**Parallel Analysis**

Parallel analysis suggests that the number of factors = 4 and the number of components = NA

Call: fa.parallel(x = PS\_factors\_cor, n.obs = 358, fm = "ml", fa = "fa")

Parallel analysis suggests that the number of factors = 4 and the number of components = NA

Chart, line chart

Description automatically generated

Eigen Values

eigen values of factors

[1] 3.27 0.82 0.34 0.08 -0.04 -0.48 -0.85

eigen values of simulated factors

[1] 0.77 0.15 0.08 0.03 -0.02 -0.07 -0.15

eigen values of components

[1] 3.60 1.79 0.87 0.38 0.17 0.14 0.06

eigen values of simulated components

[1] NA

Factor Analysis using method = minres

Call: fa(r = PS\_factors\_cor, nfactors = 4, n.obs = 359)

Standardized loadings (pattern matrix) based upon correlation matrix

MR1 MR2 MR3 MR4

SS loadings 2.54 1.73 1.63 0.20

Proportion Var 0.36 0.25 0.23 0.03

Cumulative Var 0.36 0.61 0.84 0.87

Proportion Explained 0.42 0.28 0.27 0.03

Cumulative Proportion 0.42 0.70 0.97 1.00

With factor correlations of

MR1 MR2 MR3 MR4

MR1 1.00 0.13 0.55 0.01

MR2 0.13 1.00 0.12 0.00

MR3 0.55 0.12 1.00 -0.10

MR4 0.01 0.00 -0.10 1.00

Mean item complexity = 1.1

Test of the hypothesis that 4 factors are sufficient.

The degrees of freedom for the null model are 21 and the objective function was 5.86 with Chi Square of 2078.66

The degrees of freedom for the model are -1 and the objective function was 0

The root mean square of the residuals (RMSR) is 0

The df corrected root mean square of the residuals is NA

The harmonic number of observations is 359 with the empirical chi square 0.01 with prob < NA

The total number of observations was 359 with Likelihood Chi Square = 0.3 with prob < NA

Tucker Lewis Index of factoring reliability = 1.013

Fit based upon off diagonal values = 1

Measures of factor score adequacy

MR1 MR2 MR3

Correlation of (regression) scores with factors 1.00 0.96 1.00

Multiple R square of scores with factors 1.00 0.93 0.99

Minimum correlation of possible factor scores 0.99 0.85 0.99

MR4

Correlation of (regression) scores with factors 0.74

Multiple R square of scores with factors 0.55

Minimum correlation of possible factor scores 0.11

**3-factor model**

Factor Analysis using method = minres

Call: fa(r = PS\_factors\_cor, nfactors = 3, n.obs = 358)

Standardized loadings (pattern matrix) based upon correlation matrix

MR1 MR2 MR3

SS loadings 2.52 1.72 1.56

Proportion Var 0.36 0.25 0.22

Cumulative Var 0.36 0.61 0.83

Proportion Explained 0.43 0.30 0.27

Cumulative Proportion 0.43 0.73 1.00

With factor correlations of

MR1 MR2 MR3

MR1 1.00 0.14 0.55

MR2 0.14 1.00 0.12

MR3 0.55 0.12 1.00

Mean item complexity = 1

Test of the hypothesis that 3 factors are sufficient.

The degrees of freedom for the null model are 21 and the objective function was 5.86 with Chi Square of 2072.8

The degrees of freedom for the model are 3 and the objective function was 0.19

The root mean square of the residuals (RMSR) is 0.02

The df corrected root mean square of the residuals is 0.05

The harmonic number of observations is 358 with the empirical chi square 5.52 with prob < 0.14

The total number of observations was 358 with Likelihood Chi Square = 67.14 with prob < 0.000000000000017

Tucker Lewis Index of factoring reliability = 0.78

RMSEA index = 0.244 and the 90 % confidence intervals are 0.196 0.297

BIC = 49.5

Fit based upon off diagonal values = 1