The domain-specificity of self-compassion: A nomological validation study of the Self-Compassion Scale

Supplementary material

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# Characteristics of the study population at the time of the survey completion

|  | Rescue workers | Community sample |
| --- | --- | --- |
| Age | 39.5 (13.4) | 37.966 (15.476) |
| Proportion females | 0.47 | 0.58 |
| Education (years) | 14.2 (2.79) | 13.5 (2.14) |
| Average rate of activity (weeks) | 0.915 (0.573) | – |
| Last training (months) | 8.24 (5.98) | – |

# Sample size estimation

To estimate the minimum required sample size for the current study, we used Monte Carlo simulation (Wang and Wang 2019). Results of Monte Carlo simulations allow to examine parameter estimate precision and also to determine the sample size needed to ensure large enough statistical power (e.g.  .80). The Mplus syntax for the Monte Carlo simulation using the nn2 model is reported below.

TITLE: Monte Carlo simulation for testing regression coefficients of SEM model nn2.  
MONTECARLO:   
 NAMES = P1-P3 N1-N3   
 COPE1-COPE2  
 MSPSS1-MSPSS3  
 NEURO1-NEURO2  
 EXTRA1-EXTRA3  
 PTGI1-PTGI5  
 IESR1-IESR3  
 ;  
NOBSERVATIONS = 300; ! 200 400 500 600 700 800 1000  
NREPS = 10000;  
SEED = 12345;  
MODEL POPULATION:  
 [  
 P1-P3@0   
 N1-N3@0  
 COPE1-COPE2@0  
 MSPSS1-MSPSS3@0  
 NEURO1-NEURO2@0  
 EXTRA1-EXTRA3@0  
 PTGI1-PTGI5@0  
 IESR1-IESR3@0  
 ];  
   
P BY P1-P3@.72;  
P@1;  
P1-P3@.4816;  
  
N BY N1-N3@.84;  
N@1;  
N1-N3@.2944;  
  
COPE BY COPE1-COPE2@.71;  
COPE@1;  
COPE1-COPE2@.36;  
  
MSPSS BY MSPSS1-MSPSS3@.7;  
MSPSS@1;  
MSPSS1-MSPSS3@.4959;  
  
NEURO BY NEURO1-NEURO2@.8;  
NEURO@1;  
NEURO1-NEURO2@.36;  
  
EXTRA BY EXTRA1-EXTRA3@.67;  
EXTRA@1;  
EXTRA1-EXTRA3@.5511;  
  
PTGI BY PTGI1-PTGI5@.79;  
PTGI@1;  
PTGI1-PTGI5@.3759;  
  
IESR BY IESR1-IESR3@.85;  
IESR@1;  
IESR1-IESR3@.2775;  
  
P ON COPE@.58 MSPSS@.04 NEURO@-.34 EXTRA@-.08;  
N ON COPE@.18 MSPSS@-.03 NEURO@.92 EXTRA@.06;  
  
PTGI ON P@.19 N@.05 COPE@.07 MSPSS@.04 NEURO@.33 EXTRA@.41;  
IESR ON P@.07 N@.46 COPE@-.02 MSPSS@-.05 NEURO@.29 EXTRA@.33;  
  
IESR WITH PTGI@.23;  
MSPSS WITH COPE@.25;  
NEURO WITH COPE@-.31;  
NEURO WITH MSPSS@-.25;  
EXTRA WITH COPE@.31;  
EXTRA WITH MSPSS@.46;  
EXTRA WITH NEURO@-.66;  
  
MODEL:  
 [  
 P1-P3\*0   
 N1-N3\*0  
 COPE1-COPE2\*0  
 MSPSS1-MSPSS3\*0  
 NEURO1-NEURO2\*0  
 EXTRA1-EXTRA3\*0  
 PTGI1-PTGI5\*0  
 IESR1-IESR3\*0  
 ];  
   
P BY P1-P3\*.72;  
P@1;  
P1-P3\*.4816;  
  
N BY N1-N3\*.84;  
N@1;  
N1-N3\*.2944;  
  
COPE BY COPE1-COPE2\*.71;  
COPE@1;  
COPE1-COPE2\*.36;  
  
MSPSS BY MSPSS1-MSPSS3\*.7;  
MSPSS@1;  
MSPSS1-MSPSS3\*.4959;  
  
NEURO BY NEURO1-NEURO2\*.8;  
NEURO@1;  
NEURO1-NEURO2\*.36;  
  
EXTRA BY EXTRA1-EXTRA3\*.67;  
EXTRA@1;  
EXTRA1-EXTRA3\*.5511;  
  
PTGI BY PTGI1-PTGI5\*.79;  
PTGI@1;  
PTGI1-PTGI5\*.3759;  
  
IESR BY IESR1-IESR3\*.85;  
IESR@1;  
IESR1-IESR3\*.2775;  
  
P ON COPE\*.58 MSPSS\*.04 NEURO\*-.34 EXTRA\*-.08;  
N ON COPE\*.18 MSPSS\*-.03 NEURO\*.92 EXTRA\*.06;  
  
PTGI ON P\*.19 N@.05 COPE\*.07 MSPSS\*.04 NEURO\*.33 EXTRA\*.41;  
IESR ON P\*.07 N\*.46 COPE\*-.02 MSPSS\*-.05 NEURO\*.29 EXTRA\*.33;  
  
IESR WITH PTGI\*.23;  
MSPSS WITH COPE\*.25;  
NEURO WITH COPE\*-.31;  
NEURO WITH MSPSS\*-.25;  
EXTRA WITH COPE\*.31;  
EXTRA WITH MSPSS\*.46;  
EXTRA WITH NEURO\*-.66;  
  
OUTPUT: TECH9;

In the simulation, we estimated the sample size that ensures enough power to reject the null hypothesis (i.e. hypothesized zero regression coefficient between the latent variable PTGI and the latent variable identified by the SK, CH, and MI subscales of the SCS) and (i.e. hypothesized zero regression coefficient between the latent variable IESR and the latent variable identified by the SJ, IS, and OI subscales of the SCS). The parameters values used in the simulation are similar to those obtained in the observed sample.

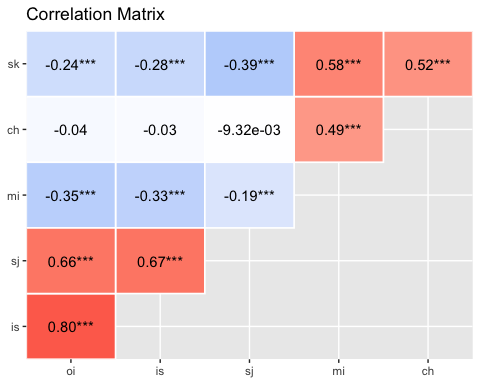
The Mplus program reported above was run repeatedly with various sample sizes ranging from N = 300 to N = 1000, and the estimated statistical powers for testing the regression coefficients and are shown in Table XX.

**TODO** Considering the previously proposed SEM model, the minimum sample size would range between 249 and 278 to have 90% power to reject the hypothesis of not-close fit (RMSEA ≥ 0.05) at a 5% level of significance (88). Given that ESEM models have fewer degrees of freedom, slightly larger sample sizes are required for these models.

# Data screening, cleaning, and preparation

The data was screened for careless responding and for outliers. Careless responding (Ward and Meade 2022) was addressed, by considering the complete item set for all scales, by computing (1) the longest string of identical consecutive responses for each observation, (2) the the average string of identical consecutive responses for each observation, (3) the psychometric antonyms (i.e., item pairs which are correlated highly negatively), (4) the intra-individual response variability (i.e., the standard deviation of responses across a set of consecutive item responses for an individual), (5) the person-total correlation, and (6) the Mahalanobis distance. Careless response indices were obtained with the functions of the careless R package (Yentes and Wilhelm 2021). Latent class analysis on the obtained careless response indices as indicators was then used to identify the groups of participants that were characterized by high levels on the careless response indices (Meade and Craig 2012). In this manner, 52 participants were selected and removed from the overall dataset. The data-gathering procedure ensured that there were no missing values. Therefore, the final sample used for the study was *N* = 1068.

# Self Compassion Scale



**Figure** **1:** Correlation matrix for the six subscales of the Self-Compassion Scals. sk = Self kindness; ch = Common humanity; mi = Mindfulness; sj = Self judgment; is = Isolation; oi = Over-identification.

## The factor structure of the SCS

To determine the structure of the SCS for the present data, we replicated the statistical analyses described by Neff et al. (2019). We used both traditional confirmatory factor analysis (CFA) models and Exploratory Structural Equation Modeling [ESEM; Asparouhov and Muthén (2009)]. The ESEM strategy is used for modeling multidimensional constructs comprising a certain overlap between the hypothesized theoretical dimensions. In such circumstances, ESEM overcomes the limitation stemming from the fact that the zero cross-loading specification assumed by traditional CFA can be too rigid (see also Neff et al. 2019). All items from the Self-judgment, Isolation, and Over-identification subscales were reverse-coded before analyses.

## Mplus syntax

**Model m1a**

USEVARIABLES ARE  
 scsj1 scoi2 scch3 scis4 scsk5 scoi6 scch7 scsj8 scmi9 scch10 scsj11 scsk12  
 scis13 scmi14 scch15 scsj16 scmi17 scis18 scsk19 scoi20 scsj21 scmi22 scsk23  
 scoi24 scis25 scsk26;  
  
CATEGORICAL ARE all;  
  
ANALYSIS:  
ESTIMATOR = WLSMV;  
  
MODEL:  
  
SC BY  
 scsk5\* scsk12 scsk19 scsk23 scsk26 scsj1 scsj8 scsj11 scsj16 scsj21 scch3   
 scch7 scch10 scch15 scis4 scis13 scis18 scis25 scmi9 scmi14 scmi17 scmi22  
 scoi2 scoi6 scoi20 scoi24;  
  
SC@1;

**Model m1b**

MODEL:  
  
SC BY  
 scsk5 scsk12 scsk19 scsk23 scsk26 scsj1 scsj8 scsj11 scsj16 scsj21 scch3   
 scch7 scch10 scch15 scis4 scis13 scis18 scis25  
 scmi9 scmi14 scmi17 scmi22 scoi2 scoi6 scoi20 scoi24 (\*1);  
  
SC@1;

**Model m2a**

MODEL:  
  
pos BY   
 scsk5\* scsk12 scsk19 scsk23 scsk26 scch3 scch7 scch10 scch15  
 scmi9 scmi14 scmi17 scmi22;  
  
neg BY   
 scsj1\* scsj8 scsj11 scsj16 scsj21 scis4 scis13 scis18 scis25  
 scoi2 scoi6 scoi20 scoi24;  
  
pos@1; neg@1;

**Model m2b**

MODEL:  
  
pos BY   
 scsk5 scsk12 scsk19 scsk23 scsk26 scsj1~0 scsj8~0 scsj11~0 scsj16~0   
 scsj21~0 scch3 scch7 scch10 scch15 scis4~0 scis13~0 scis18~0 scis25~0  
 scmi9 scmi14 scmi17 scmi22 scoi2~0 scoi6~0 scoi20~0 scoi24~0 (\*1);  
  
neg BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1 scsj8 scsj11 scsj16   
 scsj21 scch3~0 scch7~0 scch10~0 scch15~0 scis4 scis13 scis18 scis25  
 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2 scoi6 scoi20 scoi24 (\*1);

**Model m3a**

MODEL:  
  
sk BY   
scsk5\* scsk12 scsk19 scsk23 scsk26;  
  
sj BY   
scsj1\* scsj8 scsj11 scsj16 scsj21;  
  
ch BY   
scch3\* scch7 scch10 scch15;  
  
is BY   
scis4\* scis13 scis18 scis25;  
  
mi BY   
scmi9\* scmi14 scmi17 scmi22;  
  
oi BY   
scoi2\* scoi6 scoi20 scoi24;  
  
sj@1; oi@1; ch@1; sk@1; mi@1; is@1;

**Model m3b**

MODEL:  
  
sk BY   
 scsk5 scsk12 scsk19 scsk23 scsk26 scsj1~0 scsj8~0 scsj11~0 scsj16~0   
 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0 scis18~0   
 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
sj BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1 scsj8 scsj11 scsj16   
 scsj21 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0 scis18~0   
 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
ch BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0 scsj11~0   
 scsj16~0 scsj21~0 scch3 scch7 scch10 scch15 scis4~0 scis13~0 scis18~0   
 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
is BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0 scsj11~0   
 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4 scis13 scis18   
 scis25 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
mi BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0 scsj11~0   
 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0   
 scis18~0 scis25~0 scmi9 scmi14 scmi17 scmi22 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
oi BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0 scsj11~0   
 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0   
 scis18~0 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2 scoi6   
 scoi20 scoi24 (\*1);

**Model m4a**

MODEL:  
  
sc BY   
 scsk5\* scsk12 scsk19 scsk23 scsk26 scsj1 scsj8 scsj11 scsj16 scsj21   
 scch3 scch7 scch10 scch15 scis4 scis13 scis18 scis25 scmi9 scmi14   
 scmi17 scmi22 scoi2 scoi6 scoi20 scoi24;  
   
sk BY   
 scsk5\* scsk12 scsk19 scsk23 scsk26;   
  
sj BY   
 scsj1\* scsj8 scsj11 scsj16 scsj21;  
   
ch BY   
 scch3\* scch7 scch10 scch15;  
   
is BY   
 scis4\* scis13 scis18 scis25;  
   
mi BY   
 scmi9\* scmi14 scmi17 scmi22;   
  
oi BY   
 scoi2\* scoi6 scoi20 scoi24;  
   
sc@1; sj@1; oi@1; ch@1; sk@1; mi@1; is@1;  
  
sc WITH sk-oi@0;   
sk WITH sj-oi@0;   
sj WITH ch-oi@0;   
ch WITH is-oi@0;   
is WITH mi-oi@0;   
mi WITH oi@0;

**Model m4b**

MODEL:  
  
sc BY   
 scsk5 scsk12 scsk19 scsk23 scsk26 scsj1 scsj8 scsj11 scsj16  
 scsj21 scch3 scch7 scch10 scch15 scis4 scis13 scis18 scis25   
 scmi9 scmi14 scmi17 scmi22 scoi2 scoi6 scoi20 scoi24 (\*1);  
  
sk BY   
 scsk5 scsk12 scsk19 scsk23 scsk26 scsj1~0 scsj8~0 scsj11~0 scsj16~0   
 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0 scis18~0   
 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
sj BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1 scsj8 scsj11   
 scsj16 scsj21 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0   
 scis18~0 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0   
 scoi20~0 scoi24~0 (\*1);  
  
ch BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0 scsj11~0   
 scsj16~0 scsj21~0 scch3 scch7 scch10 scch15 scis4~0 scis13~0 scis18~0   
 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
is BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0   
 scsj11~0 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0  
 scis4 scis13 scis18 scis25 scmi9~0 scmi14~0 scmi17~0 scmi22~0  
 scoi2~0 scoi6~0 scoi20~0 scoi24~0 (\*1);  
  
mi BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0   
 scsj11~0 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0   
 scis13~0 scis18~0 scis25~0 scmi9 scmi14 scmi17 scmi22 scoi2~0 scoi6~0   
 scoi20~0 scoi24~0 (\*1);  
  
oi BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0 scsj11~0   
 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0   
 scis18~0 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2 scoi6   
 scoi20 scoi24 (\*1);

**Model m5a**

MODEL:  
  
po BY   
 scsk5\* scsk12 scsk19 scsk23 scsk26 scch3 scch7 scch10 scch15 scmi9   
 scmi14 scmi17 scmi22;  
  
ne BY   
 scsj1\* scsj8 scsj11 scsj16 scsj21 scis4 scis13 scis18 scis25 scoi2   
 scoi6 scoi20 scoi24;  
  
sk BY   
 scsk5\* scsk12 scsk19 scsk23 scsk26;   
   
sj BY   
 scsj1\* scsj8 scsj11 scsj16 scsj21;  
   
ch BY   
 scch3\* scch7 scch10 scch15;  
   
is BY   
 scis4\* scis13 scis18 scis25;  
   
mi BY   
 scmi9\* scmi14 scmi17 scmi22;   
  
oi BY   
 scoi2\* scoi6 scoi20 scoi24;  
  
po@1;   
ne@1;   
sj@1;   
oi@1;   
ch@1;   
sk@1;   
mi@1;   
is@1;  
  
po WITH sk-oi@0;   
ne WITH sk-oi@0;   
sk WITH sj-oi@0;   
sj WITH ch-oi@0;   
ch WITH is-oi@0;   
is WITH mi-oi@0;   
mi WITH oi@0;

**Model m5b**

MODEL:  
  
sk BY   
 scsk5 scsk12 scsk19 scsk23 scsk26 scsj1~0 scsj8~0 scsj11~0 scsj16~0   
 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0 scis18~0   
 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
sj BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1 scsj8 scsj11   
 scsj16 scsj21 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0   
 scis18~0 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0   
 scoi20~0 scoi24~0 (\*1);  
  
ch BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0 scsj11~0   
 scsj16~0 scsj21~0 scch3 scch7 scch10 scch15 scis4~0 scis13~0 scis18~0   
 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2~0 scoi6~0 scoi20~0   
 scoi24~0 (\*1);  
  
is BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0   
 scsj11~0 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0  
 scis4 scis13 scis18 scis25 scmi9~0 scmi14~0 scmi17~0 scmi22~0  
 scoi2~0 scoi6~0 scoi20~0 scoi24~0 (\*1);  
  
mi BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0   
 scsj11~0 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0   
 scis13~0 scis18~0 scis25~0 scmi9 scmi14 scmi17 scmi22 scoi2~0 scoi6~0   
 scoi20~0 scoi24~0 (\*1);  
  
oi BY   
 scsk5~0 scsk12~0 scsk19~0 scsk23~0 scsk26~0 scsj1~0 scsj8~0 scsj11~0   
 scsj16~0 scsj21~0 scch3~0 scch7~0 scch10~0 scch15~0 scis4~0 scis13~0   
 scis18~0 scis25~0 scmi9~0 scmi14~0 scmi17~0 scmi22~0 scoi2 scoi6   
 scoi20 scoi24 (\*1);  
   
po BY   
 scsk5\* scsk12 scsk19 scsk23 scsk26 scch3 scch7 scch10 scch15  
 scmi9 scmi14 scmi17 scmi22;  
  
ne BY   
 scsj1\* scsj8 scsj11 scsj16 scsj21 scis4 scis13 scis18 scis25  
 scoi2 scoi6 scoi20 scoi24;  
  
po@1;   
ne@1;  
po WITH sk-oi@0;   
ne WITH sk-oi@0;

## Preliminary CFA and ESEM analyses

We started with the unidimensional CFA model (**m1a** – or the equivalent unidimensional ESEM model, **m1b**), which clearly proved inadequate, CFI = 0.649, TLI = 0.618, RMSEA = 0.18 [90% CI 0.178-0.183], SRMR = 0.149. Then we examined all the factor structures discussed by Neff et al. (2019). The examined models, together with their fit indices, are listed below.

* **Model m2a: Two-factor CFA** for the positive and the negative components of SC, CFI = 0.846, TLI = 0.832, RMSEA = 0.12 [90% CI 0.117-0.123], SRMR = 0.088.
* **Model m2b: Two-factor ESEM**, CFI = 0.847, TLI = 0.818, RMSEA = 0.125 [90% CI 0.121-0.128], SRMR = 0.059.
* **Model m3a: Six-factor CFA**, CFI = 0.903, TLI = 0.889, RMSEA = 0.098 [90% CI 0.094-0.101], SRMR = 0.067.
* **Model m3b: Six-factor ESEM**, CFI = 0.983, TLI = 0.97, RMSEA = 0.051 [90% CI 0.047-0.055], SRMR = 0.016.
* **Model m4a: Bifactor-CFA (1 G- and 6 S-factors)**, CFI = 0.789, TLI = 0.749, RMSEA = 0.146 [90% CI 0.143-0.149], SRMR = 0.111.
* **Model m4b: Bifactor-ESEM (1 G- and 6 S-factors)**, CFI = 0.987, TLI = 0.975, RMSEA = 0.046 [90% CI 0.042-0.051], SRMR = 0.014.
* **Model m5a: Two-bifactor (two-tier) CFA model (2 G- and 6 S-factors)**, CFI = 0.917, TLI = 0.901, RMSEA = 0.092 [90% CI 0.089-0.095], SRMR = 0.07.
* **Model m5b: Two-bifactor (two-tier) ESEM model (2 G- and 6 S-factors)**, CFI = 0.99, TLI = 0.978, RMSEA = 0.043 [90% CI 0.038-0.047], SRMR = 0.013.

For the two-factor CFA, the correlation between the two components of self-compassion was -0.381. For the two-factor ESEM, the correlation between the two components of self-compassion was -0.296. For the 6-factor CFA, the correlations between the common factors ranged between -0.493 and 0.946. For the 6-factor ESEM, the correlations between the common factors ranged between -0.382 and 0.622. For the two-bifactor (two-tier) CFA model (2 G- and 6 S-factors), the correlation between the two components of self-compassion was -0.434. For the two-bifactor (two-tier) ESEM model (2 G- and 6 S-factors), the correlation between the two components of self-compassion was 0.476.

Consistent with Neff et al. (2019), the bifactor ESEM models – Models 4b and 5b in Neff et al. (2019) – show the best goodness-of-fit indices.

# Nomological validation

**Parameter estimates of model nn4b**

## paramHeader param est se est\_se pval Group  
## 1 SC.BY SCSK5 0.627 0.062 10.185 0.000 RW  
## 2 SC.BY SCSK12 0.638 0.060 10.569 0.000 RW  
## 3 SC.BY SCSK19 0.703 0.053 13.362 0.000 RW  
## 4 SC.BY SCSK23 0.844 0.065 12.887 0.000 RW  
## 5 SC.BY SCSK26 0.796 0.039 20.177 0.000 RW  
## 6 SC.BY SCSJ1 -0.251 0.091 -2.769 0.006 RW  
## 7 SC.BY SCSJ8 -0.201 0.100 -2.017 0.044 RW  
## 8 SC.BY SCSJ11 -0.286 0.104 -2.753 0.006 RW  
## 9 SC.BY SCSJ16 -0.278 0.119 -2.332 0.020 RW  
## 10 SC.BY SCSJ21 -0.169 0.077 -2.187 0.029 RW  
## 11 SC.BY SCCH3 0.235 0.091 2.590 0.010 RW  
## 12 SC.BY SCCH7 0.385 0.065 5.906 0.000 RW  
## 13 SC.BY SCCH10 0.419 0.062 6.797 0.000 RW  
## 14 SC.BY SCCH15 0.601 0.047 12.811 0.000 RW  
## 15 SC.BY SCIS4 -0.169 0.083 -2.042 0.041 RW  
## 16 SC.BY SCIS13 -0.052 0.076 -0.683 0.495 RW  
## 17 SC.BY SCIS18 -0.044 0.090 -0.493 0.622 RW  
## 18 SC.BY SCIS25 -0.141 0.086 -1.632 0.103 RW  
## 19 SC.BY SCMI9 0.197 0.069 2.838 0.005 RW  
## 20 SC.BY SCMI14 0.235 0.062 3.813 0.000 RW  
## 21 SC.BY SCMI17 0.460 0.050 9.265 0.000 RW  
## 22 SC.BY SCMI22 0.613 0.040 15.516 0.000 RW  
## 23 SC.BY SCOI2 -0.168 0.085 -1.977 0.048 RW  
## 24 SC.BY SCOI6 -0.174 0.094 -1.850 0.064 RW  
## 25 SC.BY SCOI20 0.131 0.080 1.638 0.101 RW  
## 26 SC.BY SCOI24 -0.005 0.074 -0.072 0.942 RW  
## 27 SK.BY SCSK5 0.395 0.068 5.846 0.000 RW  
## 28 SK.BY SCSK12 0.491 0.059 8.290 0.000 RW  
## 29 SK.BY SCSK19 0.413 0.071 5.860 0.000 RW  
## 30 SK.BY SCSK23 -0.244 0.089 -2.742 0.006 RW  
## 31 SK.BY SCSK26 -0.052 0.067 -0.776 0.438 RW  
## 32 SK.BY SCSJ1 0.095 0.036 2.624 0.009 RW  
## 33 SK.BY SCSJ8 -0.070 0.026 -2.718 0.007 RW  
## 34 SK.BY SCSJ11 0.087 0.029 2.967 0.003 RW  
## 35 SK.BY SCSJ16 0.079 0.043 1.838 0.066 RW  
## 36 SK.BY SCSJ21 -0.138 0.038 -3.673 0.000 RW  
## 37 SK.BY SCCH3 0.015 0.053 0.277 0.782 RW  
## 38 SK.BY SCCH7 0.079 0.029 2.752 0.006 RW  
## 39 SK.BY SCCH10 0.036 0.032 1.113 0.266 RW  
## 40 SK.BY SCCH15 -0.086 0.041 -2.112 0.035 RW  
## 41 SK.BY SCIS4 -0.004 0.035 -0.107 0.914 RW  
## 42 SK.BY SCIS13 0.010 0.026 0.389 0.697 RW  
## 43 SK.BY SCIS18 0.018 0.027 0.674 0.500 RW  
## 44 SK.BY SCIS25 0.039 0.031 1.236 0.216 RW  
## 45 SK.BY SCMI9 0.034 0.039 0.881 0.378 RW  
## 46 SK.BY SCMI14 0.021 0.032 0.642 0.521 RW  
## 47 SK.BY SCMI17 -0.031 0.035 -0.889 0.374 RW  
## 48 SK.BY SCMI22 0.087 0.049 1.759 0.079 RW  
## 49 SK.BY SCOI2 0.027 0.029 0.912 0.362 RW  
## 50 SK.BY SCOI6 0.066 0.032 2.062 0.039 RW  
## 51 SK.BY SCOI20 0.077 0.045 1.719 0.086 RW  
## 52 SK.BY SCOI24 0.060 0.036 1.660 0.097 RW  
## 53 SJ.BY SCSK5 0.011 0.050 0.214 0.831 RW  
## 54 SJ.BY SCSK12 0.027 0.039 0.684 0.494 RW  
## 55 SJ.BY SCSK19 -0.052 0.040 -1.311 0.190 RW  
## 56 SJ.BY SCSK23 -0.135 0.066 -2.047 0.041 RW  
## 57 SJ.BY SCSK26 -0.100 0.056 -1.775 0.076 RW  
## 58 SJ.BY SCSJ1 0.472 0.053 8.979 0.000 RW  
## 59 SJ.BY SCSJ8 0.657 0.079 8.361 0.000 RW  
## 60 SJ.BY SCSJ11 0.505 0.054 9.371 0.000 RW  
## 61 SJ.BY SCSJ16 0.575 0.075 7.626 0.000 RW  
## 62 SJ.BY SCSJ21 0.434 0.072 6.036 0.000 RW  
## 63 SJ.BY SCCH3 0.045 0.087 0.519 0.604 RW  
## 64 SJ.BY SCCH7 0.099 0.033 3.054 0.002 RW  
## 65 SJ.BY SCCH10 0.164 0.043 3.791 0.000 RW  
## 66 SJ.BY SCCH15 0.036 0.048 0.746 0.456 RW  
## 67 SJ.BY SCIS4 0.143 0.054 2.641 0.008 RW  
## 68 SJ.BY SCIS13 0.040 0.044 0.902 0.367 RW  
## 69 SJ.BY SCIS18 0.153 0.035 4.328 0.000 RW  
## 70 SJ.BY SCIS25 0.211 0.052 4.084 0.000 RW  
## 71 SJ.BY SCMI9 0.186 0.053 3.511 0.000 RW  
## 72 SJ.BY SCMI14 0.082 0.056 1.461 0.144 RW  
## 73 SJ.BY SCMI17 0.109 0.047 2.319 0.020 RW  
## 74 SJ.BY SCMI22 0.169 0.053 3.222 0.001 RW  
## 75 SJ.BY SCOI2 0.192 0.040 4.783 0.000 RW  
## 76 SJ.BY SCOI6 0.211 0.057 3.669 0.000 RW  
## 77 SJ.BY SCOI20 0.197 0.051 3.840 0.000 RW  
## 78 SJ.BY SCOI24 0.114 0.050 2.291 0.022 RW  
## 79 CH.BY SCSK5 0.089 0.039 2.273 0.023 RW  
## 80 CH.BY SCSK12 0.070 0.033 2.119 0.034 RW  
## 81 CH.BY SCSK19 -0.041 0.035 -1.188 0.235 RW  
## 82 CH.BY SCSK23 -0.070 0.032 -2.203 0.028 RW  
## 83 CH.BY SCSK26 0.033 0.034 0.991 0.322 RW  
## 84 CH.BY SCSJ1 0.082 0.035 2.377 0.017 RW  
## 85 CH.BY SCSJ8 0.055 0.033 1.655 0.098 RW  
## 86 CH.BY SCSJ11 0.135 0.032 4.218 0.000 RW  
## 87 CH.BY SCSJ16 0.036 0.041 0.882 0.378 RW  
## 88 CH.BY SCSJ21 0.041 0.041 1.016 0.309 RW  
## 89 CH.BY SCCH3 0.332 0.068 4.891 0.000 RW  
## 90 CH.BY SCCH7 0.639 0.048 13.201 0.000 RW  
## 91 CH.BY SCCH10 0.643 0.055 11.614 0.000 RW  
## 92 CH.BY SCCH15 0.243 0.045 5.438 0.000 RW  
## 93 CH.BY SCIS4 0.046 0.034 1.368 0.171 RW  
## 94 CH.BY SCIS13 0.038 0.028 1.327 0.184 RW  
## 95 CH.BY SCIS18 0.060 0.029 2.079 0.038 RW  
## 96 CH.BY SCIS25 -0.009 0.032 -0.271 0.786 RW  
## 97 CH.BY SCMI9 0.073 0.040 1.830 0.067 RW  
## 98 CH.BY SCMI14 0.013 0.036 0.359 0.720 RW  
## 99 CH.BY SCMI17 0.075 0.036 2.053 0.040 RW  
## 100 CH.BY SCMI22 0.101 0.040 2.514 0.012 RW  
## 101 CH.BY SCOI2 0.050 0.027 1.833 0.067 RW  
## 102 CH.BY SCOI6 0.039 0.034 1.121 0.262 RW  
## 103 CH.BY SCOI20 -0.058 0.043 -1.357 0.175 RW  
## 104 CH.BY SCOI24 0.016 0.038 0.423 0.672 RW  
## 105 IS.BY SCSK5 0.100 0.046 2.144 0.032 RW  
## 106 IS.BY SCSK12 -0.033 0.039 -0.858 0.391 RW  
## 107 IS.BY SCSK19 0.089 0.037 2.402 0.016 RW  
## 108 IS.BY SCSK23 0.038 0.054 0.701 0.483 RW  
## 109 IS.BY SCSK26 0.129 0.050 2.585 0.010 RW  
## 110 IS.BY SCSJ1 -0.005 0.056 -0.094 0.925 RW  
## 111 IS.BY SCSJ8 0.093 0.048 1.926 0.054 RW  
## 112 IS.BY SCSJ11 0.123 0.045 2.742 0.006 RW  
## 113 IS.BY SCSJ16 0.245 0.047 5.221 0.000 RW  
## 114 IS.BY SCSJ21 0.070 0.053 1.327 0.185 RW  
## 115 IS.BY SCCH3 -0.033 0.058 -0.576 0.564 RW  
## 116 IS.BY SCCH7 0.130 0.038 3.454 0.001 RW  
## 117 IS.BY SCCH10 0.027 0.041 0.656 0.512 RW  
## 118 IS.BY SCCH15 0.020 0.054 0.359 0.719 RW  
## 119 IS.BY SCIS4 0.306 0.059 5.214 0.000 RW  
## 120 IS.BY SCIS13 0.733 0.062 11.812 0.000 RW  
## 121 IS.BY SCIS18 0.793 0.066 12.053 0.000 RW  
## 122 IS.BY SCIS25 0.362 0.056 6.468 0.000 RW  
## 123 IS.BY SCMI9 0.107 0.053 2.033 0.042 RW  
## 124 IS.BY SCMI14 0.033 0.052 0.638 0.524 RW  
## 125 IS.BY SCMI17 -0.058 0.049 -1.185 0.236 RW  
## 126 IS.BY SCMI22 -0.128 0.057 -2.228 0.026 RW  
## 127 IS.BY SCOI2 0.166 0.050 3.296 0.001 RW  
## 128 IS.BY SCOI6 0.279 0.055 5.051 0.000 RW  
## 129 IS.BY SCOI20 0.249 0.049 5.066 0.000 RW  
## 130 IS.BY SCOI24 0.186 0.051 3.671 0.000 RW  
## 131 MI.BY SCSK5 -0.015 0.041 -0.358 0.720 RW  
## 132 MI.BY SCSK12 0.004 0.031 0.125 0.901 RW  
## 133 MI.BY SCSK19 0.057 0.030 1.932 0.053 RW  
## 134 MI.BY SCSK23 -0.022 0.041 -0.534 0.593 RW  
## 135 MI.BY SCSK26 0.012 0.038 0.310 0.756 RW  
## 136 MI.BY SCSJ1 0.157 0.041 3.863 0.000 RW  
## 137 MI.BY SCSJ8 -0.005 0.049 -0.095 0.924 RW  
## 138 MI.BY SCSJ11 0.080 0.032 2.482 0.013 RW  
## 139 MI.BY SCSJ16 0.008 0.049 0.162 0.871 RW  
## 140 MI.BY SCSJ21 0.104 0.058 1.795 0.073 RW  
## 141 MI.BY SCCH3 0.291 0.073 3.987 0.000 RW  
## 142 MI.BY SCCH7 -0.085 0.033 -2.577 0.010 RW  
## 143 MI.BY SCCH10 -0.001 0.037 -0.015 0.988 RW  
## 144 MI.BY SCCH15 0.199 0.044 4.521 0.000 RW  
## 145 MI.BY SCIS4 0.052 0.043 1.192 0.233 RW  
## 146 MI.BY SCIS13 0.002 0.033 0.056 0.955 RW  
## 147 MI.BY SCIS18 0.001 0.027 0.053 0.958 RW  
## 148 MI.BY SCIS25 0.026 0.038 0.680 0.496 RW  
## 149 MI.BY SCMI9 0.517 0.064 8.062 0.000 RW  
## 150 MI.BY SCMI14 0.647 0.058 11.234 0.000 RW  
## 151 MI.BY SCMI17 0.379 0.043 8.838 0.000 RW  
## 152 MI.BY SCMI22 0.079 0.049 1.622 0.105 RW  
## 153 MI.BY SCOI2 0.016 0.037 0.428 0.669 RW  
## 154 MI.BY SCOI6 0.072 0.041 1.741 0.082 RW  
## 155 MI.BY SCOI20 -0.267 0.042 -6.360 0.000 RW  
## 156 MI.BY SCOI24 -0.168 0.048 -3.514 0.000 RW  
## 157 OI.BY SCSK5 0.134 0.058 2.310 0.021 RW  
## 158 OI.BY SCSK12 0.125 0.044 2.827 0.005 RW  
## 159 OI.BY SCSK19 0.081 0.045 1.805 0.071 RW  
## 160 OI.BY SCSK23 0.084 0.077 1.093 0.275 RW  
## 161 OI.BY SCSK26 0.081 0.066 1.225 0.221 RW  
## 162 OI.BY SCSJ1 0.180 0.068 2.657 0.008 RW  
## 163 OI.BY SCSJ8 0.159 0.063 2.512 0.012 RW  
## 164 OI.BY SCSJ11 0.168 0.042 3.962 0.000 RW  
## 165 OI.BY SCSJ16 0.042 0.060 0.702 0.483 RW  
## 166 OI.BY SCSJ21 0.187 0.063 2.993 0.003 RW  
## 167 OI.BY SCCH3 0.188 0.076 2.465 0.014 RW  
## 168 OI.BY SCCH7 0.001 0.040 0.016 0.987 RW  
## 169 OI.BY SCCH10 -0.031 0.045 -0.678 0.498 RW  
## 170 OI.BY SCCH15 0.032 0.057 0.560 0.576 RW  
## 171 OI.BY SCIS4 0.467 0.063 7.430 0.000 RW  
## 172 OI.BY SCIS13 0.107 0.058 1.846 0.065 RW  
## 173 OI.BY SCIS18 0.038 0.048 0.805 0.421 RW  
## 174 OI.BY SCIS25 0.350 0.059 5.937 0.000 RW  
## 175 OI.BY SCMI9 -0.108 0.062 -1.731 0.083 RW  
## 176 OI.BY SCMI14 -0.156 0.071 -2.187 0.029 RW  
## 177 OI.BY SCMI17 -0.122 0.052 -2.369 0.018 RW  
## 178 OI.BY SCMI22 0.113 0.060 1.864 0.062 RW  
## 179 OI.BY SCOI2 0.592 0.071 8.383 0.000 RW  
## 180 OI.BY SCOI6 0.459 0.063 7.341 0.000 RW  
## 181 OI.BY SCOI20 0.426 0.061 6.980 0.000 RW  
## 182 OI.BY SCOI24 0.473 0.059 7.976 0.000 RW  
## 183 PTGI.BY PTGI\_AL 0.820 0.014 58.859 0.000 RW  
## 184 PTGI.BY PTGI\_NP 0.949 0.007 131.708 0.000 RW  
## 185 PTGI.BY PTGI\_PS 0.786 0.016 49.387 0.000 RW  
## 186 PTGI.BY PTGI\_SP 0.514 0.023 22.708 0.000 RW  
## 187 PTGI.BY PTGI\_RO 0.863 0.015 58.002 0.000 RW  
## 188 IESR.BY IESR\_A 0.789 0.019 42.110 0.000 RW  
## 189 IESR.BY IESR\_I 0.851 0.020 42.683 0.000 RW  
## 190 IESR.BY IESR\_H 0.893 0.013 70.330 0.000 RW  
## 191 COPE.BY COPE\_PA 0.653 0.038 17.118 0.000 RW  
## 192 COPE.BY COPE\_PO 0.760 0.038 19.944 0.000 RW  
## 193 NEURO.BY NEURO\_NA 0.730 0.020 37.120 0.000 RW  
## 194 NEURO.BY NEURO\_SR 0.885 0.018 49.510 0.000 RW  
## 195 EXTRA.BY EXTRA\_PA 0.578 0.040 14.496 0.000 RW  
## 196 EXTRA.BY EXTRA\_SO 0.746 0.027 27.898 0.000 RW  
## 197 EXTRA.BY EXTRA\_AC 0.644 0.028 22.836 0.000 RW  
## 198 SC.ON COPE 0.313 0.065 4.813 0.000 RW  
## 199 SC.ON NEURO -0.361 0.096 -3.743 0.000 RW  
## 200 SC.ON EXTRA 0.080 0.069 1.160 0.246 RW  
## 201 SK.ON COPE 0.024 0.105 0.232 0.816 RW  
## 202 SK.ON NEURO 0.005 0.146 0.031 0.975 RW  
## 203 SK.ON EXTRA 0.208 0.106 1.974 0.048 RW  
## 204 SJ.ON COPE 0.441 0.095 4.632 0.000 RW  
## 205 SJ.ON NEURO 0.370 0.133 2.776 0.006 RW  
## 206 SJ.ON EXTRA -0.012 0.097 -0.119 0.905 RW  
## 207 CH.ON COPE 0.101 0.102 0.985 0.325 RW  
## 208 CH.ON NEURO 0.297 0.129 2.301 0.021 RW  
## 209 CH.ON EXTRA 0.033 0.098 0.338 0.736 RW  
## 210 IS.ON COPE 0.070 0.071 0.991 0.322 RW  
## 211 IS.ON NEURO 0.763 0.073 10.525 0.000 RW  
## 212 IS.ON EXTRA 0.086 0.077 1.114 0.265 RW  
## 213 MI.ON COPE 0.494 0.097 5.113 0.000 RW  
## 214 MI.ON NEURO -0.491 0.142 -3.464 0.001 RW  
## 215 MI.ON EXTRA -0.533 0.086 -6.179 0.000 RW  
## 216 OI.ON COPE 0.165 0.096 1.716 0.086 RW  
## 217 OI.ON NEURO 0.780 0.077 10.195 0.000 RW  
## 218 OI.ON EXTRA -0.046 0.081 -0.572 0.567 RW  
## 219 PTGI.ON SC 0.187 0.056 3.328 0.001 RW  
## 220 PTGI.ON SK 0.071 0.051 1.385 0.166 RW  
## 221 PTGI.ON SJ 0.051 0.061 0.845 0.398 RW  
## 222 PTGI.ON CH 0.093 0.053 1.774 0.076 RW  
## 223 PTGI.ON IS 0.024 0.069 0.354 0.724 RW  
## 224 PTGI.ON MI -0.230 0.076 -3.027 0.002 RW  
## 225 PTGI.ON OI -0.021 0.106 -0.197 0.844 RW  
## 226 PTGI.ON COPE 0.215 0.085 2.525 0.012 RW  
## 227 PTGI.ON NEURO 0.222 0.142 1.567 0.117 RW  
## 228 PTGI.ON EXTRA 0.253 0.085 2.972 0.003 RW  
## 229 IESR.ON SC 0.021 0.071 0.301 0.764 RW  
## 230 IESR.ON SK 0.018 0.056 0.325 0.745 RW  
## 231 IESR.ON SJ 0.129 0.072 1.807 0.071 RW  
## 232 IESR.ON CH 0.078 0.053 1.470 0.141 RW  
## 233 IESR.ON IS 0.059 0.074 0.800 0.424 RW  
## 234 IESR.ON MI -0.136 0.088 -1.542 0.123 RW  
## 235 IESR.ON OI 0.320 0.113 2.827 0.005 RW  
## 236 IESR.ON COPE 0.041 0.079 0.517 0.605 RW  
## 237 IESR.ON NEURO 0.254 0.136 1.865 0.062 RW  
## 238 IESR.ON EXTRA 0.237 0.088 2.703 0.007 RW  
## 239 SK.WITH SC 0.000 0.000 999.000 999.000 RW  
## 240 SJ.WITH SC 0.000 0.000 999.000 999.000 RW  
## 241 SJ.WITH SK 0.000 0.000 999.000 999.000 RW  
## 242 CH.WITH SC 0.000 0.000 999.000 999.000 RW  
## 243 CH.WITH SK 0.000 0.000 999.000 999.000 RW  
## 244 CH.WITH SJ 0.000 0.000 999.000 999.000 RW  
## 245 IS.WITH SC 0.000 0.000 999.000 999.000 RW  
## 246 IS.WITH SK 0.000 0.000 999.000 999.000 RW  
## 247 IS.WITH SJ 0.000 0.000 999.000 999.000 RW  
## 248 IS.WITH CH 0.000 0.000 999.000 999.000 RW  
## 249 MI.WITH SC 0.000 0.000 999.000 999.000 RW  
## 250 MI.WITH SK 0.000 0.000 999.000 999.000 RW  
## 251 MI.WITH SJ 0.000 0.000 999.000 999.000 RW  
## 252 MI.WITH CH 0.000 0.000 999.000 999.000 RW  
## 253 MI.WITH IS 0.000 0.000 999.000 999.000 RW  
## 254 OI.WITH SC 0.000 0.000 999.000 999.000 RW  
## 255 OI.WITH SK 0.000 0.000 999.000 999.000 RW  
## 256 OI.WITH SJ 0.000 0.000 999.000 999.000 RW  
## 257 OI.WITH CH 0.000 0.000 999.000 999.000 RW  
## 258 OI.WITH IS 0.000 0.000 999.000 999.000 RW  
## 259 OI.WITH MI 0.000 0.000 999.000 999.000 RW  
## 260 IESR.WITH PTGI 0.201 0.050 4.058 0.000 RW  
## 261 NEURO.WITH COPE -0.337 0.051 -6.619 0.000 RW  
## 262 EXTRA.WITH COPE 0.334 0.055 6.046 0.000 RW  
## 263 EXTRA.WITH NEURO -0.649 0.039 -16.460 0.000 RW  
## 264 SC.BY SCSK5 0.646 0.079 8.140 0.000 CS  
## 265 SC.BY SCSK12 0.637 0.066 9.693 0.000 CS  
## 266 SC.BY SCSK19 0.714 0.062 11.576 0.000 CS  
## 267 SC.BY SCSK23 0.811 0.080 10.184 0.000 CS  
## 268 SC.BY SCSK26 0.823 0.063 13.042 0.000 CS  
## 269 SC.BY SCSJ1 -0.265 0.101 -2.633 0.008 CS  
## 270 SC.BY SCSJ8 -0.211 0.108 -1.947 0.052 CS  
## 271 SC.BY SCSJ11 -0.301 0.115 -2.605 0.009 CS  
## 272 SC.BY SCSJ16 -0.285 0.135 -2.109 0.035 CS  
## 273 SC.BY SCSJ21 -0.173 0.081 -2.147 0.032 CS  
## 274 SC.BY SCCH3 0.245 0.103 2.367 0.018 CS  
## 275 SC.BY SCCH7 0.425 0.074 5.775 0.000 CS  
## 276 SC.BY SCCH10 0.454 0.068 6.682 0.000 CS  
## 277 SC.BY SCCH15 0.597 0.062 9.638 0.000 CS  
## 278 SC.BY SCIS4 -0.178 0.089 -1.995 0.046 CS  
## 279 SC.BY SCIS13 -0.058 0.086 -0.679 0.497 CS  
## 280 SC.BY SCIS18 -0.049 0.102 -0.486 0.627 CS  
## 281 SC.BY SCIS25 -0.158 0.099 -1.597 0.110 CS  
## 282 SC.BY SCMI9 0.211 0.078 2.686 0.007 CS  
## 283 SC.BY SCMI14 0.235 0.064 3.696 0.000 CS  
## 284 SC.BY SCMI17 0.452 0.055 8.218 0.000 CS  
## 285 SC.BY SCMI22 0.638 0.045 14.265 0.000 CS  
## 286 SC.BY SCOI2 -0.181 0.094 -1.930 0.054 CS  
## 287 SC.BY SCOI6 -0.190 0.105 -1.809 0.070 CS  
## 288 SC.BY SCOI20 0.141 0.084 1.685 0.092 CS  
## 289 SC.BY SCOI24 -0.005 0.073 -0.072 0.942 CS  
## 290 SK.BY SCSK5 0.412 0.067 6.146 0.000 CS  
## 291 SK.BY SCSK12 0.496 0.066 7.476 0.000 CS  
## 292 SK.BY SCSK19 0.424 0.072 5.886 0.000 CS  
## 293 SK.BY SCSK23 -0.237 0.092 -2.575 0.010 CS  
## 294 SK.BY SCSK26 -0.054 0.070 -0.778 0.437 CS  
## 295 SK.BY SCSJ1 0.101 0.041 2.454 0.014 CS  
## 296 SK.BY SCSJ8 -0.074 0.028 -2.668 0.008 CS  
## 297 SK.BY SCSJ11 0.093 0.032 2.904 0.004 CS  
## 298 SK.BY SCSJ16 0.082 0.049 1.673 0.094 CS  
## 299 SK.BY SCSJ21 -0.143 0.045 -3.167 0.002 CS  
## 300 SK.BY SCCH3 0.016 0.056 0.279 0.781 CS  
## 301 SK.BY SCCH7 0.088 0.032 2.734 0.006 CS  
## 302 SK.BY SCCH10 0.039 0.035 1.117 0.264 CS  
## 303 SK.BY SCCH15 -0.086 0.042 -2.071 0.038 CS  
## 304 SK.BY SCIS4 -0.004 0.038 -0.107 0.914 CS  
## 305 SK.BY SCIS13 0.012 0.030 0.393 0.694 CS  
## 306 SK.BY SCIS18 0.021 0.031 0.664 0.506 CS  
## 307 SK.BY SCIS25 0.044 0.035 1.236 0.216 CS  
## 308 SK.BY SCMI9 0.037 0.040 0.913 0.361 CS  
## 309 SK.BY SCMI14 0.021 0.033 0.636 0.525 CS  
## 310 SK.BY SCMI17 -0.031 0.034 -0.887 0.375 CS  
## 311 SK.BY SCMI22 0.091 0.054 1.674 0.094 CS  
## 312 SK.BY SCOI2 0.029 0.032 0.908 0.364 CS  
## 313 SK.BY SCOI6 0.072 0.035 2.051 0.040 CS  
## 314 SK.BY SCOI20 0.083 0.049 1.708 0.088 CS  
## 315 SK.BY SCOI24 0.060 0.037 1.628 0.104 CS  
## 316 SJ.BY SCSK5 0.009 0.042 0.216 0.829 CS  
## 317 SJ.BY SCSK12 0.022 0.033 0.674 0.501 CS  
## 318 SJ.BY SCSK19 -0.044 0.035 -1.268 0.205 CS  
## 319 SJ.BY SCSK23 -0.108 0.060 -1.805 0.071 CS  
## 320 SJ.BY SCSK26 -0.085 0.053 -1.599 0.110 CS  
## 321 SJ.BY SCSJ1 0.413 0.081 5.088 0.000 CS  
## 322 SJ.BY SCSJ8 0.570 0.080 7.141 0.000 CS  
## 323 SJ.BY SCSJ11 0.440 0.079 5.560 0.000 CS  
## 324 SJ.BY SCSJ16 0.489 0.094 5.180 0.000 CS  
## 325 SJ.BY SCSJ21 0.369 0.064 5.758 0.000 CS  
## 326 SJ.BY SCCH3 0.039 0.074 0.527 0.598 CS  
## 327 SJ.BY SCCH7 0.091 0.032 2.805 0.005 CS  
## 328 SJ.BY SCCH10 0.147 0.048 3.074 0.002 CS  
## 329 SJ.BY SCCH15 0.030 0.039 0.752 0.452 CS  
## 330 SJ.BY SCIS4 0.125 0.050 2.508 0.012 CS  
## 331 SJ.BY SCIS13 0.037 0.040 0.930 0.352 CS  
## 332 SJ.BY SCIS18 0.142 0.040 3.537 0.000 CS  
## 333 SJ.BY SCIS25 0.196 0.055 3.569 0.000 CS  
## 334 SJ.BY SCMI9 0.165 0.051 3.269 0.001 CS  
## 335 SJ.BY SCMI14 0.068 0.051 1.330 0.184 CS  
## 336 SJ.BY SCMI17 0.089 0.042 2.108 0.035 CS  
## 337 SJ.BY SCMI22 0.146 0.052 2.824 0.005 CS  
## 338 SJ.BY SCOI2 0.171 0.048 3.591 0.000 CS  
## 339 SJ.BY SCOI6 0.190 0.058 3.294 0.001 CS  
## 340 SJ.BY SCOI20 0.176 0.045 3.901 0.000 CS  
## 341 SJ.BY SCOI24 0.093 0.043 2.167 0.030 CS  
## 342 CH.BY SCSK5 0.090 0.038 2.388 0.017 CS  
## 343 CH.BY SCSK12 0.068 0.032 2.108 0.035 CS  
## 344 CH.BY SCSK19 -0.041 0.035 -1.166 0.244 CS  
## 345 CH.BY SCSK23 -0.065 0.030 -2.187 0.029 CS  
## 346 CH.BY SCSK26 0.033 0.034 0.998 0.318 CS  
## 347 CH.BY SCSJ1 0.085 0.036 2.330 0.020 CS  
## 348 CH.BY SCSJ8 0.057 0.034 1.663 0.096 CS  
## 349 CH.BY SCSJ11 0.138 0.034 4.111 0.000 CS  
## 350 CH.BY SCSJ16 0.036 0.043 0.836 0.403 CS  
## 351 CH.BY SCSJ21 0.041 0.040 1.029 0.304 CS  
## 352 CH.BY SCCH3 0.337 0.058 5.815 0.000 CS  
## 353 CH.BY SCCH7 0.687 0.055 12.423 0.000 CS  
## 354 CH.BY SCCH10 0.679 0.070 9.626 0.000 CS  
## 355 CH.BY SCCH15 0.235 0.045 5.229 0.000 CS  
## 356 CH.BY SCIS4 0.047 0.034 1.375 0.169 CS  
## 357 CH.BY SCIS13 0.041 0.031 1.325 0.185 CS  
## 358 CH.BY SCIS18 0.065 0.034 1.938 0.053 CS  
## 359 CH.BY SCIS25 -0.009 0.035 -0.272 0.786 CS  
## 360 CH.BY SCMI9 0.076 0.039 1.976 0.048 CS  
## 361 CH.BY SCMI14 0.012 0.035 0.358 0.720 CS  
## 362 CH.BY SCMI17 0.072 0.036 1.986 0.047 CS  
## 363 CH.BY SCMI22 0.102 0.042 2.424 0.015 CS  
## 364 CH.BY SCOI2 0.053 0.029 1.805 0.071 CS  
## 365 CH.BY SCOI6 0.041 0.036 1.128 0.260 CS  
## 366 CH.BY SCOI20 -0.061 0.044 -1.390 0.164 CS  
## 367 CH.BY SCOI24 0.015 0.036 0.421 0.674 CS  
## 368 IS.BY SCSK5 0.084 0.037 2.263 0.024 CS  
## 369 IS.BY SCSK12 -0.027 0.032 -0.859 0.390 CS  
## 370 IS.BY SCSK19 0.074 0.030 2.435 0.015 CS  
## 371 IS.BY SCSK23 0.030 0.042 0.708 0.479 CS  
## 372 IS.BY SCSK26 0.109 0.041 2.637 0.008 CS  
## 373 IS.BY SCSJ1 -0.005 0.048 -0.095 0.925 CS  
## 374 IS.BY SCSJ8 0.080 0.040 2.009 0.045 CS  
## 375 IS.BY SCSJ11 0.106 0.039 2.736 0.006 CS  
## 376 IS.BY SCSJ16 0.206 0.043 4.782 0.000 CS  
## 377 IS.BY SCSJ21 0.059 0.043 1.368 0.171 CS  
## 378 IS.BY SCCH3 -0.028 0.050 -0.570 0.569 CS  
## 379 IS.BY SCCH7 0.117 0.035 3.353 0.001 CS  
## 380 IS.BY SCCH10 0.024 0.037 0.649 0.516 CS  
## 381 IS.BY SCCH15 0.016 0.045 0.356 0.721 CS  
## 382 IS.BY SCIS4 0.266 0.052 5.094 0.000 CS  
## 383 IS.BY SCIS13 0.673 0.058 11.581 0.000 CS  
## 384 IS.BY SCIS18 0.727 0.080 9.060 0.000 CS  
## 385 IS.BY SCIS25 0.333 0.052 6.397 0.000 CS  
## 386 IS.BY SCMI9 0.094 0.045 2.084 0.037 CS  
## 387 IS.BY SCMI14 0.027 0.043 0.629 0.530 CS  
## 388 IS.BY SCMI17 -0.046 0.039 -1.193 0.233 CS  
## 389 IS.BY SCMI22 -0.109 0.048 -2.281 0.023 CS  
## 390 IS.BY SCOI2 0.146 0.050 2.908 0.004 CS  
## 391 IS.BY SCOI6 0.249 0.052 4.796 0.000 CS  
## 392 IS.BY SCOI20 0.220 0.044 4.998 0.000 CS  
## 393 IS.BY SCOI24 0.151 0.044 3.387 0.001 CS  
## 394 MI.BY SCSK5 -0.015 0.041 -0.359 0.720 CS  
## 395 MI.BY SCSK12 0.004 0.031 0.125 0.901 CS  
## 396 MI.BY SCSK19 0.057 0.029 1.979 0.048 CS  
## 397 MI.BY SCSK23 -0.021 0.038 -0.537 0.591 CS  
## 398 MI.BY SCSK26 0.012 0.038 0.311 0.756 CS  
## 399 MI.BY SCSJ1 0.162 0.043 3.770 0.000 CS  
## 400 MI.BY SCSJ8 -0.005 0.050 -0.095 0.924 CS  
## 401 MI.BY SCSJ11 0.082 0.033 2.474 0.013 CS  
## 402 MI.BY SCSJ16 0.008 0.049 0.161 0.872 CS  
## 403 MI.BY SCSJ21 0.104 0.059 1.761 0.078 CS  
## 404 MI.BY SCCH3 0.296 0.072 4.113 0.000 CS  
## 405 MI.BY SCCH7 -0.092 0.036 -2.576 0.010 CS  
## 406 MI.BY SCCH10 -0.001 0.040 -0.015 0.988 CS  
## 407 MI.BY SCCH15 0.194 0.040 4.869 0.000 CS  
## 408 MI.BY SCIS4 0.053 0.046 1.172 0.241 CS  
## 409 MI.BY SCIS13 0.002 0.036 0.056 0.955 CS  
## 410 MI.BY SCIS18 0.002 0.030 0.053 0.958 CS  
## 411 MI.BY SCIS25 0.029 0.042 0.684 0.494 CS  
## 412 MI.BY SCMI9 0.542 0.073 7.440 0.000 CS  
## 413 MI.BY SCMI14 0.631 0.068 9.253 0.000 CS  
## 414 MI.BY SCMI17 0.364 0.044 8.288 0.000 CS  
## 415 MI.BY SCMI22 0.080 0.049 1.623 0.105 CS  
## 416 MI.BY SCOI2 0.017 0.039 0.426 0.670 CS  
## 417 MI.BY SCOI6 0.077 0.045 1.711 0.087 CS  
## 418 MI.BY SCOI20 -0.280 0.047 -5.974 0.000 CS  
## 419 MI.BY SCOI24 -0.161 0.047 -3.419 0.001 CS  
## 420 OI.BY SCSK5 0.109 0.042 2.595 0.009 CS  
## 421 OI.BY SCSK12 0.098 0.037 2.638 0.008 CS  
## 422 OI.BY SCSK19 0.065 0.036 1.793 0.073 CS  
## 423 OI.BY SCSK23 0.064 0.057 1.111 0.266 CS  
## 424 OI.BY SCSK26 0.066 0.052 1.267 0.205 CS  
## 425 OI.BY SCSJ1 0.149 0.063 2.386 0.017 CS  
## 426 OI.BY SCSJ8 0.131 0.046 2.847 0.004 CS  
## 427 OI.BY SCSJ11 0.139 0.039 3.607 0.000 CS  
## 428 OI.BY SCSJ16 0.034 0.051 0.666 0.505 CS  
## 429 OI.BY SCSJ21 0.151 0.046 3.322 0.001 CS  
## 430 OI.BY SCCH3 0.154 0.058 2.635 0.008 CS  
## 431 OI.BY SCCH7 0.001 0.034 0.016 0.987 CS  
## 432 OI.BY SCCH10 -0.026 0.038 -0.689 0.491 CS  
## 433 OI.BY SCCH15 0.025 0.046 0.550 0.582 CS  
## 434 OI.BY SCIS4 0.389 0.057 6.879 0.000 CS  
## 435 OI.BY SCIS13 0.094 0.047 2.001 0.045 CS  
## 436 OI.BY SCIS18 0.034 0.044 0.769 0.442 CS  
## 437 OI.BY SCIS25 0.309 0.064 4.860 0.000 CS  
## 438 OI.BY SCMI9 -0.091 0.058 -1.571 0.116 CS  
## 439 OI.BY SCMI14 -0.123 0.053 -2.332 0.020 CS  
## 440 OI.BY SCMI17 -0.095 0.039 -2.443 0.015 CS  
## 441 OI.BY SCMI22 0.092 0.053 1.750 0.080 CS  
## 442 OI.BY SCOI2 0.501 0.084 5.991 0.000 CS  
## 443 OI.BY SCOI6 0.394 0.062 6.352 0.000 CS  
## 444 OI.BY SCOI20 0.361 0.070 5.160 0.000 CS  
## 445 OI.BY SCOI24 0.367 0.071 5.185 0.000 CS  
## 446 PTGI.BY PTGI\_AL 0.820 0.019 43.586 0.000 CS  
## 447 PTGI.BY PTGI\_NP 0.892 0.016 56.196 0.000 CS  
## 448 PTGI.BY PTGI\_PS 0.774 0.023 33.209 0.000 CS  
## 449 PTGI.BY PTGI\_SP 0.450 0.026 17.029 0.000 CS  
## 450 PTGI.BY PTGI\_RO 0.816 0.022 37.307 0.000 CS  
## 451 IESR.BY IESR\_A 0.789 0.024 32.348 0.000 CS  
## 452 IESR.BY IESR\_I 0.895 0.021 43.348 0.000 CS  
## 453 IESR.BY IESR\_H 0.813 0.028 29.183 0.000 CS  
## 454 COPE.BY COPE\_PA 0.628 0.045 13.852 0.000 CS  
## 455 COPE.BY COPE\_PO 0.762 0.054 14.078 0.000 CS  
## 456 NEURO.BY NEURO\_NA 0.768 0.031 25.138 0.000 CS  
## 457 NEURO.BY NEURO\_SR 0.845 0.029 29.470 0.000 CS  
## 458 EXTRA.BY EXTRA\_PA 0.410 0.039 10.482 0.000 CS  
## 459 EXTRA.BY EXTRA\_SO 0.510 0.056 9.129 0.000 CS  
## 460 EXTRA.BY EXTRA\_AC 0.474 0.050 9.492 0.000 CS  
## 461 SC.ON COPE 0.041 0.089 0.456 0.649 CS  
## 462 SC.ON NEURO -0.139 0.090 -1.543 0.123 CS  
## 463 SC.ON EXTRA 0.203 0.093 2.182 0.029 CS  
## 464 SK.ON COPE 0.035 0.095 0.370 0.712 CS  
## 465 SK.ON NEURO 0.267 0.093 2.866 0.004 CS  
## 466 SK.ON EXTRA -0.059 0.123 -0.479 0.632 CS  
## 467 SJ.ON COPE 0.249 0.105 2.382 0.017 CS  
## 468 SJ.ON NEURO 0.267 0.122 2.196 0.028 CS  
## 469 SJ.ON EXTRA -0.044 0.131 -0.334 0.738 CS  
## 470 CH.ON COPE 0.053 0.101 0.528 0.598 CS  
## 471 CH.ON NEURO 0.102 0.096 1.061 0.289 CS  
## 472 CH.ON EXTRA 0.112 0.127 0.883 0.377 CS  
## 473 IS.ON COPE 0.192 0.091 2.097 0.036 CS  
## 474 IS.ON NEURO 0.335 0.078 4.288 0.000 CS  
## 475 IS.ON EXTRA -0.318 0.104 -3.053 0.002 CS  
## 476 MI.ON COPE 0.167 0.097 1.716 0.086 CS  
## 477 MI.ON NEURO -0.120 0.118 -1.016 0.310 CS  
## 478 MI.ON EXTRA 0.008 0.122 0.062 0.950 CS  
## 479 OI.ON COPE 0.205 0.106 1.935 0.053 CS  
## 480 OI.ON NEURO 0.280 0.121 2.320 0.020 CS  
## 481 OI.ON EXTRA -0.203 0.125 -1.628 0.104 CS  
## 482 PTGI.ON SC 0.110 0.128 0.859 0.390 CS  
## 483 PTGI.ON SK 0.113 0.087 1.302 0.193 CS  
## 484 PTGI.ON SJ 0.073 0.146 0.500 0.617 CS  
## 485 PTGI.ON CH 0.001 0.086 0.010 0.992 CS  
## 486 PTGI.ON IS 0.096 0.119 0.803 0.422 CS  
## 487 PTGI.ON MI -0.203 0.089 -2.285 0.022 CS  
## 488 PTGI.ON OI -0.021 0.157 -0.131 0.896 CS  
## 489 PTGI.ON COPE 0.396 0.092 4.293 0.000 CS  
## 490 PTGI.ON NEURO -0.020 0.091 -0.217 0.828 CS  
## 491 PTGI.ON EXTRA 0.187 0.099 1.893 0.058 CS  
## 492 IESR.ON SC 0.018 0.145 0.121 0.904 CS  
## 493 IESR.ON SK -0.042 0.083 -0.497 0.619 CS  
## 494 IESR.ON SJ -0.006 0.183 -0.033 0.974 CS  
## 495 IESR.ON CH -0.001 0.082 -0.013 0.990 CS  
## 496 IESR.ON IS 0.094 0.115 0.819 0.413 CS  
## 497 IESR.ON MI -0.038 0.098 -0.392 0.695 CS  
## 498 IESR.ON OI -0.061 0.152 -0.404 0.687 CS  
## 499 IESR.ON COPE 0.216 0.090 2.411 0.016 CS  
## 500 IESR.ON NEURO 0.524 0.084 6.201 0.000 CS  
## 501 IESR.ON EXTRA 0.213 0.101 2.100 0.036 CS  
## 502 SK.WITH SC 0.216 0.143 1.515 0.130 CS  
## 503 SJ.WITH SC -0.544 0.171 -3.179 0.001 CS  
## 504 SJ.WITH SK -0.144 0.141 -1.016 0.310 CS  
## 505 CH.WITH SC 0.089 0.152 0.588 0.556 CS  
## 506 CH.WITH SK 0.078 0.137 0.567 0.571 CS  
## 507 CH.WITH SJ 0.018 0.141 0.125 0.901 CS  
## 508 IS.WITH SC -0.395 0.103 -3.849 0.000 CS  
## 509 IS.WITH SK 0.080 0.145 0.551 0.582 CS  
## 510 IS.WITH SJ 0.346 0.181 1.914 0.056 CS  
## 511 IS.WITH CH 0.036 0.134 0.271 0.786 CS  
## 512 MI.WITH SC 0.322 0.153 2.098 0.036 CS  
## 513 MI.WITH SK 0.168 0.140 1.196 0.232 CS  
## 514 MI.WITH SJ -0.168 0.153 -1.100 0.271 CS  
## 515 MI.WITH CH 0.113 0.131 0.858 0.391 CS  
## 516 MI.WITH IS 0.011 0.192 0.057 0.955 CS  
## 517 OI.WITH SC -0.333 0.149 -2.228 0.026 CS  
## 518 OI.WITH SK -0.159 0.167 -0.951 0.341 CS  
## 519 OI.WITH SJ 0.459 0.199 2.311 0.021 CS  
## 520 OI.WITH CH -0.118 0.188 -0.628 0.530 CS  
## 521 OI.WITH IS 0.356 0.179 1.986 0.047 CS  
## 522 OI.WITH MI -0.206 0.171 -1.207 0.228 CS  
## 523 IESR.WITH PTGI 0.087 0.073 1.191 0.234 CS  
## 524 NEURO.WITH COPE -0.318 0.077 -4.152 0.000 CS  
## 525 EXTRA.WITH COPE 0.218 0.107 2.032 0.042 CS  
## 526 EXTRA.WITH NEURO -0.067 0.093 -0.719 0.472 CS

**Mplus syntax for model nn1**

Only the rescue-workers data were used.

MODEL:  
  
P BY  
 sk ch mi;  
  
N BY  
 sj is oi;  
  
SJ WITH SK;  
  
PTGI BY  
 ptgi\_al ptgi\_np ptgi\_ps ptgi\_sp ptgi\_ro;  
  
IESR BY  
 iesr\_a iesr\_i iesr\_h;  
   
COPE BY   
 cope\_pa cope\_po;  
  
MSPSS BY   
 mspss\_fa mspss\_fr mspss\_so;  
  
NEURO BY   
 neuro\_na neuro\_sr;  
  
EXTRA BY  
 extra\_pa extra\_so extra\_ac;  
  
P ON COPE MSPSS NEURO EXTRA;  
N ON COPE MSPSS NEURO EXTRA;  
   
PTGI ON P N COPE MSPSS NEURO EXTRA;  
IESR ON P N COPE MSPSS NEURO EXTRA;

**Parameter estimates for model nn1**

## paramHeader param est se est\_se pval  
## 1 P.BY SK 0.763 0.029 26.627 0.000  
## 2 P.BY CH 0.582 0.035 16.548 0.000  
## 3 P.BY MI 0.807 0.033 24.610 0.000  
## 4 N.BY SJ 0.723 0.020 35.996 0.000  
## 5 N.BY IS 0.881 0.012 71.698 0.000  
## 6 N.BY OI 0.916 0.011 83.311 0.000  
## 7 PTGI.BY PTGI\_AL 0.820 0.015 55.381 0.000  
## 8 PTGI.BY PTGI\_NP 0.945 0.008 124.072 0.000  
## 9 PTGI.BY PTGI\_PS 0.803 0.015 52.949 0.000  
## 10 PTGI.BY PTGI\_SP 0.527 0.024 21.511 0.000  
## 11 PTGI.BY PTGI\_RO 0.872 0.015 59.741 0.000  
## 12 IESR.BY IESR\_A 0.790 0.019 42.101 0.000  
## 13 IESR.BY IESR\_I 0.878 0.016 55.451 0.000  
## 14 IESR.BY IESR\_H 0.881 0.014 61.979 0.000  
## 15 COPE.BY COPE\_PA 0.706 0.040 17.837 0.000  
## 16 COPE.BY COPE\_PO 0.710 0.041 17.139 0.000  
## 17 MSPSS.BY MSPSS\_FA 0.687 0.031 22.118 0.000  
## 18 MSPSS.BY MSPSS\_FR 0.739 0.034 21.501 0.000  
## 19 MSPSS.BY MSPSS\_SO 0.741 0.032 23.304 0.000  
## 20 NEURO.BY NEURO\_NA 0.712 0.023 31.137 0.000  
## 21 NEURO.BY NEURO\_SR 0.891 0.018 50.714 0.000  
## 22 EXTRA.BY EXTRA\_PA 0.682 0.028 23.945 0.000  
## 23 EXTRA.BY EXTRA\_SO 0.709 0.030 23.300 0.000  
## 24 EXTRA.BY EXTRA\_AC 0.611 0.033 18.393 0.000  
## 25 P.ON COPE 0.580 0.045 12.900 0.000  
## 26 P.ON MSPSS 0.039 0.059 0.655 0.512  
## 27 P.ON NEURO -0.341 0.074 -4.614 0.000  
## 28 P.ON EXTRA -0.084 0.083 -1.011 0.312  
## 29 N.ON COPE 0.176 0.040 4.436 0.000  
## 30 N.ON MSPSS -0.025 0.042 -0.587 0.557  
## 31 N.ON NEURO 0.917 0.050 18.182 0.000  
## 32 N.ON EXTRA 0.061 0.063 0.971 0.332  
## 33 PTGI.ON P 0.190 0.083 2.296 0.022  
## 34 PTGI.ON N 0.050 0.105 0.475 0.635  
## 35 PTGI.ON COPE 0.069 0.084 0.821 0.412  
## 36 PTGI.ON MSPSS 0.040 0.057 0.696 0.487  
## 37 PTGI.ON NEURO 0.333 0.145 2.291 0.022  
## 38 PTGI.ON EXTRA 0.405 0.080 5.066 0.000  
## 39 IESR.ON P 0.065 0.075 0.873 0.382  
## 40 IESR.ON N 0.457 0.098 4.659 0.000  
## 41 IESR.ON COPE -0.024 0.078 -0.312 0.755  
## 42 IESR.ON MSPSS -0.045 0.050 -0.911 0.362  
## 43 IESR.ON NEURO 0.294 0.128 2.295 0.022  
## 44 IESR.ON EXTRA 0.331 0.070 4.736 0.000  
## 45 IESR.WITH PTGI 0.225 0.047 4.748 0.000  
## 46 MSPSS.WITH COPE 0.248 0.055 4.502 0.000  
## 47 NEURO.WITH COPE -0.312 0.057 -5.472 0.000  
## 48 NEURO.WITH MSPSS -0.249 0.046 -5.378 0.000  
## 49 EXTRA.WITH COPE 0.312 0.059 5.313 0.000  
## 50 EXTRA.WITH MSPSS 0.456 0.047 9.708 0.000  
## 51 EXTRA.WITH NEURO -0.659 0.038 -17.160 0.000  
## 52 SJ.WITH SK -0.493 0.046 -10.773 0.000

**Mplus syntax for model nn2**

Only the rescue-workers data were used.

MODEL:  
  
PTGI BY  
 ptgi\_al ptgi\_np ptgi\_ps ptgi\_sp ptgi\_ro;  
  
IESR BY  
 iesr\_a iesr\_i iesr\_h;  
   
COPE BY   
 cope\_pa cope\_po;  
  
NEURO BY   
 neuro\_na neuro\_sr;  
  
EXTRA BY  
 extra\_pa extra\_so extra\_ac;  
  
sk ON COPE NEURO EXTRA;  
ch ON COPE NEURO EXTRA;  
mi ON COPE NEURO EXTRA;  
sj ON COPE NEURO EXTRA;  
is ON COPE NEURO EXTRA;  
oi ON COPE NEURO EXTRA;  
  
PTGI ON sk ch mi sj is oi COPE NEURO EXTRA;  
IESR ON sk ch mi sj is oi COPE NEURO EXTRA;

**Parameter estimates for model nn2**

## paramHeader param est se est\_se pval  
## 1 PTGI.BY PTGI\_AL 0.819 0.015 55.260 0.000  
## 2 PTGI.BY PTGI\_NP 0.946 0.007 126.748 0.000  
## 3 PTGI.BY PTGI\_PS 0.802 0.015 52.574 0.000  
## 4 PTGI.BY PTGI\_SP 0.528 0.025 21.492 0.000  
## 5 PTGI.BY PTGI\_RO 0.872 0.015 59.963 0.000  
## 6 IESR.BY IESR\_A 0.790 0.019 42.079 0.000  
## 7 IESR.BY IESR\_I 0.878 0.016 55.370 0.000  
## 8 IESR.BY IESR\_H 0.880 0.014 62.115 0.000  
## 9 COPE.BY COPE\_PA 0.563 0.034 16.468 0.000  
## 10 COPE.BY COPE\_PO 0.557 0.038 14.821 0.000  
## 11 NEURO.BY NEURO\_NA 0.658 0.025 26.350 0.000  
## 12 NEURO.BY NEURO\_SR 0.810 0.017 48.737 0.000  
## 13 EXTRA.BY EXTRA\_PA 0.682 0.030 22.909 0.000  
## 14 EXTRA.BY EXTRA\_SO 0.684 0.033 20.978 0.000  
## 15 EXTRA.BY EXTRA\_AC 0.617 0.034 17.990 0.000  
## 16 PTGI.ON COPE 0.484 0.239 2.021 0.043  
## 17 PTGI.ON NEURO 1.503 0.588 2.554 0.011  
## 18 PTGI.ON EXTRA 0.734 0.284 2.590 0.010  
## 19 IESR.ON COPE 0.147 0.228 0.644 0.520  
## 20 IESR.ON NEURO 1.802 0.512 3.520 0.000  
## 21 IESR.ON EXTRA 0.829 0.262 3.166 0.002  
## 22 PTGI.ON SK 0.194 0.069 2.794 0.005  
## 23 PTGI.ON CH 0.031 0.065 0.486 0.627  
## 24 PTGI.ON MI -0.143 0.141 -1.012 0.312  
## 25 PTGI.ON SJ -0.078 0.085 -0.918 0.359  
## 26 PTGI.ON IS -0.353 0.153 -2.307 0.021  
## 27 PTGI.ON OI -0.496 0.218 -2.275 0.023  
## 28 IESR.ON SK 0.128 0.064 2.009 0.045  
## 29 IESR.ON CH 0.111 0.061 1.839 0.066  
## 30 IESR.ON MI 0.034 0.134 0.257 0.797  
## 31 IESR.ON SJ -0.037 0.072 -0.508 0.611  
## 32 IESR.ON IS -0.425 0.150 -2.828 0.005  
## 33 IESR.ON OI -0.207 0.191 -1.087 0.277  
## 34 SK.ON COPE 0.558 0.048 11.590 0.000  
## 35 SK.ON NEURO -0.307 0.097 -3.167 0.002  
## 36 SK.ON EXTRA -0.133 0.129 -1.034 0.301  
## 37 CH.ON COPE 0.678 0.045 14.944 0.000  
## 38 CH.ON NEURO -0.013 0.099 -0.128 0.898  
## 39 CH.ON EXTRA -0.235 0.123 -1.910 0.056  
## 40 MI.ON COPE 0.753 0.054 14.003 0.000  
## 41 MI.ON NEURO -0.575 0.097 -5.950 0.000  
## 42 MI.ON EXTRA -0.526 0.127 -4.137 0.000  
## 43 SJ.ON COPE 0.359 0.053 6.751 0.000  
## 44 SJ.ON NEURO 0.924 0.079 11.693 0.000  
## 45 SJ.ON EXTRA 0.172 0.108 1.590 0.112  
## 46 IS.ON COPE 0.236 0.047 5.070 0.000  
## 47 IS.ON NEURO 1.144 0.070 16.411 0.000  
## 48 IS.ON EXTRA 0.279 0.089 3.118 0.002  
## 49 OI.ON COPE 0.247 0.053 4.689 0.000  
## 50 OI.ON NEURO 1.227 0.084 14.669 0.000  
## 51 OI.ON EXTRA 0.384 0.108 3.550 0.000  
## 52 IESR.WITH PTGI 0.078 0.111 0.704 0.481  
## 53 NEURO.WITH COPE -0.425 0.064 -6.635 0.000  
## 54 EXTRA.WITH COPE 0.436 0.078 5.605 0.000  
## 55 EXTRA.WITH NEURO -0.759 0.043 -17.585 0.000

**Mplus syntax for model nn3**

Only the rescue-workers data were used.

MODEL:  
  
SC BY  
 sk ch mi sj is oi;  
  
PTGI BY  
 ptgi\_al ptgi\_np ptgi\_ps ptgi\_sp ptgi\_ro;  
  
IESR BY  
 iesr\_a iesr\_i iesr\_h;  
   
COPE BY   
 cope\_pa cope\_po;  
  
NEURO BY   
 neuro\_na neuro\_sr;  
  
EXTRA BY  
 extra\_pa extra\_so extra\_ac;  
  
SC ON COPE NEURO EXTRA;  
  
PTGI ON SC COPE NEURO EXTRA;  
IESR ON SC COPE NEURO EXTRA;

**Parameter estimates for model nn3**

## paramHeader param est se est\_se pval  
## 1 SC.BY SK 0.315 0.042 7.571 0.000  
## 2 SC.BY CH 0.010 0.048 0.204 0.839  
## 3 SC.BY MI 0.377 0.042 8.910 0.000  
## 4 SC.BY SJ -0.717 0.022 -32.978 0.000  
## 5 SC.BY IS -0.886 0.011 -77.941 0.000  
## 6 SC.BY OI -0.905 0.012 -77.928 0.000  
## 7 PTGI.BY PTGI\_AL 0.819 0.015 55.143 0.000  
## 8 PTGI.BY PTGI\_NP 0.947 0.008 126.172 0.000  
## 9 PTGI.BY PTGI\_PS 0.802 0.015 52.895 0.000  
## 10 PTGI.BY PTGI\_SP 0.526 0.024 21.490 0.000  
## 11 PTGI.BY PTGI\_RO 0.870 0.015 59.340 0.000  
## 12 IESR.BY IESR\_A 0.790 0.019 42.134 0.000  
## 13 IESR.BY IESR\_I 0.879 0.016 55.240 0.000  
## 14 IESR.BY IESR\_H 0.881 0.014 61.897 0.000  
## 15 COPE.BY COPE\_PA 0.498 0.059 8.438 0.000  
## 16 COPE.BY COPE\_PO 1.003 0.103 9.739 0.000  
## 17 NEURO.BY NEURO\_NA 0.708 0.023 30.786 0.000  
## 18 NEURO.BY NEURO\_SR 0.897 0.018 49.196 0.000  
## 19 EXTRA.BY EXTRA\_PA 0.674 0.031 21.970 0.000  
## 20 EXTRA.BY EXTRA\_SO 0.703 0.031 22.775 0.000  
## 21 EXTRA.BY EXTRA\_AC 0.628 0.034 18.361 0.000  
## 22 SC.ON COPE -0.114 0.039 -2.963 0.003  
## 23 SC.ON NEURO -0.893 0.049 -18.134 0.000  
## 24 SC.ON EXTRA -0.028 0.056 -0.494 0.622  
## 25 PTGI.ON SC -0.053 0.103 -0.513 0.608  
## 26 PTGI.ON COPE 0.124 0.059 2.080 0.038  
## 27 PTGI.ON NEURO 0.255 0.135 1.892 0.058  
## 28 PTGI.ON EXTRA 0.421 0.066 6.354 0.000  
## 29 IESR.ON SC -0.457 0.098 -4.656 0.000  
## 30 IESR.ON COPE 0.048 0.042 1.149 0.251  
## 31 IESR.ON NEURO 0.269 0.118 2.277 0.023  
## 32 IESR.ON EXTRA 0.303 0.061 4.929 0.000  
## 33 IESR.WITH PTGI 0.229 0.047 4.860 0.000  
## 34 NEURO.WITH COPE -0.310 0.046 -6.779 0.000  
## 35 EXTRA.WITH COPE 0.318 0.048 6.575 0.000  
## 36 EXTRA.WITH NEURO -0.656 0.038 -17.036 0.000

**Mplus syntax for model nn4**

Only the rescue-workers data were used.

MODEL:  
  
P BY  
 sk ch mi;  
  
N BY  
 sj is oi;  
   
SC BY  
 P N;  
  
PTGI BY  
 ptgi\_al ptgi\_np ptgi\_ps ptgi\_sp ptgi\_ro;  
  
IESR BY  
 iesr\_a iesr\_i iesr\_h;  
   
COPE BY   
 cope\_pa cope\_po;  
  
NEURO BY   
 neuro\_na neuro\_sr;  
  
EXTRA BY  
 extra\_pa extra\_so extra\_ac;  
  
SC ON COPE NEURO EXTRA;  
  
PTGI ON SC COPE NEURO EXTRA;  
IESR ON SC COPE NEURO EXTRA;

**Parameter estimates for model nn4**

## paramHeader param est se est\_se pval  
## 1 P.BY SK 0.731 0.040 18.417 0.000  
## 2 P.BY CH 0.575 0.040 14.478 0.000  
## 3 P.BY MI 0.800 0.044 18.195 0.000  
## 4 N.BY SJ 0.720 0.021 33.753 0.000  
## 5 N.BY IS 0.888 0.012 74.459 0.000  
## 6 N.BY OI 0.910 0.012 78.787 0.000  
## 7 PTGI.BY PTGI\_AL 0.819 0.015 55.163 0.000  
## 8 PTGI.BY PTGI\_NP 0.947 0.008 126.040 0.000  
## 9 PTGI.BY PTGI\_PS 0.802 0.015 52.890 0.000  
## 10 PTGI.BY PTGI\_SP 0.526 0.024 21.501 0.000  
## 11 PTGI.BY PTGI\_RO 0.870 0.015 59.346 0.000  
## 12 IESR.BY IESR\_A 0.789 0.019 42.002 0.000  
## 13 IESR.BY IESR\_I 0.878 0.016 54.869 0.000  
## 14 IESR.BY IESR\_H 0.882 0.014 62.076 0.000  
## 15 COPE.BY COPE\_PA 0.481 0.061 7.888 0.000  
## 16 COPE.BY COPE\_PO 1.039 0.115 9.013 0.000  
## 17 NEURO.BY NEURO\_NA 0.711 0.023 31.100 0.000  
## 18 NEURO.BY NEURO\_SR 0.893 0.018 49.517 0.000  
## 19 EXTRA.BY EXTRA\_PA 0.674 0.031 21.887 0.000  
## 20 EXTRA.BY EXTRA\_SO 0.701 0.031 22.671 0.000  
## 21 EXTRA.BY EXTRA\_AC 0.630 0.034 18.402 0.000  
## 22 SC.BY P 0.426 0.056 7.562 0.000  
## 23 SC.BY N -0.800 0.042 -19.173 0.000  
## 24 SC.ON COPE -0.072 0.043 -1.687 0.092  
## 25 SC.ON NEURO -1.095 0.078 -14.128 0.000  
## 26 SC.ON EXTRA -0.044 0.069 -0.639 0.523  
## 27 PTGI.ON SC -0.110 0.366 -0.300 0.764  
## 28 PTGI.ON COPE 0.113 0.058 1.949 0.051  
## 29 PTGI.ON NEURO 0.183 0.382 0.479 0.632  
## 30 PTGI.ON EXTRA 0.423 0.063 6.663 0.000  
## 31 IESR.ON SC 1.411 1.799 0.784 0.433  
## 32 IESR.ON COPE 0.200 0.155 1.291 0.197  
## 33 IESR.ON NEURO 2.228 1.864 1.195 0.232  
## 34 IESR.ON EXTRA 0.384 0.138 2.792 0.005  
## 35 IESR.WITH PTGI 0.186 0.085 2.195 0.028  
## 36 NEURO.WITH COPE -0.302 0.048 -6.272 0.000  
## 37 EXTRA.WITH COPE 0.308 0.050 6.197 0.000  
## 38 EXTRA.WITH NEURO -0.658 0.038 -17.118 0.000

# Group comparisons

In the following analyses, dummy coding was applied to code the independent variable group (rescue-workers vs. community/students sample), with the rescue-workers sample as the reference level. Therefore, positive values of the coefficients in the regression models indicate larger mean values of the dependent variable in the community/students sample as compared to the rescue-workers sample; negative coefficients values indicate the opposite (a smaller mean value of the dependent variable in the community/students sample as compared to the rescue-workers sample). A statistically credible group difference was defined as a 95% posterior credibility interval not including zero.

## SCS scale



**Figure** **2:** Half-boxplots by group (rescue-worker sample vs. community sample) for the six SCS subscales.

(#tab:coefs-scsmvmodel)

Posterior mean, standard error, 95% credible interval and statistic for the parameters of the bmod6 model based on the normal distribution.

| parameter | mean | SE | lower bound | upper bound | Rhat |
| --- | --- | --- | --- | --- | --- |
| Intercept Self Kindness | 13.732 | 0.167 | 13.399 | 14.061 | 1.002 |
| Intercept Self Judgment | 14.950 | 0.170 | 14.613 | 15.284 | 1.000 |
| Intercept Common Humanity | 11.596 | 0.126 | 11.353 | 11.837 | 1.000 |
| Intercept Isolation | 13.501 | 0.161 | 13.189 | 13.819 | 1.001 |
| Intercept Mindfulness | 13.263 | 0.113 | 13.041 | 13.480 | 1.000 |
| Intercept Overidentification | 14.351 | 0.144 | 14.067 | 14.632 | 1.002 |
| Self Kindness | 0.310 | 0.296 | -0.267 | 0.888 | 1.002 |
| Self Judgment | -1.228 | 0.319 | -1.851 | -0.612 | 1.001 |
| Common Humanity | 0.350 | 0.237 | -0.118 | 0.817 | 1.002 |
| Isolation | -2.590 | 0.287 | -3.155 | -2.052 | 1.000 |
| Mindfulness | -0.622 | 0.210 | -1.040 | -0.213 | 1.002 |
| Overidentification | -3.263 | 0.258 | -3.773 | -2.753 | 1.000 |
| Self Kindness | 4.466 | 0.095 | 4.287 | 4.656 | 1.000 |
| Self Judgment | 4.745 | 0.105 | 4.550 | 4.950 | 1.000 |
| Common Humanity | 3.401 | 0.072 | 3.262 | 3.548 | 1.006 |
| Isolation | 4.342 | 0.094 | 4.164 | 4.531 | 1.003 |
| Mindfulness | 3.179 | 0.067 | 3.051 | 3.310 | 1.002 |
| Overidentification | 3.929 | 0.085 | 3.763 | 4.097 | 1.003 |

The six subscales of the SCS were included in a multivariate Bayesian analysis to test for group differences between rescue-worker and the community sample (model bmod1). Bayesian posterior estimates for group differences are presented in Table [**Errore. L'origine riferimento non è stata trovata.**](#coefs-scsmvmodel). Further descriptions are provided in the main manuscript.

We also found marked differences between RW and the community sample in terms of the NEO-FFI-60 measures. In terms of the personality traits measured by the NEO-FFI-60, the rescue-workers showed higher average values on the “positive” traits (conscientiousness, agreeableness, openness, extraversion), and lower values on Neuroticism, as compared to the community sample. These results are consistent with the idea that RW (as well as other groups such as firefighters and paramedics) may share some personality traits (Ramadan et al. 2022). Conversely, we found no evidence of a difference between the two groups when considering the social support as measured by the MSPSS scale.

## Personality traits



**Figure** **3:** Half-boxplots and score distributions by group (rescue-worker sample vs. community sample) for the five NEO-FFI-60 subscales.

(#tab:coefs-neoffimvmodel)

Posterior mean, standard error, 95% credible interval and statistic for the parameters of the bmod1 model.

| parameter | mean | SE | lower bound | upper bound | Rhat |
| --- | --- | --- | --- | --- | --- |
| Neuroticism | 19.112 | 0.333 | 18.457 | 19.761 | 1.000 |
| Extraversion | 33.109 | 0.255 | 32.608 | 33.604 | 1.000 |
| Openness | 30.064 | 0.244 | 29.590 | 30.540 | 1.000 |
| Agreeableness | 32.482 | 0.220 | 32.052 | 32.908 | 1.000 |
| Conscientiousness | 35.718 | 0.253 | 35.221 | 36.213 | 1.000 |
| Neuroticism | 6.194 | 0.603 | 5.016 | 7.387 | 1.000 |
| Extraversion | -5.851 | 0.462 | -6.754 | -4.938 | 1.000 |
| Openness | -2.346 | 0.448 | -3.219 | -1.473 | 1.000 |
| Agreeableness | -3.324 | 0.400 | -4.108 | -2.548 | 1.000 |
| Conscientiousness | -6.725 | 0.456 | -7.612 | -5.821 | 1.000 |
| Neuroticism | 9.098 | 0.197 | 8.721 | 9.499 | 1.000 |
| Extraversion | 6.917 | 0.150 | 6.628 | 7.217 | 1.000 |
| Openness | 6.700 | 0.146 | 6.422 | 6.995 | 1.000 |
| Agreeableness | 5.999 | 0.131 | 5.749 | 6.261 | 1.000 |
| Conscientiousness | 6.869 | 0.149 | 6.586 | 7.167 | 1.000 |

The score distributions of the NEO-FFI-60 subscales for the two groups (rescue-worker sample vs. community/student sample) are shown in Figure [**3**](#boxplot-neoffi60). The five subscales of the NEO-FFI-60 were included in a multivariate Bayesian model to test for group differences between rescue-worker and community/student samples (model bmod2). Bayesian posterior estimates for group differences are presented in Table [**Errore. L'origine riferimento non è stata trovata.**](#coefs-neoffimvmodel). Effect size for group differences on the six NEO-FFI-60 scales were the following: Neuroticism, Cohen’s = 0.683, 95% credibility interval [0.551, 0.817]; Extraversion, Cohen’s = -0.846, 95% credibility interval [-0.979, -0.707]; Openness, Cohen’s = -0.349, 95% credibility interval [-0.48, -0.226]; Agreeableness, Cohen’s = -0.349, 95% credibility interval [-0.48, -0.226]; Conscientiousness, Cohen’s = -0.981, 95% credibility interval [-1.114, -0.839].

## Social support



**Figure** **4:** Half-boxplots and score distributions by group (rescue-worker sample vs. community/student sample) for the three MSPSS subscales.

(#tab:coefs-mspssmvmodel)

Posterior mean, standard error, 95% credible interval and statistic for the parameters of the bmod5 model based on the Asymmetric Laplace distribution.

| parameter | mean | SE | lower bound | upper bound | Rhat |
| --- | --- | --- | --- | --- | --- |
| Intercept Family | 24.008 | 0.008 | 24.000 | 24.029 | 1.003 |
| Intercept Friends | 24.007 | 0.007 | 24.000 | 24.026 | 1.002 |
| Intercept Significant Other | 24.006 | 0.006 | 24.000 | 24.021 | 1.003 |
| Family | 0.008 | 0.018 | -0.021 | 0.052 | 1.012 |
| Friends | 0.011 | 0.020 | -0.018 | 0.065 | 1.013 |
| Significant Other | 0.009 | 0.015 | -0.012 | 0.047 | 1.009 |
| Family | 0.011 | 0.008 | 0.002 | 0.030 | 1.010 |
| Friends | 0.011 | 0.007 | 0.001 | 0.029 | 1.064 |
| Significant Other | 0.009 | 0.006 | 0.001 | 0.025 | 1.063 |
| Family | 0.998 | 0.001 | 0.995 | 1.000 | 1.010 |
| Friends | 0.998 | 0.001 | 0.995 | 1.000 | 1.064 |
| Significant Other | 0.998 | 0.001 | 0.994 | 1.000 | 1.063 |

The score distributions of the MSPSS subscales for the two groups (rescue-worker sample vs. community/student sample) are shown in Figure [**4**](#boxplot-mspss). The three MSPSS subscales were included in a multivariate Bayesian analysis to test for group differences between rescue-worker and the community/student samples (model bmod3). Bayesian posterior estimates for group differences are presented in Table [**Errore. L'origine riferimento non è stata trovata.**](#coefs-mspssmvmodel). We found no credible differences between the two groups. The posterior probability that the mean MSPSS TS is smaller for the community/student group than for the RW sample is 0.23, Evid.Ratio = 0.299, Cohen’s = 0.191, 95% credibility interval [0.062, 0.325].

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