\* SPSS Syntax for ParticipACTION Profiles

\* The algorithm requires the following four questions:

\* Q1. Physical Activity Behaviour

\* “In the past week, on how many days have you done a total of 30 minutes or more of PA,

\* which was enough to raise your breathing rate?

\* This may include sport, traditional games, exercise and brisk walking or cycling for recreation or

\* to get to and from places, but should not include housework or PA that may be part of your job.”

\* Responses range from 0 to 7 where 0 = 0 days and 7 = 7 days

\* This single item has demonstrated surveillance-relevant concurrent validity and reliability (Bauman & Richards, 2022; Milton et al., 2011).

\* Q2. Physical Activity Intentions

\* “How many days per week do you intend to engage in PA for 30 minutes or more?”

\* Responses range from 0 to 7 where 0 = 0 days to 7 = 7 days

\* This question was modified from Courneya (1994) to reflect the framing of the PA behaviours question.

\* Q3. Physical Activity Habit

\* “Engaging in PA for 30 minutes or more, most days of the week, is something I do without thinking”

\* Responses scored on a 5-points Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree).

\* PA habit was measured with the third question from the Self-Report Behavioral Automaticity Index (Gardner et al., 2012).

\* This item was selected because it consistently resulted in the lowest overall internal consistency (Cronbach alpha) when dropped, using our algorithm development and testing datasets.

\* Q4. Physical Activity Identity

\* “Others see me as someone who does PA regularly”

\* Responses scored on a 5-points Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree).

\* This item was selected from the Exercise Identity Scale because it had the highest standardized factor loading score for PA role identity (Wilson & Muon, 2008)

\* References

\* Bauman, A. E., & Richards, J. A. (2022). Understanding of the Single-Item Physical Activity Question for Population Surveillance. Journal of Physical Activity and Health, 19(10), 681–686. https://doi.org/10.1123/jpah.2022-0369

\* Milton, K., Bull, F. C., & Bauman, A. (2011). Reliability and validity testing of a single-item physical activity measure. British Journal of Sports Medicine, 45(3), 203–208. https://doi.org/10.1136/bjsm.2009.068395

\* Courneya, K. S. (1994). Predicting repeated behavior from intention: The issue of scale correspondence. Journal of Applied Social Psychology, 24(7), 580–594. https://doi.org/10.1111/j.1559-1816.1994.tb00601.x

\* Gardner, B., Abraham, C., Lally, P., & Bruijn, G.-J. de. (2012). Towards parsimony in habit measurement: Testing the convergent and predictive validity of an automaticity subscale of the Self-Report Habit Index. International Journal of Behavioral Nutrition and Physical Activity, 9(1), 1–12. https://doi.org/10.1186/1479-5868-9-102

\* Wilson, P. M., & Muon, S. (2008). Psychometric properties of the exercise identity scale in a university sample. International Journal of Sport and Exercise Psychology, 6(2), 115–131. https://doi.org/10.1080/1612197X.2008.9671857

\* Set the seed for reproducibility. SET SEED = 123.

\* Define the number of cases.

INPUT PROGRAM.

LOOP #i = 1 TO 500.

\* Randomly assign response options for PAIntentionsraw and PABehavioursraw.

COMPUTE PAIntentionsraw = RV.UNIFORM(1, 8).

COMPUTE PABehavioursraw = RV.UNIFORM(1, 8).

\* Randomly assign response options for PAHabitraw and PAIdentityraw.

COMPUTE PAHabitraw = RV.UNIFORM(1, 5).

COMPUTE PAIdentityraw = RV.UNIFORM(1, 5).

\* End the loop and generate the data.

END CASE. END LOOP. END FILE. END INPUT PROGRAM.

\* Assign labels to the response options.

VALUE LABELS PAIntentionsraw PABehavioursraw 1 "0 days" 2 "1 day" 3 "2 days" 4 "3 days" 5 "4 days" 6 "5 days" 7 "6 days" 8 "7 days".

VALUE LABELS PAHabitraw PAIdentityraw 1 "Strongly Disagree" 2 "Disagree" 3 "Neither Agree nor Disagree" 4 "Agree" 5 "Strongly Agree".

\* Display the first few rows of the data.

DISPLAY /VARIABLES = PAIntentionsraw PABehavioursraw PAHabitraw PAIdentityraw.

\* Convert variables to numbers

RECODE PAIntentionsraw ('0 days'=0) ('1 day'=1) ('2 days'=2) ('3 days'=3) ('4 days'=4) ('5 '+  
    'days'=5) ('6 days'=6) ('7 days'=7) INTO PAIntentionNumbers.  
EXECUTE.  
RECODE PABehavioursraw ('0 days'=0) ('1 day'=1) ('2 days'=2) ('3 days'=3) ('4 days'=4)  
    ('5 days'=5) ('6 days'=6) ('7 days'=7) INTO PABehaviourNumbers.  
EXECUTE.  
RECODE PAHabitraw Automatically ('Strongly disagree'=5) ('Disagree'=4) ('Neither agree '+  
    'nor disagree'=3) ('Agree'=2) ('Strongly agree'=1) INTO Habit.  
EXECUTE.  
RECODE PAIdentityraw ('Strongly disagree'=5) ('Disagree'=4) ('Neither agree nor '+  
    'disagree'=3) ('Agree'=2) ('Strongly agree'=1) INTO Identity.  
EXECUTE.

\* Check for outliers

EXAMINE VARIABLES=PAIntentionNumbers PABehaviourNumbers Identity Habit  
  /PLOT BOXPLOT STEMLEAF  
  /COMPARE GROUPS  
  /STATISTICS DESCRIPTIVES EXTREME  
  /CINTERVAL 95  
  /MISSING LISTWISE  
  /NOTOTAL.

\* Recode outliers

\* Check for outliers again

EXAMINE VARIABLES=PAIntentionNumbers PABehaviourNumbers Identity Habit  
  /PLOT BOXPLOT STEMLEAF  
  /COMPARE GROUPS  
  /STATISTICS DESCRIPTIVES EXTREME  
  /CINTERVAL 95  
  /MISSING LISTWISE  
  /NOTOTAL.

\* Re-code PA Intentions, Behaviours, Habits, Identities to Low = 0 and High = 1

RECODE PAIntentionNumbers (Lowest thru 2=0) (3 thru Highest=1) INTO PAIntentions.  
EXECUTE.  
RECODE PABehaviourNumbers (Lowest thru 2=0) (3 thru Highest=1) INTO PABehaviours.  
EXECUTE.  
RECODE Habit (Lowest thru 2.50=1) (2.75 thru Highest=0) INTO PAHabit.  
EXECUTE.

\* Create the following 8 profiles

* 1. Non-Intenders – both low
  2. Unsuccessful Adopters – both low
  3. Successful Adopters – both low
  4. Successful Maintainers – either high
  5. Non-Intenders – either high
  6. Unsuccessful Non-Intenders – both low
  7. Unsuccessful Non-Intenders – either high
  8. Unsuccessful Adopters – either high

\* Compute Nonintenders\_BothLow only if conditions are met.

DO IF (NOT SYSMIS(PAIntentions) AND NOT SYSMIS(PABehaviours) AND

(NOT SYSMIS(PAIdentity) OR NOT SYSMIS(PAHabit))).

COMPUTE Nonintenders\_BothLow = (PAIntentions = 0 AND PABehaviours = 0 AND

PAIdentity = 0 AND PAHabit = 0).

ELSE.

COMPUTE Nonintenders\_BothLow = $SYSMIS.

END IF.

\* Compute UnsuccessfulAdopters\_BothLow only if conditions are met.

DO IF (NOT SYSMIS(PAIntentions) AND NOT SYSMIS(PABehaviours) AND

(NOT SYSMIS(PAIdentity) OR NOT SYSMIS(PAHabit))).

COMPUTE UnsuccessfulAdopters\_BothLow = (PAIntentions = 1 AND PABehaviours = 0 AND

PAIdentity = 0 AND PAHabit = 0).

ELSE.

COMPUTE UnsuccessfulAdopters\_BothLow = $SYSMIS.

END IF.

\* Compute SuccessfulAdopters\_BothLow only if conditions are met.

DO IF (NOT SYSMIS(PAIntentions) AND NOT SYSMIS(PABehaviours) AND

(NOT SYSMIS(PAIdentity) OR NOT SYSMIS(PAHabit))).

COMPUTE SuccessfulAdopters\_BothLow = (PAIntentions = 1 AND PABehaviours = 1 AND

PAIdentity = 0 AND PAHabit = 0).

ELSE.

COMPUTE SuccessfulAdopters\_BothLow = $SYSMIS.

END IF.

\* Compute SuccessfulMaintainers\_EitherHigh only if conditions are met.

DO IF (NOT SYSMIS(PAIntentions) AND NOT SYSMIS(PABehaviours) AND

(NOT SYSMIS(PAIdentity) OR NOT SYSMIS(PAHabit))).

COMPUTE SuccessfulMaintainers\_EitherHigh = (PAIntentions = 1 AND PABehaviours = 1 AND (PAIdentity = 1 OR PAHabit = 1)).

ELSE.

COMPUTE SuccessfulMaintainers\_EitherHigh = $SYSMIS.

END IF.

\* Compute Nonintenders\_EitherHigh only if conditions are met.

DO IF (NOT SYSMIS(PAIntentions) AND NOT SYSMIS(PABehaviours) AND

(NOT SYSMIS(PAIdentity) OR NOT SYSMIS(PAHabit))).

COMPUTE Nonintenders\_EitherHigh = (PAIntentions = 0 AND PABehaviours = 0 AND

(PAIdentity = 1 OR PAHabit = 1)).

ELSE.

COMPUTE Nonintenders\_EitherHigh = $SYSMIS.

END IF.

\* Compute UnsuccessfulNonintenders\_BothLow only if conditions are met.

DO IF (NOT SYSMIS(PAIntentions) AND NOT SYSMIS(PABehaviours) AND

(NOT SYSMIS(PAIdentity) OR NOT SYSMIS(PAHabit))).

COMPUTE UnsuccessfulNonintenders\_BothLow = (PAIntentions = 0 AND PABehaviours = 1 AND

PAIdentity = 0 AND PAHabit = 0).

ELSE.

COMPUTE UnsuccessfulNonintenders\_BothLow = $SYSMIS.

END IF.

\* Compute UnsuccessfulNonintenders\_EitherHigh only if conditions are met.

DO IF (NOT SYSMIS(PAIntentions) AND NOT SYSMIS(PABehaviours) AND

(NOT SYSMIS(PAIdentity) OR NOT SYSMIS(PAHabit))).

COMPUTE UnsuccessfulNonintenders\_EitherHigh = (PAIntentions = 0 AND PABehaviours = 1 AND

(PAIdentity = 1 OR PAHabit = 1)).

ELSE.

COMPUTE UnsuccessfulNonintenders\_EitherHigh= $SYSMIS.

END IF.

\* Compute UnsuccessfulAdopters\_EitherHigh only if conditions are met.

DO IF (NOT SYSMIS(PAIntentions) AND NOT SYSMIS(PABehaviours) AND

(NOT SYSMIS(PAIdentity) OR NOT SYSMIS(PAHabit))).

COMPUTE UnsuccessfulAdopters\_EitherHigh = (PAIntentions = 1 AND PABehaviours = 0 AND

(PAIdentity = 1 OR PAHabit = 1)).

ELSE.

COMPUTE UnsuccessfulAdopters\_EitherHigh = $SYSMIS.

END IF.

EXECUTE.

\* Integrate the profiles into one variable

COMPUTE Overall\_Profile=(Nonintenders\_BothLow\*1) + (UnsuccessfulAdopters\_BothLow\*2) + (SuccessfulAdopters\_BothLow\*3) + (SuccessfulMaintainers\_EitherHigh\*4) +  
   (Nonintenders\_EitherHigh\*5) + (UnsuccessfulNonintenders\_BothLow\*6) +  
    (UnsuccessfulNonintenders\_EitherHigh\*7) + (UnsuccessfulAdopters\_EitherHigh\*8).  
EXECUTE.

\* Add labels to the profile variable

VALUE LABELS Overall\_Profile

1 'NonIntenders\_BothLow'

2 'UnsuccessfulAdopters\_BothLow'

3 'SuccessfulAdopters\_BothLow'

4 'SuccessfulMaintainers\_EitherHigh'

5 'NonIntenders\_ EitherHigh '

6 'UnsuccessfulNonIntenders\_BothLow'

7 'UnsuccessfulNonIntenders\_ EitherHigh '

8 'UnsuccessfulAdopters\_EitherHigh '

\* Calculate frequencies of the profile variable

FREQUENCIES Overall\_Profile.