

The Sense of Coherence scale (SOC-13): Psychometric properties and general recommendations for the advancement of the SOC scale

Anonymous

2023-02-28

```
library(tidyverse)
library(psych)
library(forcats)
library(lavaan)
library(skimr)
library(corrplot)
library(car)
library(RColorBrewer)
library(sjPlot)
library(parameters)
library(Hmisc)

df <- read_csv("1_data/data_cleaned_soc.csv")
```

Confirmatory Factor Analysis

```
# Model specification - One-factor model
model <- '
    # Defining latent variables
    socs =~ soc1 + soc2 + soc3 + soc4 + soc5 + soc6 +
    soc7 + soc8 + soc9 + soc10 + soc11 + soc12 + soc13
    '

# Model estimation
fit1 <- cfa(model,
    data = df,
    estimator = "ML")

summary(fit1,
    rsquare = TRUE,
    standardized = TRUE,
    fit.measures = TRUE)

modindices(fit1, sort = TRUE)

# Model specification - Modified one-factor model
model <- '
    # Defining latent variables
    socs =~ soc1 + soc2 + soc3 + soc4 + soc5 + soc6 +
    soc7 + soc8 + soc9 + soc10 + soc11 + soc12 + soc13
    '
```

```

        # Residual covariances
        soc2 ~~ soc3
    ,

# Model estimation
fit2 <- cfa(model,
            data = df,
            estimator = "ML")

summary(fit2,
        rsquare = TRUE,
        standardized = TRUE,
        fit.measures = TRUE)

anova(fit5, fit3)

# Model specification - Second order three-factor model
model <- '
    # Defining latent variables
    me =~ soc1 + soc4 + soc7 + soc12
    ma =~ soc3 + soc5 + soc10 + soc13
    co =~ soc2 + soc6 + soc8 + soc9 + soc11
    socs =~ ma + me + co

    ma ~~ 0*ma
,

# Model estimation
fit3 <- cfa(model,
            data = df,
            estimator = "ML")

summary(fit3,
        rsquare = TRUE,
        standardized = TRUE,
        fit.measures = TRUE)

# Model specification - Modified second order three-factor model
model <- '
    # Defining latent variables
    me =~ soc1 + soc4 + soc7 + soc12
    ma =~ soc3 + soc5 + soc10 + soc13
    co =~ soc2 + soc6 + soc8 + soc9 + soc11
    socs =~ ma + me + co

    # Residual covariances
    soc2 ~~ soc3

    ma ~~ 0*ma
,

# Model estimation
fit4 <- cfa(model,

```

```

        data = df,
        estimator = "ML")

summary(fit4,
        rsquare = TRUE,
        standardized = TRUE,
        fit.measures = TRUE)

### SOC-12 ###
# Model specification - One-factor model
model <- '
    # Defining latent variables
    socs =~ soc1 + soc3 + soc4 + soc5 + soc6 + soc7 + soc8 + soc9 + soc10 + soc11 + soc12 + soc13
    ,

# Model estimation
fit5 <- cfa(model,
            data = df,
            estimator = "ML")

summary(fit5,
        rsquare = TRUE,
        standardized = TRUE,
        fit.measures = TRUE)

# Model specification - Second order three-factor model
model <- '
    # Defining latent variables
    me =~ soc1 + soc4 + soc7 + soc12
    ma =~ soc3 + soc5 + soc10 + soc13
    co =~ soc6 + soc8 + soc9 + soc11
    socs =~ me + ma + co

    ma ~~ 0*ma
    ,

# Model estimation
fit6 <- cfa(model,
            data = df,
            estimator = "ML")

summary(fit6,
        rsquare = TRUE,
        standardized = TRUE,
        fit.measures = TRUE)

### Model testing
anova(fit1, fit2)
BIC(fit1) - BIC(fit2)
anova(fit1, fit3)
BIC(fit1) - BIC(fit3)
anova(fit2, fit4)
BIC(fit2) - BIC(fit4)

```

```
anova(fit3, fit4)
BIC(fit4) - BIC(fit3)
BIC(fit1) - BIC(fit5)
anova(fit5, fit6)
BIC(fit5) - BIC(fit6)
anova(fit1, fit6)
BIC(fit6) - BIC(fit3)
```