07 | -0.10 | -0.03 |