Supplementary file to “Components of smartphone cognitive-behavioural therapy for subthreshold depression: A fully factorial randomized controlled trial”
**Table 1. Combinations of iCBT component**

|   | PE | SM | CR | BA | AT | PS |
|---|----|----|----|----|----|----|
| C1 | 1  | 1  | 1  | 1  | 1  | 1  |
| C2 | 1  | 1  | 1  | 1  | 1  | 1  |
| C3 | 1  | 1  | 1  | 1  | 1  | 0  |
| C4 | 1  | 1  | 1  | 1  | 1  | 0  |
| C5 | 1  | 1  | 1  | 0  | 1  | 1  |
| C6 | 1  | 1  | 1  | 0  | 1  | 0  |
| C7 | 1  | 1  | 1  | 0  | 0  | 0  |
| C8 | 1  | 1  | 1  | 0  | 0  | 0  |
| C9 | 1  | 1  | 0  | 0  | 1  | 0  |
| C10| 1  | 1  | 0  | 1  | 0  | 0  |
| C11| 1  | 1  | 0  | 0  | 0  | 0  |
| C12| 1  | 1  | 0  | 0  | 0  | 0  |
| C13| 1  | 1  | 0  | 0  | 0  | 0  |
| C14| 1  | 1  | 0  | 0  | 1  | 1  |
| C15| 1  | 1  | 0  | 0  | 0  | 0  |
| C16| 1  | 1  | 0  | 0  | 0  | 0  |
| C17| 1  | 1  | 0  | 0  | 0  | 0  |
| C18| 1  | 1  | 0  | 0  | 0  | 0  |
| C19| 1  | 1  | 0  | 0  | 0  | 0  |
| C20| 1  | 1  | 0  | 0  | 0  | 0  |
| C21| 1  | 1  | 0  | 0  | 0  | 0  |
| C22| 1  | 1  | 0  | 0  | 0  | 0  |
| C23| 1  | 1  | 0  | 0  | 0  | 0  |
| C24| 1  | 1  | 0  | 0  | 0  | 0  |
| C25| 1  | 1  | 0  | 0  | 0  | 0  |
| C26| 1  | 1  | 0  | 0  | 0  | 0  |
| C27| 1  | 1  | 0  | 0  | 0  | 0  |
| C28| 1  | 1  | 0  | 0  | 0  | 0  |
| C29| 1  | 1  | 0  | 0  | 0  | 0  |
| C30| 1  | 1  | 0  | 0  | 0  | 0  |
| C31| 1  | 1  | 0  | 0  | 0  | 0  |
| C32| 1  | 1  | 0  | 0  | 0  | 0  |
| C33| 1  | 1  | 0  | 0  | 0  | 0  |
| C34| 1  | 1  | 0  | 0  | 0  | 0  |
| C35| 1  | 1  | 0  | 0  | 0  | 0  |

**Order**

|   | PE | AT | PS | SM | CR | BA |
|---|----|----|----|----|----|----|
| C1 | 1  | 1  | 1  | 1  | 1  | 1  |
| C2 | 1  | 1  | 1  | 1  | 1  | 1  |
| C3 | 1  | 1  | 1  | 1  | 1  | 0  |
| C4 | 1  | 1  | 1  | 1  | 1  | 0  |
| C5 | 1  | 1  | 1  | 0  | 1  | 1  |
| C6 | 1  | 1  | 1  | 0  | 1  | 0  |
| C7 | 1  | 1  | 1  | 0  | 0  | 0  |
| C8 | 1  | 1  | 1  | 0  | 0  | 0  |
| C9 | 1  | 1  | 0  | 0  | 1  | 0  |
| C10| 1  | 1  | 0  | 1  | 0  | 0  |
| C11| 1  | 1  | 0  | 0  | 0  | 0  |
| C12| 1  | 1  | 0  | 0  | 0  | 0  |
| C13| 1  | 1  | 0  | 0  | 1  | 1  |
| C14| 1  | 1  | 0  | 0  | 0  | 0  |
| C15| 1  | 1  | 0  | 0  | 0  | 0  |
| C16| 1  | 1  | 0  | 0  | 0  | 0  |
| C17| 1  | 1  | 0  | 0  | 0  | 0  |
| C18| 1  | 1  | 0  | 0  | 0  | 0  |
| C19| 1  | 1  | 0  | 0  | 0  | 0  |
| C20| 1  | 1  | 0  | 0  | 0  | 0  |
| C21| 1  | 1  | 0  | 0  | 0  | 0  |
| C22| 1  | 1  | 0  | 0  | 0  | 0  |
| C23| 1  | 1  | 0  | 0  | 0  | 0  |
| C24| 1  | 1  | 0  | 0  | 0  | 0  |
| C25| 1  | 1  | 0  | 0  | 0  | 0  |
| C26| 1  | 1  | 0  | 0  | 0  | 0  |
| C27| 1  | 1  | 0  | 0  | 0  | 0  |
| C28| 1  | 1  | 0  | 0  | 0  | 0  |
| C29| 1  | 1  | 0  | 0  | 0  | 0  |
| C30| 1  | 1  | 0  | 0  | 0  | 0  |
| C31| 1  | 1  | 0  | 0  | 0  | 0  |
| C32| 1  | 1  | 0  | 0  | 0  | 0  |
| C33| 1  | 1  | 0  | 0  | 0  | 0  |
| C34| 1  | 1  | 0  | 0  | 0  | 0  |
| C35| 1  | 1  | 0  | 0  | 0  | 0  |
|   | PE | BA | CR | AT | 17 |
|---|----|----|----|----|----|
| C36 | 1 | 0 | 1 | 1 | 0 |
| C37 | 1 | 0 | 1 | 1 | 0 |
| C38 | 1 | 0 | 1 | 1 | 0 |
| C39 | 1 | 0 | 1 | 1 | 0 |
| C40 | 1 | 0 | 1 | 1 | 0 |
| C41 | 1 | 0 | 1 | 0 | 1 |
| C42 | 1 | 0 | 1 | 0 | 1 |
| C43 | 1 | 0 | 1 | 0 | 1 |
| C44 | 1 | 0 | 1 | 0 | 0 |
| C45 | 1 | 0 | 1 | 0 | 0 |
| C46 | 1 | 0 | 1 | 0 | 0 |
| C47 | 1 | 0 | 1 | 0 | 0 |
| C48 | 1 | 0 | 1 | 0 | 0 |
| C49 | 1 | 0 | 0 | 1 | 1 |
| C50 | 1 | 0 | 0 | 1 | 1 |
| C51 | 1 | 0 | 0 | 1 | 1 |
| C52 | 1 | 0 | 0 | 1 | 0 |
| C53 | 1 | 0 | 0 | 1 | 0 |
| C54 | 1 | 0 | 0 | 1 | 0 |
| C55 | 1 | 0 | 0 | 1 | 0 |
| C56 | 1 | 0 | 0 | 1 | 0 |
| C57 | 1 | 0 | 0 | 0 | 1 |
| C58 | 1 | 0 | 0 | 0 | 1 |
| C59 | 1 | 0 | 0 | 0 | 1 |
| C60 | 1 | 0 | 0 | 0 | 1 |
| C61 | 1 | 0 | 0 | 0 | 1 |
| C62 | 1 | 0 | 0 | 0 | 0 |
| C63 | 1 | 0 | 0 | 0 | 0 |
| C64 | 1 | 0 | 0 | 0 | 0 |

Note: For the overall Healthy Campus Trial, 64 groups were constructed by combining five components and one type of reordering to see the order effect of BA and CR. In the present study, the analysis was conducted as 32 groups to examine the effects of the five components only.

AT: assertiveness training, BA: behavioral activation, CR: cognitive restructuring, PS: problem solving, SM: self-monitoring
| N     | SM Presence | SM Absence | BA Presence | BA Absence | CR Presence | CR Absence | AT Presence | AT Absence | PS Presence | PS Absence |
|-------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| Total | 1093        | 544        | 549         | 552        | 544         | 549        | 547         | 546        | 546         | 547        |
| M     | 24.8        | 34.8       | 17.8        | 15.1       | 29.1        | 88.7       | 30.2        | 19.9       | 26.1        | 21.4       |
| SD    |             |            |             |            |             |            |             |            |             |            |

AT: assertiveness training, BA: behavioral activation, CR: cognitive restructuring, PS: problem solving, SM: self-monitoring
**eTable 3. iCBT use and retention by component order**

| Component order | 1st  | 2nd  | 3rd  | 4th  | 5th |
|-----------------|------|------|------|------|------|
| n               | 1060 | 884  | 545  | 208  | 36   |
| n %             |      |      |      |      |      |
| Completed       | 988  | 93%  | 747  | 85%  | 420  | 70%  | 146  | 77%  | 114  | 61%  |
| M SD            |      |      |      |      |      |
| Total access time per component for all randomised | 27.2 | 20.2 | 23.8 | 23.5 | 23.9 | 20.9 | 23.7 | 11.9 | 16.7 |
| Total access time per component for completers    | 27.7 | 19.9 | 26.0 | 23.1 | 28.8 | 71.8 | 28.4 | 23.7 | 19.5 | 17.7 |

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s).
**eTable 4. Unadjusted means and change scores for PHQ-9 by each component (N = 1,093)**

| PHQ9 score | Component | SM   | BA   | CR   | AT   | PS   |
|------------|-----------|------|------|------|------|------|
|            | Presence  | Absence | Presence  | Absence | Presence  | Absence | Presence  | Absence | Presence  | Absence | Presence  | Absence | Presence  | Absence | Presence  | Absence |
| Baseline   | M (SD)    | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) |
| 8.10       | 2.76      | 8.21  | 2.88  | 7.99  | 2.64  | 8.15  | 2.82  | 8.04  | 2.70  | 8.06  | 2.69  | 8.14  | 2.84  | 8.17  | 2.77  | 8.03  | 2.76  |
| Week 1     | 7.20      | 3.51  | 7.40  | 4.10  | 7.00  | 3.63  | 7.32  | 3.84  | 7.08  | 4.07  | 7.17  | 3.77  | 7.23  | 3.98  | 7.41  | 3.89  | 6.99  |
| Week 2     | 6.81      | 3.53  | 6.85  | 3.88  | 6.77  | 3.90  | 6.85  | 3.84  | 6.77  | 3.94  | 7.08  | 4.12  | 6.54  | 3.62  | 6.84  | 3.85  | 6.78  |
| Week 3     | 6.67      | 3.78  | 6.68  | 4.14  | 6.66  | 4.10  | 6.73  | 4.15  | 6.61  | 4.10  | 6.69  | 4.17  | 6.66  | 4.08  | 6.90  | 4.13  | 6.43  |
| Week 4     | 6.47      | 3.82  | 6.30  | 4.04  | 6.63  | 4.14  | 6.51  | 4.16  | 6.42  | 4.03  | 6.55  | 4.16  | 6.38  | 4.03  | 6.62  | 4.20  | 6.31  |
| Week 5     | 6.55      | 3.90  | 6.49  | 4.13  | 6.62  | 4.44  | 6.66  | 4.23  | 6.45  | 4.34  | 6.78  | 4.41  | 6.33  | 4.15  | 6.51  | 4.23  | 6.60  |
| Week 6     | 6.40      | 4.01  | 6.41  | 4.36  | 6.39  | 4.34  | 6.34  | 4.31  | 6.46  | 4.39  | 6.60  | 4.34  | 6.21  | 4.35  | 6.56  | 4.45  | 6.25  |
| Week 7     | 6.28      | 3.99  | 6.33  | 4.34  | 6.23  | 4.26  | 6.34  | 4.40  | 6.23  | 4.20  | 6.26  | 4.29  | 6.30  | 4.31  | 6.40  | 4.30  | 6.16  |
| Week 8     | 6.16      | 4.11  | 6.30  | 4.59  | 6.01  | 4.15  | 6.12  | 4.34  | 6.19  | 4.20  | 6.12  | 4.27  | 6.19  | 4.28  | 6.29  | 4.32  | 6.02  |
| Baseline-Week 8 change score | -1.93 | 4.13 | -1.87 | 4.12 | -2.00 | 3.88 | -2.08 | 4.05 | -1.87 | 3.96 | -1.95 | 3.90 | -1.92 | 4.11 | -1.90 | 3.94 | -1.97 |
| Difference of change score | 0.13 | -0.13 | -0.02 | 0.08 | -0.21 | 0.21 | 0.21 | -0.21 | 0.08 | 0.21 | 0.08 | 0.21 | 0.13 | 0.13 | 0.08 | 0.21 |

AT: assertiveness training, BA: behavioral activation, CR: cognitive restructuring, PHQ-9: Patient Health Questionnaire-9, PS: problem solving, SM: self-monitoring
eTable 5. Interaction by each component

| Interaction | Estimate | 95% CI       |
|-------------|----------|--------------|
| SM*BA       | 0.04     | -0.92 to 0.99|
| SM*CR       | 0.03     | -0.92 to 0.99|
| SM*AT       | 0.09     | -0.87 to 1.04|
| SM*PS       | -0.99    | -1.95 to -0.04|
| BA*CR       | 0.43     | -0.53 to 1.38|
| BA*AT       | 0.25     | -0.71 to 1.21|
| BA*PS       | 0.06     | -0.94 to 0.97|
| CR*AT       | 0.39     | -0.57 to 1.34|
| CR*PS       | -0.34    | -1.30 to 0.62|
| AT*PS       | -0.06    | -1.02 to 0.90|

AT: assertiveness training, BA: behavioral activation, CR: cognitive restructuring, PS: problem solving, SM: self-monitoring
| Component | n   | GAD7* | SM | BA | CR | AT | PS | Presenteeism** |
|-----------|-----|-------|----|----|----|----|----|----------------|
|           | Week 8 | Week 8 | Week 8 | Week 8 | Week 8 | Week 8 | Week 8 | Week 8 |
| SM        |       | Difference (95% CI) | Difference (95% CI) | Difference (95% CI) | Difference (95% CI) | Difference (95% CI) | Difference (95% CI) |       |
| Presence  | 544  | -0.88 | 0.39 | 0.77 | 0.06 |       |       | 0.30 | 0.03 |
| Absence   | 549  | -1.27 | -0.05 to 0.82 | 0.70 | -0.28 to 0.40 |       |       | 0.35 | -0.51 to 0.37 |
| BA        |       |       | 1.13 | 0.70 | 0.04 |       |       | 0.34 | 0.34 |
| Presence  | 552  | -1.13 | -0.10 |       | 1.13 | 0.04 |       |       | 0.32 | -0.20 to 0.88 |
| Absence   | 541  | -1.02 | -0.34 to 0.33 |       | 1.10 | -0.36 to 0.43 |       |       |       |
| CR        |       |       |       | 1.15 | 0.36 |       |       | 0.31 | 0.05 |
| Presence  | 544  | -0.99 | 0.17 |       |       |       |       | 0.34 | -0.49 to 0.59 |
| Absence   | 549  | -1.16 | -0.26 to 0.61 |       | 0.80 | 0.03 to 0.67 |       |       |       |
| AT        |       |       |       |       | 1.26 | 0.35 |       | 0.40 | 0.39 |
| Presence  | 547  | -0.95 | 0.25 |       |       |       |       | 0.25 | -0.15 to 0.93 |
| Absence   | 546  | -1.20 | -0.18 to 0.68 |       | 0.91 | 0.02 to 0.68 |       |       |       |
| PS        |       |       |       |       |       | -0.75 | 0.10 | 0.44 | 0.32 |
| Presence  | 547  | -1.06 | 0.02 |       |       |       |       | -0.85 | -0.16 to 0.36 |
| Absence   | 547  | -1.08 | -0.41 to 0.46 |       |       |       |       | 0.21 | -0.21 to 0.87 |

*Estimated least squares mean change scores

**Estimated change scores

AT: assertiveness training, BA: behavioral activation, CR: cognitive restructuring, GAD-7: Generalized Anxiety Disorder-7, PS: problem solving, SM: self-monitoring, Presenteeism: WHO Health and Work Performance Questionnaire-presenteeism scale
**eFigure.** Screenshots from each component of iCBT app “Resilience Training”