**Healthy Eating Behavior Change with Psychological Features and Insulin Resistance: Buffet and Food Diary App Analysis**

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Appendix A: Supplementary tables

**Table A1.** Serving sizes of food served during the buffet test-meal assessment.

|  |  |  |  |
| --- | --- | --- | --- |
| **Healthy Diet Foods** | **Nutritional Information Carb / Protein / Fat (%)** | **Calorie density (kcal per 100g/mL)** | **Glycemic Index** |
| Brown rice | 90 / 7 / 3 | 152 | 50 |
| Whole grain bread | 76 / 10 / 14 | 250 | 51 |
| Boiled egg | 0 / 35 / 65 | 150 | 30 |
| Braised chicken | 34 / 30 / 36 | 90 | 45 |
| Vegetable salad | 69 / 12 / 19 | 83.9 | 22 |
| Nabak kimchi | 100 / 0 / 0 | 18 |  |
| Apple | 100 / 0 / 0 | 52 | 36 |
| Banana | 96 / 4 / 0 | 93 | 46 |
| Low-fat milk | 49 / 29 / 22 | 40 | 26 |
| Soymilk | 0 / 33 / 67 | 50 | 30 |
| Seagram’s sparkling water | 0 / 0 / 0 | 0 | 0 |
| Water | 0 / 0 / 0 | 0 | 0 |
| **Unhealthy Diet Foods** |  |  |  |
| Combination pizza | 52 / 18 / 30 | 392 | 80 |
| French butter croissant | 43 / 9 / 48 | 415 | 70 |
| Grilled spam | 57 / 13 / 30 | 340 |  |
| Chicken tender stick | 33 / 49 / 18 | 288 |  |
| Sneakers chocolate | 52 / 9 / 39 | 483 | 90 |
| Egg tart | 88 / 6 / 7 | 321 |  |
| Orange juice (sweetened) | 44 / 6 / 50 | 160 | 57 |
| Apple juice (sweetened) | 100 / 0 / 0 | 63 |  |
| Pickle | 65 / 9 / 26 | 300 | 63 |
| Seasoned sesame leaves | 59 / 26 / 15 | 116 |  |
| Coca Cola | 100 / 0 / 0 | 80 | 63 |
| Sprite | 100 / 0 / 0 | 110 |  |

**Table A2.** Classifications of the eating behavior indices.

|  |  |  |  |
| --- | --- | --- | --- |
| **Measurement Method** | **Food Intake Phenotype (FI)** | **Food Proportion Phenotype (FP)** | **Food Diversity Phenotype (FD)** |
| **Buffet test-meal (B)**  = Laboratory setting  = Objective (direct measurements) | **1) Total Intake** (FIB-T)  **2) Type of Diet Intake**  2a) Healthy Diet Intake (FIB-H)  2b) Unhealthy Diet Intake (FIB-UH)  **3) Macronutrient intake**  3a) Carb (FIB-Carb)  3b) Protein (FIB-Pro)  3c) Fat (FIB-Fat)  **4) Micronutrient Intake**  4a) Sugar (FIB-Su)  4b) Sodium (FIB-So)  4c) Saturated Fat (FIB-Sf) | **1) Type of Diet Proportion**  1a) Healthy Diet Proportion (FPB-H)  1b) Unhealthy Diet Proportion (FPB-UH)  **2) Macronutrient Proportion**  2a) Carb Proportion (FPB-Carb)  2b) Protein Proportion (FPB-Pro)  2c) Fat Proportion (FPB-Fat) | **1) Total Food Diversity Score** (FDB-T)  **2) Healthy Diet Diversity Score** (FDB-H)  **3) Unhealthy Diet Diversity Score** (FDB-UH) |
| **Diary app (D)**  = Real-world setting  = Subjective (self-report) | **1) Total Intake** (FID-T)  **Macronutrient Intake**  1a) Carb (FID-Carb)  1b) Protein (FID-Pro)  1c) Fat (FID-Fat)  **2) Micronutrient Intake**  2a) Sodium (FID-So)  **3) Total Intake Per Meal**  3a) Breakfast (FID-B)  3b) Lunch (FID-L)  3c) Dinner (FID-D)  3d) Snack (FID-S) | **1) Macronutrient Proportion**  1a) Carb Proportion (FPD-Carb)  1b) Protein Proportion (FPD-Pro)  1c) Fat Proportion (FPD-Fat) |  |

**Table A3.** Comparison of main outcomes from buffet test-meal assessment by intervention condition.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Outcome** | ***N*ª** | **Control** | ***N*ªª** | **Digital CBT** | ***p* (2-tailed)** |
| **Food Intake** |  |  |  |  |  |
| FIB-H, kcal, mean (*SD*)  FIB-UH, kcal, mean (*SD*) | 25  25 | 26.1 (68.9)  −35 (54.2) | 45  45 | −8 (46.4)  −20.2 (150) | 0.031\*  0.636 |
| **Food Proportion** |  |  |  |  |  |
| FPB-H, %, mean (*SD*)  FPB-UH, %, mean (*SD*) | 25  25 | 10.7 (28.1)  −10.7 (28.1) | 45  45 | 14 (22.7)  −14 (22.7) | 0.601  0.601 |
| **Food Diversity** |  |  |  |  |  |
| FDB-H, %, mean (*SD*)  FDB-UH, %, mean (*SD*) | 25  25 | −2.8 (10.8)  −7.9 (14.5) | 45  45 | 4.6 (11.5)  −10.7 (12.4) | 0.011\*  0.396 |

**ª**Number of participants in control group, **ªª**Number of participants in Digital CBT group \**p* < .05

**Table A4.** Changes in main outcomes from the first buffet to the second buffet for both groups.

|  |  |  |  |
| --- | --- | --- | --- |
| **Outcome** | **First buffet** | **Second buffet** | ***p* (2-tailed) ª** |
| **dCBT Group** |  |  |  |
| **Food Intake** |  |  |  |
| FIB-H, kcal, mean (*SD*)  FIB-UH, kcal, mean (*SD*) | 259.7 (157.5)  307.6 (210.4) | 301.4 (187.5)  172.3 (168.3) | 0.01\*  0.000\*\* |
| **Food Proportion** |  |  |  |
| FPB-H, %, mean (*SD*)  FPB-UH, %, mean (*SD*) | 70.9 (19.4)  29.1 (19.4) | 84.9 (19.4)  15.1 (19.4) | 0.000\*\*  0.000\*\* |
| **Food Diversity** |  |  |  |
| FDB-H, %, mean (*SD*)  FDB-UH, %, mean (*SD*) | 29.3 (12.4)  27 (13.2) | 33.9 (13.9)  16.3 (11.4) | 0.01\*  0.000\*\* |
| **Control Group** |  |  |  |
| **Food Intake** |  |  |  |
| FIB-H, kcal, mean (*SD*)  FIB-UH, kcal, mean (*SD*) | 276.3 (153.6)  304.6 (242.8) | 262 (170.5)  212 (247.3) | 0.566  0.013\* |
| **Food Proportion** |  |  |  |
| FPB-H, %, mean (*SD*)  FPB-UH, %, mean (*SD*) | 66.4 (29.6)  29.6 (26.8) | 81.2 (24.4)  18.8 (24.4) | 0.01\*  0.068 |
| **Food Diversity** |  |  |  |
| FDB-H, %, mean (*SD*)  FDB-UH, %, mean (*SD*) | 29.7 (13.2)  25.3 (13.7) | 26.9 (12.3)  17.4 (15.6) | 0.212  0.012\* |

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

**Table A5.** Comparison of main outcomes from the food diaries in app assessment by intervention condition.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Outcome** | ***N*ª** | **Control** | ***N*ªª** | **Digital CBT** | ***p* (2-tailed)** |
| Breakfast, kcal, mean (*SD*) | 25 | −41.6 (47) | 45 | 26.8 (154.6) | 0.035\* |
| Lunch, kcal, mean (*SD*) | 25 | 1.7 (48.4) | 45 | −13 (43.5) | 0.195 |
| Dinner, kcal, mean (*SD*) | 25 | 5.4 (50.9) | 45 | −12.5 (55) | 0.184 |
| Snack, kcal, mean (*SD*) | 25 | −43.87 (47.4) | 45 | −34.1 (73.6) | 0.553 |

**ª**Number of participants in control group, **ªª**Number of participants in Digital CBT group \**p* < .05; \*\**p* < .01

**Table A6.** Changes in main outcomes from the first buffet to the second buffet for both groups.

|  |  |  |  |
| --- | --- | --- | --- |
| **Outcome** | **Week 1** | **Week 8** | ***p* (2-tailed) ª** |
| **dCBT Group** |  |  |  |
| Breakfast, kcal, mean (*SD*) | 210 (139.7) | 215.3 (196.6) | 0.851 |
| Lunch, kcal, mean (*SD*) | 397.5 (126) | 333.7 (152) | 0.008\*\* |
| Dinner, kcal, mean (*SD*) | 450.7 (171.7) | 190.1 (28.3) | 0.005\*\* |
| Snack, kcal, mean (*SD*) | 161.9 (98.1) | 92.2 (99.7) | 0.000\*\* |
| **Control Group** |  |  |  |
| Breakfast, kcal, mean (*SD*) | 185.4 (118.9) | 131.5 (177) | 0.028\* |
| Lunch, kcal, mean (*SD*) | 445.8 (99) | 448.3 (258) | 0.962 |
| Dinner, kcal, mean (*SD*) | 501.6 (200.8) | 502.7 (264.8) | 0.98 |
| Snack, kcal, mean (*SD*) | 229.3 (222.9) | 127.6 (147.4) | 0.006\*\* |

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