| Study                             | Theory   | ltem | ltem | ltem | Item | Item           | Item | Item | ltem | ltem | ltem | Item | Item | ltem | Item            | ltem           | ltem | Item | Item           | ltem |
|-----------------------------------|--|------|------|------|------|----------------|------|------|------|------|------|------|------|------|-----------------|----------------|------|------|----------------|------|
|                                   | used   | 1    | 2    | 3    | 4    | 5              | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14              | 15             | 16   | 17   | 18             | 19   |
| Kranjčević,<br>K. et al<br>(2014) | Theory use<br>is not<br>reported   | N/A  | N/A  | N/A  | N/A  | N/A            | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A             | N/A            | N/A  | N/A  | N/A            | N/A  |
| Vetter et al.<br>(2013)           | Social<br>cognitive<br>and<br>behaviour<br>al self-<br>managem<br>ent theory | Yes  | Yes  | No   | No   | Yes            | No   | No   | Yes  | Yes  | No   | Yes  | No   | N/A  | A, B,C<br>and D | No             | No   | No   | No             | No   |
| Lakerveld<br>et al.<br>(2012)     | Theory of<br>planned<br>behaviour<br>and theory<br>of self-<br>regulation.   | Yes  | Yes  | No   | No   | Yes            | No   | Yes  | No   | Yes  | No   | Yes  | В    | A    | A and<br>B      | Yes            | No   | Yes  | No             | No   |
| Hardcastle<br>et al.<br>(2013)    | Theory use<br>is not<br>reported   | N/A  | N/A  | N/A  | N/A  | N/A            | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A             | N/A            | N/A  | N/A  | N/A            | N/A  |
| Tiessen et al. (2012)             | Stages of<br>change  | Yes  | No   | Yes  | Yes  | Do not<br>know | No   | N/A  | A, B,C<br>and D | Do not<br>now  | No   | No   | Do not<br>know | No   |
| Parra-<br>Medina et<br>al. (2011) | Trans-<br>theoretical<br>model and<br>social<br>cognitive<br>theory          | Yes  | Yes  | No   | No   | Yes            | Yes  | Yes  | No   | Yes  | No   | Yes  | No   | No   | A               | Do not<br>know | No   | No   | Do not<br>know | No   |
| Drevenhorn<br>et al.<br>(2012)    | Stages of<br>changes<br>model  | Yes  | Yes  | Yes  | No   | Yes            | Yes  | Yes  | No   | Yes  | Yes  | No   | No   | N/A  | A               | Do not<br>know | No   | No   | Do not<br>know | No   |
| Brett et al.<br>(2012)            | Theory use<br>is not<br>reported   | N/A  | N/A  | N/A  | N/A  | N/A            | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A             | N/A            | N/A  | N/A  | N/A            | N/A  |

## Supplementary table 4: Theory use evaluation using Theory Coding Scheme.

| Harris et al.<br>(2012)                 | Stages of<br>changes<br>model    | Yes | Yes | Yes | No  | No  | Yes | No  | No  | No  | No  | No  | No  | N/A | A and<br>B | No  | No  | No  | No  | No  |
|---|----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------|-----|-----|-----|-----|-----|
| Mendis et<br>al. (2010)                 | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| Koelewijn-<br>van Loon et<br>al. (2009) | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| Eriksson et<br>al. (2009)               | Stages of<br>change<br>model     | Yes | Yes | Yes | No  | N/A | No         | No  | No  | No  | No  | No  |
| Phelan et<br>al. (2007)                 | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| Harting et<br>al. (2006)                | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| Korhonen<br>et al.<br>(2003)            | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| Baron et al.<br>(1990)                  | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| Knutsen<br>and<br>Knutsen<br>(1991)     | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| Nilsson et<br>al. (1992)                | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| Wood et al.<br>(1994)                   | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |
| OXCHECK<br>Study<br>group<br>(1995)     | Theory use<br>is not<br>reported | N/A        | N/A | N/A | N/A | N/A | N/A |

| Lindholm et<br>al. (1995)          | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |
|------------------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------|-----|-----|-----|-----|-----|-----|
| Meland et<br>al. (1997)            | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |
| Avram et<br>al. (2011)             | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |
| Steptoe et<br>al. (1999)           | Stages of<br>change<br>model  | Yes | Yes | Yes | No  | Yes | C and<br>F | N/A | N/A | N/A | N/A | N/A | N/A |
| Sartorelli et<br>al. (2005)        | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |
| Ma et al.<br>(2009)                | Social<br>cognitive<br>theory and<br>trans-<br>theoretical<br>model | Yes | No  | N/A        | N/A | N/A | N/A | No  | No  | No  |
| Åberg and<br>Tibblin<br>(1989)     | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |
| Gomez-<br>Huelgas et<br>al. (2015) | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |
| Wennehors<br>t et al.<br>(2016)    | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |
| Salisbury et al. (2016)            | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |
| Duncan et<br>al. (2016)            | Theory use<br>is not<br>reported                                    | N/A        | N/A | N/A | N/A | N/A | N/A | N/A |

Item 1) Theory/ model of behaviour mentioned

- Item 2) Targeted construct mentioned
- Item 3) Intervention based on single theory
- Item 4) Theory used to select recipients
- Item 5) Theory used to select intervention techniques
- Item 6) Theory used to tailor intervention techniques to recipients
- Item 7) All intervention techniques are explicitly linked to theory construct
- Item 8) At least one of the intervention techniques are explicitly linked to theory construct
- Item 9) Group of techniques are linked to a group of constructs
- Item 10) All theory relevant constructs are explicitly linked to at least one intervention technique.
- Item 11) At least one of the theory relevant constructs are explicitly linked to at least one intervention technique.
- Item 12) theory-relevant constructs are measured
- Item 13) Quality of measures
- Item 14) Randomization of participants' condition
- Item 15) Changes in measured theory-relevant constructs
- Item 16) Mediational analysis of constructs
- Item 17) Results discussed in relation to theory
- Item 18) Appropriate support for theory
- Item 19) Results used to refine theory