

# Output CFAs

## Two-scale solution

### Positive Expressiveness

#### Subsample 1

#### CFA

```
#CFA mit 2 und 3 Faktoren, so wie in Literatur
#Items 19 (NS) und 28 (PD) vorab gelöscht

# f2 scale: Positive expressiveness (P)

# unidimensionality
fa2_model_scaleP <- "
fa2_scaleP =~ FEQ_01 + FEQ_06 + FEQ_16 + FEQ_17 + FEQ_18 + FEQ_23 + FEQ_26 + FEQ_33
+
      FEQ_39 + FEQ_02 + FEQ_03 + FEQ_13 + FEQ_21 + FEQ_22 + FEQ_30 + FEQ_31 +
      FEQ_35 + FEQ_38 + FEQ_40
"

s1.fa2.cfa_scaleP <- cfa(fa2_model_scaleP, data = feq_sample_1, estimator = "MLM", mimic =
"Mplus")

summary(s1.fa2.cfa_scaleP, fit.measures = T, standardized = T)
```

Estimator	ML
Optimization method	NLMINB
Number of free parameters	57
Number of observations	325

#### Model Test User Model:

	Standard	Robust
Test Statistic	747.922	626.077
Degrees of freedom	152	152
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.195
Satorra-Bentler correction (Mplus variant)		

#### Model Test Baseline Model:

Test statistic	3938.783	3363.165
Degrees of freedom	171	171
P-value	0.000	0.000
Scaling correction factor		1.171

#### User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.842	0.851
Tucker-Lewis Index (TLI)	0.822	0.833
Robust Comparative Fit Index (CFI)		0.849
Robust Tucker-Lewis Index (TLI)		0.830

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-11534.797	-11534.797
Loglikelihood unrestricted model (H1)	-11160.836	-11160.836
Akaike (AIC)	23183.594	23183.594
Bayesian (BIC)	23399.272	23399.272
Sample-size adjusted Bayesian (BIC)	23218.472	23218.472

Root Mean Square Error of Approximation:

RMSEA	0.110	0.098
90 Percent confidence interval - lower	0.102	0.091
90 Percent confidence interval - upper	0.118	0.105
P-value RMSEA $\leq 0.05$	0.000	0.000
<b>Robust RMSEA</b>		<b>0.107</b>
90 Percent confidence interval - lower		0.098
90 Percent confidence interval - upper		0.116

Standardized Root Mean Square Residual:

<b>SRMR</b>	<b>0.059</b>	<b>0.059</b>
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Parameter Estimates:

Standard errors	Robust.sem
Information	Expected
Information saturated (h1) model	Structured

Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
fa2_scaleP =~						
FEQ_01	1.000				1.120	0.596
FEQ_06	1.119	0.108	10.357	0.000	1.253	0.726
FEQ_16	0.660	0.110	6.018	0.000	0.740	0.391
FEQ_17	0.966	0.121	7.994	0.000	1.082	0.552
FEQ_18	1.231	0.110	11.173	0.000	1.379	0.731
FEQ_23	1.678	0.149	11.260	0.000	1.880	0.799
FEQ_26	1.688	0.158	10.658	0.000	1.890	0.685
FEQ_33	1.332	0.107	12.400	0.000	1.492	0.784
FEQ_39	1.290	0.126	10.238	0.000	1.444	0.675
FEQ_02	1.110	0.100	11.107	0.000	1.243	0.704
FEQ_03	1.190	0.119	10.012	0.000	1.333	0.682
<b>FEQ_13</b>	<b>0.175</b>	<b>0.102</b>	<b>1.713</b>	<b>0.087</b>	<b>0.196</b>	<b>0.108</b>
FEQ_21	1.478	0.142	10.407	0.000	1.655	0.717
FEQ_22	1.449	0.127	11.450	0.000	1.623	0.860
FEQ_30	1.064	0.105	10.166	0.000	1.192	0.680
FEQ_31	1.630	0.159	10.233	0.000	1.826	0.664

FEQ_35	1.441	0.136	10.578	0.000	1.615	0.745
FEQ_38	1.206	0.107	11.293	0.000	1.351	0.772
FEQ_40	1.562	0.127	12.298	0.000	1.750	0.760

Intercepts:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_01	6.058	0.104	58.116	0.000	6.058	3.224
.FEQ_06	6.898	0.096	71.999	0.000	6.898	3.994
.FEQ_16	6.034	0.105	57.512	0.000	6.034	3.190
.FEQ_17	6.031	0.109	55.488	0.000	6.031	3.078
.FEQ_18	6.043	0.105	57.780	0.000	6.043	3.205
.FEQ_23	6.077	0.130	46.589	0.000	6.077	2.584
.FEQ_26	5.182	0.153	33.827	0.000	5.182	1.876
.FEQ_33	6.582	0.106	62.346	0.000	6.582	3.458
.FEQ_39	5.840	0.119	49.176	0.000	5.840	2.728
.FEQ_02	7.111	0.098	72.574	0.000	7.111	4.026
.FEQ_03	6.505	0.108	59.955	0.000	6.505	3.326
.FEQ_13	5.560	0.100	55.343	0.000	5.560	3.070
.FEQ_21	5.692	0.128	44.463	0.000	5.692	2.466
.FEQ_22	6.662	0.105	63.600	0.000	6.662	3.528
.FEQ_30	6.788	0.097	69.817	0.000	6.788	3.873
.FEQ_31	5.329	0.152	34.965	0.000	5.329	1.939
.FEQ_35	5.788	0.120	48.146	0.000	5.788	2.671
.FEQ_38	6.772	0.097	69.771	0.000	6.772	3.870
.FEQ_40	5.948	0.128	46.607	0.000	5.948	2.585
fa2_scaleP	0.000			0.000	0.000	

Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_01	2.277	0.170	13.383	0.000	2.277	0.645
.FEQ_06	1.413	0.126	11.215	0.000	1.413	0.474
.FEQ_16	3.030	0.206	14.728	0.000	3.030	0.847
.FEQ_17	2.669	0.180	14.849	0.000	2.669	0.695
.FEQ_18	1.653	0.142	11.615	0.000	1.653	0.465
.FEQ_23	1.996	0.144	13.834	0.000	1.996	0.361
.FEQ_26	4.052	0.193	20.982	0.000	4.052	0.531
.FEQ_33	1.395	0.128	10.883	0.000	1.395	0.385
.FEQ_39	2.497	0.201	12.397	0.000	2.497	0.545
.FEQ_02	1.575	0.119	13.233	0.000	1.575	0.505
.FEQ_03	2.048	0.222	9.210	0.000	2.048	0.535
.FEQ_13	3.242	0.210	15.417	0.000	3.242	0.988
.FEQ_21	2.586	0.202	12.816	0.000	2.586	0.486
.FEQ_22	0.930	0.087	10.632	0.000	0.930	0.261
.FEQ_30	1.650	0.118	13.943	0.000	1.650	0.537
.FEQ_31	4.217	0.205	20.522	0.000	4.217	0.558
.FEQ_35	2.090	0.215	9.734	0.000	2.090	0.445
.FEQ_38	1.238	0.096	12.871	0.000	1.238	0.404
.FEQ_40	2.232	0.203	11.010	0.000	2.232	0.422
fa2_scaleP	1.255	0.225	5.576	0.000	1.000	1.000

## Reliability

```
# reliability mit Item FEQ_13
s1.fa2_scaleP <- feq_sample_1 %>% select(FEQ_01, FEQ_06, FEQ_16, FEQ_17, FEQ_18, FEQ_23,
FEQ_26, FEQ_33, FEQ_39,
FEQ_02, FEQ_03, FEQ_13, FEQ_21, FEQ_22, FEQ_30, FEQ_31, FEQ_35,
FEQ_38, FEQ_40)

set.seed(42)
ci.reliability(data = s1.fa2_scaleP, type="hierarchical", conf.level = 0.95, interval.type="bca",
B=1000)
alpha.fa2_scaleP = alpha(s1.fa2_scaleP)
print(alpha.fa2_scaleP, digits = 3)
```

\$est

[1] 0.9365491

\$se

[1] 0.006567465

\$ci.lower

[1] 0.9214002

\$ci.upper

[1] 0.9478921

\$conf.level

[1] 0.95

\$type

[1] "hierarchical omega"

\$interval.type

[1] "bca bootstrap"

Reliability analysis

Call: alpha(x = s1.fa2\_scaleP)

raw_alpha	std.alpha	G6(smc)	average_r	S/N	ase	mean	sd	median_r
0.937	0.938	0.95	0.442	15	0.00485	6.15	1.42	0.471

lower alpha upper    95% confidence boundaries  
0.927 0.937 0.946

Reliability if an item is dropped:

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha	se	var.r	med.r
FEQ_01	0.935	0.936	0.949	0.448	14.6	0.00500	0.0289	0.493	
FEQ_06	0.933	0.933	0.947	0.438	14.0	0.00514	0.0286	0.469	
FEQ_16	0.938	0.939	0.950	0.460	15.3	0.00479	0.0275	0.507	
FEQ_17	0.935	0.936	0.948	0.448	14.6	0.00496	0.0300	0.506	
FEQ_18	0.932	0.933	0.946	0.437	14.0	0.00518	0.0291	0.470	
FEQ_23	0.930	0.932	0.945	0.432	13.7	0.00537	0.0275	0.464	

FEQ_26	0.933	0.934	0.945	0.440	14.1	0.00516	0.0285	0.476
FEQ_33	0.931	0.932	0.946	0.433	13.8	0.00525	0.0285	0.464
FEQ_39	0.933	0.934	0.948	0.442	14.2	0.00511	0.0291	0.471
FEQ_02	0.933	0.934	0.947	0.439	14.1	0.00513	0.0287	0.469
FEQ_03	0.933	0.934	0.947	0.441	14.2	0.00512	0.0293	0.471
FEQ_13	0.942	0.944	0.954	0.485	16.9	0.00455	0.0133	0.507
FEQ_21	0.932	0.933	0.947	0.438	14.0	0.00520	0.0291	0.470
FEQ_22	0.930	0.931	0.944	0.428	13.5	0.00535	0.0270	0.464
FEQ_30	0.934	0.934	0.947	0.442	14.2	0.00507	0.0284	0.472
FEQ_31	0.934	0.934	0.945	0.442	14.2	0.00511	0.0283	0.481
FEQ_35	0.932	0.933	0.947	0.436	13.9	0.00523	0.0288	0.465
FEQ_38	0.932	0.932	0.945	0.434	13.8	0.00519	0.0279	0.465
FEQ_40	0.932	0.933	0.947	0.435	13.9	0.00525	0.0283	0.468

#### Item statistics

	n	raw.r	std.r	r.cor	r.drop	mean	sd
FEQ_01	325	0.610	0.618	0.588	0.563	6.06	1.88
FEQ_06	325	0.723	0.737	0.723	0.691	6.90	1.73
FEQ_16	325	0.465	0.474	0.435	0.407	6.03	1.89
FEQ_17	325	0.604	0.611	0.584	0.555	6.03	1.96
FEQ_18	325	0.741	0.748	0.735	0.707	6.04	1.89
FEQ_23	325	0.815	0.799	0.797	0.782	6.08	2.36
FEQ_26	325	0.740	0.711	0.706	0.688	5.18	2.77
FEQ_33	325	0.785	0.790	0.783	0.756	6.58	1.91
FEQ_39	325	0.693	0.691	0.668	0.648	5.84	2.14
FEQ_02	325	0.709	0.721	0.707	0.674	7.11	1.77
FEQ_03	325	0.695	0.700	0.679	0.655	6.50	1.96
FEQ_13	325	0.179	0.187	0.123	0.113	5.56	1.81
FEQ_21	325	0.742	0.732	0.717	0.700	5.69	2.31
FEQ_22	325	0.845	0.850	0.851	0.824	6.66	1.89
FEQ_30	325	0.672	0.688	0.670	0.633	6.79	1.76
FEQ_31	325	0.719	0.688	0.683	0.664	5.33	2.75
FEQ_35	325	0.760	0.757	0.743	0.722	5.79	2.17
FEQ_38	325	0.763	0.779	0.773	0.734	6.77	1.75
FEQ_40	325	0.765	0.764	0.751	0.725	5.95	2.30

#### Non missing response frequency for each item

	1	2	3	4	5	6	7	8	9	miss
FEQ_01	0.015	0.043	0.058	0.086	0.129	0.163	0.283	0.163	0.058	0
FEQ_06	0.006	0.022	0.018	0.062	0.083	0.132	0.237	0.280	0.160	0
FEQ_16	0.015	0.037	0.062	0.089	0.160	0.166	0.225	0.182	0.065	0
FEQ_17	0.022	0.046	0.071	0.065	0.126	0.188	0.243	0.172	0.068	0
FEQ_18	0.012	0.034	0.068	0.098	0.151	0.160	0.231	0.178	0.068	0
FEQ_23	0.040	0.083	0.065	0.058	0.092	0.151	0.151	0.218	0.142	0
FEQ_26	0.126	0.126	0.089	0.080	0.071	0.111	0.117	0.142	0.138	0
FEQ_33	0.012	0.025	0.058	0.062	0.089	0.132	0.240	0.255	0.126	0
FEQ_39	0.028	0.065	0.083	0.092	0.135	0.126	0.212	0.182	0.077	0
FEQ_02	0.000	0.018	0.031	0.058	0.068	0.123	0.191	0.262	0.249	0
FEQ_03	0.006	0.040	0.046	0.080	0.108	0.138	0.212	0.218	0.151	0
FEQ_13	0.012	0.052	0.086	0.111	0.197	0.200	0.212	0.092	0.037	0
FEQ_21	0.043	0.098	0.086	0.080	0.071	0.154	0.228	0.157	0.083	0

```
FEQ_22 0.003 0.040 0.040 0.080 0.077 0.098 0.265 0.262 0.135 0
FEQ_30 0.009 0.015 0.037 0.043 0.108 0.132 0.268 0.231 0.157 0
FEQ_31 0.142 0.102 0.080 0.040 0.071 0.132 0.160 0.148 0.126 0
FEQ_35 0.049 0.055 0.062 0.105 0.117 0.160 0.209 0.172 0.071 0
FEQ_38 0.003 0.022 0.034 0.058 0.086 0.169 0.243 0.218 0.166 0
FEQ_40 0.040 0.071 0.077 0.092 0.086 0.135 0.172 0.218 0.108 0
```

### Subsample 2 (without item 13)

```
#####Überprüfung in Sample 2: ohne FEQ_13

# unidimensionality
fa2_model_scaleP <- "
fa2_scaleP =~ FEQ_01 + FEQ_06 + FEQ_16 + FEQ_17 + FEQ_18 + FEQ_23 + FEQ_26 + FEQ_33
+
      FEQ_39 + FEQ_02 + FEQ_03 + FEQ_21 + FEQ_22 + FEQ_30 + FEQ_31 +
      FEQ_35 + FEQ_38 + FEQ_40
"

s2.fa2.cfa_scaleP <- cfa(fa2_model_scaleP, data = feq_sample_2, estimator = "MLM", mimic =
"Mplus")

summary(s2.fa2.cfa_scaleP, fit.measures = T, standardized = T)
```

Estimator	ML
Optimization method	NLMINB
Number of free parameters	54

Number of observations	325
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#### Model Test User Model:

	Standard	Robust
Test Statistic	622.490	497.664
Degrees of freedom	135	135
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.251
Satorra-Bentler correction (Mplus variant)		

#### Model Test Baseline Model:

Test statistic	3984.450	3289.985
Degrees of freedom	153	153
P-value	0.000	0.000
Scaling correction factor		1.211

#### User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.873	0.884
Tucker-Lewis Index (TLI)	0.856	0.869
Robust Comparative Fit Index (CFI)		0.881
Robust Tucker-Lewis Index (TLI)		0.865

#### Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-10890.093	-10890.093
Loglikelihood unrestricted model (H1)	-10578.848	-10578.848

Akaike (AIC)	21888.186	21888.186
Bayesian (BIC)	22092.513	22092.513
Sample-size adjusted Bayesian (BIC)	21921.229	21921.229

Root Mean Square Error of Approximation:

RMSEA	0.105	0.091
90 Percent confidence interval - lower	0.097	0.083
90 Percent confidence interval - upper	0.114	0.099
P-value RMSEA <= 0.05	0.000	0.000

<b>Robust RMSEA</b>	<b>0.102</b>
90 Percent confidence interval - lower	0.092
90 Percent confidence interval - upper	0.111

Standardized Root Mean Square Residual:

<b>SRMR</b>	<b>0.050</b>	<b>0.050</b>
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Parameter Estimates:

Standard errors	Robust.sem
Information	Expected
Information saturated (h1) model	Structured

Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
fa2_scaleP =~						
FEQ_01	1.000				0.974	0.538
FEQ_06	1.476	0.149	9.876	0.000	1.437	0.750
FEQ_16	0.948	0.160	5.921	0.000	0.923	0.464
FEQ_17	1.345	0.171	7.877	0.000	1.309	0.588
FEQ_18	1.592	0.168	9.475	0.000	1.550	0.782
FEQ_23	2.003	0.208	9.627	0.000	1.950	0.804
FEQ_26	1.832	0.200	9.160	0.000	1.784	0.697
FEQ_33	1.526	0.163	9.376	0.000	1.486	0.787
FEQ_39	1.498	0.171	8.742	0.000	1.459	0.667
FEQ_02	1.402	0.146	9.592	0.000	1.365	0.723
FEQ_03	1.645	0.183	9.004	0.000	1.602	0.742
FEQ_21	1.605	0.175	9.190	0.000	1.563	0.726
FEQ_22	1.644	0.171	9.621	0.000	1.601	0.826
FEQ_30	1.208	0.143	8.439	0.000	1.176	0.665
FEQ_31	1.811	0.189	9.589	0.000	1.763	0.678
FEQ_35	1.726	0.194	8.897	0.000	1.680	0.798
FEQ_38	1.405	0.150	9.350	0.000	1.368	0.779
FEQ_40	1.728	0.178	9.693	0.000	1.683	0.749

Intercepts:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_01	6.086	0.100	60.651	0.000	6.086	3.364
.FEQ_06	6.542	0.106	61.560	0.000	6.542	3.415
.FEQ_16	5.926	0.110	53.661	0.000	5.926	2.977
.FEQ_17	5.751	0.123	46.568	0.000	5.751	2.583
.FEQ_18	5.960	0.110	54.215	0.000	5.960	3.007
.FEQ_23	6.015	0.135	44.699	0.000	6.015	2.479

.FEQ_26	5.249	0.142	36.958	0.000	5.249	2.050
.FEQ_33	6.575	0.105	62.815	0.000	6.575	3.484
.FEQ_39	5.603	0.121	46.167	0.000	5.603	2.561
.FEQ_02	6.994	0.105	66.738	0.000	6.994	3.702
.FEQ_03	6.360	0.120	53.107	0.000	6.360	2.946
.FEQ_21	5.702	0.119	47.716	0.000	5.702	2.647
.FEQ_22	6.480	0.108	60.267	0.000	6.480	3.343
.FEQ_30	6.689	0.098	68.150	0.000	6.689	3.780
.FEQ_31	5.175	0.144	35.868	0.000	5.175	1.990
.FEQ_35	5.677	0.117	48.602	0.000	5.677	2.696
.FEQ_38	6.714	0.097	68.919	0.000	6.714	3.823
.FEQ_40	5.966	0.125	47.871	0.000	5.966	2.655
fa2_scaleP	0.000			0.000	0.000	

Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_01	2.325	0.190	12.239	0.000	2.325	0.710
.FEQ_06	1.605	0.156	10.314	0.000	1.605	0.437
.FEQ_16	3.111	0.246	12.656	0.000	3.111	0.785
.FEQ_17	3.242	0.258	12.543	0.000	3.242	0.654
.FEQ_18	1.524	0.117	13.037	0.000	1.524	0.388
.FEQ_23	2.082	0.170	12.273	0.000	2.082	0.354
.FEQ_26	3.373	0.180	18.724	0.000	3.373	0.515
.FEQ_33	1.354	0.125	10.858	0.000	1.354	0.380
.FEQ_39	2.659	0.189	14.059	0.000	2.659	0.555
.FEQ_02	1.706	0.129	13.257	0.000	1.706	0.478
.FEQ_03	2.096	0.172	12.159	0.000	2.096	0.450
.FEQ_21	2.198	0.158	13.869	0.000	2.198	0.474
.FEQ_22	1.195	0.112	10.639	0.000	1.195	0.318
.FEQ_30	1.748	0.192	9.125	0.000	1.748	0.558
.FEQ_31	3.658	0.183	19.935	0.000	3.658	0.541
.FEQ_35	1.610	0.117	13.708	0.000	1.610	0.363
.FEQ_38	1.213	0.080	15.178	0.000	1.213	0.393
.FEQ_40	2.217	0.164	13.543	0.000	2.217	0.439
fa2_scaleP	0.948	0.199	4.758	0.000	1.000	1.000

### Reliability

```
# reliability ohne Item FEQ_13
s2.fa2_scaleP <- feq_sample_2 %>% select(FEQ_01, FEQ_06, FEQ_16, FEQ_17, FEQ_18, FEQ_23,
FEQ_26, FEQ_33, FEQ_39,
FEQ_02, FEQ_03, FEQ_21, FEQ_22, FEQ_30, FEQ_31, FEQ_35, FEQ_38,
FEQ_40)

set.seed(42)
ci.reliability(data = s2.fa2_scaleP, type="hierarchical", conf.level = 0.95,
interval.type="bca", B=1000)
alpha.fa2_scaleP = alpha(s2.fa2_scaleP)
print(alpha.fa2_scaleP, digits = 3)
```

\$est

[1] 0.9471788

\$se

[1] 0.004607877



```
$ci.lower  
[1] 0.9379304
```

```
$ci.upper  
[1] 0.9556217
```

```
$conf.level  
[1] 0.95
```

```
$type  
[1] "hierarchical omega"
```

```
$interval.type  
[1] "bca bootstrap"
```

```
Reliability analysis  
Call: alpha(x = s2.fa2_scaleP)
```

raw_alpha	std.alpha	G6(smc)	average_r	S/N	ase	mean	sd	median_r
0.947	0.948	0.956	0.502	18.1	0.00423	6.08	1.52	0.51

```
lower alpha upper    95% confidence boundaries  
0.938 0.947 0.955
```

```
Reliability if an item is dropped:
```

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha	se	var.r	med.r
FEQ_01	0.946	0.948	0.956	0.517	18.2	0.00429	0.01082	0.523	
FEQ_06	0.943	0.944	0.953	0.498	16.9	0.00452	0.01252	0.496	
FEQ_16	0.947	0.949	0.957	0.523	18.6	0.00418	0.00863	0.523	
FEQ_17	0.946	0.947	0.955	0.512	17.8	0.00429	0.01171	0.518	
FEQ_18	0.942	0.943	0.952	0.495	16.7	0.00458	0.01236	0.496	
FEQ_23	0.942	0.943	0.952	0.494	16.6	0.00466	0.01165	0.496	
FEQ_26	0.944	0.945	0.952	0.503	17.2	0.00446	0.01197	0.513	
FEQ_33	0.942	0.944	0.952	0.496	16.7	0.00457	0.01206	0.495	
FEQ_39	0.944	0.946	0.954	0.505	17.4	0.00442	0.01257	0.516	
FEQ_02	0.943	0.945	0.953	0.501	17.1	0.00448	0.01215	0.510	
FEQ_03	0.943	0.944	0.953	0.499	17.0	0.00452	0.01234	0.506	
FEQ_21	0.943	0.945	0.953	0.501	17.1	0.00449	0.01221	0.498	
FEQ_22	0.942	0.943	0.952	0.493	16.5	0.00461	0.01156	0.495	
FEQ_30	0.944	0.946	0.954	0.506	17.4	0.00441	0.01205	0.510	
FEQ_31	0.944	0.945	0.952	0.504	17.3	0.00443	0.01195	0.515	
FEQ_35	0.942	0.943	0.952	0.494	16.6	0.00462	0.01219	0.495	
FEQ_38	0.943	0.944	0.952	0.497	16.8	0.00452	0.01163	0.496	
FEQ_40	0.943	0.944	0.953	0.499	16.9	0.00452	0.01225	0.499	

```
Item statistics
```

	n	raw.r	std.r	r.cor	r.drop	mean	sd
FEQ_01	325	0.567	0.576	0.537	0.520	6.09	1.81
FEQ_06	325	0.759	0.766	0.751	0.727	6.54	1.92
FEQ_16	325	0.511	0.511	0.471	0.454	5.93	1.99
FEQ_17	325	0.627	0.624	0.595	0.574	5.75	2.23

FEQ_18	325	0.798	0.800	0.791	0.769	5.96	1.98
FEQ_23	325	0.817	0.808	0.802	0.785	6.02	2.43
FEQ_26	325	0.738	0.721	0.713	0.691	5.25	2.56
FEQ_33	325	0.790	0.795	0.785	0.762	6.58	1.89
FEQ_39	325	0.696	0.695	0.671	0.651	5.60	2.19
FEQ_02	325	0.729	0.736	0.722	0.694	6.99	1.89
FEQ_03	325	0.756	0.755	0.743	0.719	6.36	2.16
FEQ_21	325	0.737	0.736	0.720	0.697	5.70	2.16
FEQ_22	325	0.822	0.827	0.822	0.796	6.48	1.94
FEQ_30	325	0.674	0.685	0.663	0.636	6.69	1.77
FEQ_31	325	0.726	0.708	0.698	0.676	5.18	2.61
FEQ_35	325	0.814	0.812	0.804	0.785	5.68	2.11
FEQ_38	325	0.773	0.785	0.777	0.745	6.71	1.76
FEQ_40	325	0.759	0.761	0.747	0.721	5.97	2.25

Non missing response frequency for each item

	1	2	3	4	5	6	7	8	9	miss	
FEQ_01	0.012	0.034	0.058	0.071	0.151	0.212	0.243	0.148	0.071	0	
FEQ_06	0.003	0.034	0.052	0.083	0.092	0.145	0.228	0.209	0.154	0	
FEQ_16	0.025	0.052	0.049	0.095	0.154	0.178	0.231	0.126	0.089	0	
FEQ_17	0.031	0.086	0.077	0.092	0.117	0.172	0.166	0.160	0.098	0	
FEQ_18	0.009	0.049	0.077	0.098	0.166	0.148	0.194	0.172	0.086	0	
FEQ_23	0.037	0.077	0.105	0.074	0.068	0.123	0.172	0.169	0.175	0	
FEQ_26	0.086	0.120	0.086	0.129	0.068	0.120	0.154	0.120	0.117	0	
FEQ_33	0.012	0.018	0.065	0.049	0.105	0.145	0.252	0.206	0.148	0	
FEQ_39	0.018	0.098	0.092	0.105	0.129	0.163	0.185	0.108	0.102	0	
FEQ_02	0.003	0.015	0.049	0.074	0.074	0.089	0.197	0.252	0.246	0	
FEQ_03	0.009	0.055	0.089	0.077	0.065	0.129	0.191	0.231	0.154	0	
FEQ_21	0.040	0.058	0.092	0.089	0.126	0.169	0.222	0.114	0.089	0	
FEQ_22	0.012	0.034	0.055	0.058	0.108	0.148	0.234	0.218	0.132	0	
FEQ_30	0.012	0.025	0.018	0.046	0.126	0.157	0.252	0.218	0.145	0	
FEQ_31	0.102	0.120	0.095	0.086	0.120	0.089	0.142	0.138	0.108	0	
FEQ_35	0.037	0.043	0.105	0.105	0.145	0.151	0.203	0.138	0.074	0	
FEQ_38	0.003	0.018	0.049	0.049	0.105	0.151	0.228	0.265	0.132	0	
FEQ_40	0.025	0.068	0.083	0.092	0.111	0.163	0.175	0.120	0.163	0	

## Negative Family Expressiveness

### Subsample 1

#### CFA

```
#####
## f2 scale: Negative expressiveness (N)

# unidimensionality
fa2_model_scaleN <- "
fa2_scaleN =~ FEQ_04 + FEQ_05 + FEQ_07 + FEQ_09 + FEQ_11 + FEQ_12 + FEQ_24 + FEQ_27
+
      FEQ_36 + FEQ_37 + FEQ_08 + FEQ_10 + FEQ_14 + FEQ_15 + FEQ_20 + FEQ_25 +
      FEQ_29 + FEQ_32 + FEQ_34
"

s1.fa2.cfa_scaleN <- cfa(fa2_model_scaleN, data = feq_sample_1, estimator = "MLM", mimic =
"Mplus")
```

```
summary(s1.fa2.cfa_scaleN, fit.measures = T, standardized = T)
```

Estimator	ML
Optimization method	NLMINB
Number of free parameters	57

Number of observations	325
------------------------	-----

#### Model Test User Model:

	Standard	Robust
Test Statistic	949.991	864.010
Degrees of freedom	152	152
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.100
Satorra-Bentler correction (Mplus variant)		

#### Model Test Baseline Model:

Test statistic	2260.460	2081.544
Degrees of freedom	171	171
P-value	0.000	0.000
Scaling correction factor		1.086

#### User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.618	0.627
Tucker-Lewis Index (TLI)	0.570	0.581
Robust Comparative Fit Index (CFI)		0.623
Robust Tucker-Lewis Index (TLI)		0.576

#### Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-12739.521	-12739.521
Loglikelihood unrestricted model (H1)	-12264.526	-12264.526
Akaike (AIC)	25593.042	25593.042
Bayesian (BIC)	25808.720	25808.720
Sample-size adjusted Bayesian (BIC)	25627.921	25627.921

#### Root Mean Square Error of Approximation:

RMSEA	0.127	0.120
90 Percent confidence interval - lower	0.119	0.113
90 Percent confidence interval - upper	0.135	0.128
P-value RMSEA <= 0.05	0.000	0.000
Robust RMSEA		0.126
90 Percent confidence interval - lower		0.118
90 Percent confidence interval - upper		0.134

#### Standardized Root Mean Square Residual:

SRMR	0.107	0.107
------	-------	-------

Parameter Estimates:

Standard errors	Robust.sem
Information	Expected
Information saturated (h1) model	Structured

Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
fa2_scaleN =~						
FEQ_04	1.000				1.507	0.690
FEQ_05	0.710	0.054	13.221	0.000	1.070	0.610
FEQ_07	0.711	0.065	10.879	0.000	1.071	0.535
FEQ_09	1.175	0.082	14.281	0.000	1.770	0.726
FEQ_11	0.971	0.083	11.689	0.000	1.464	0.693
FEQ_12	0.962	0.072	13.282	0.000	1.449	0.655
FEQ_24	0.765	0.076	10.122	0.000	1.153	0.580
FEQ_27	0.860	0.075	11.404	0.000	1.296	0.611
FEQ_36	0.978	0.075	12.962	0.000	1.473	0.697
FEQ_37	0.458	0.089	5.134	0.000	0.690	0.310
FEQ_08	0.858	0.077	11.133	0.000	1.293	0.604
FEQ_10	0.712	0.094	7.540	0.000	1.073	0.442
FEQ_14	0.131	0.081	1.626	0.104	0.197	0.100
FEQ_15	0.664	0.084	7.868	0.000	1.000	0.477
FEQ_20	0.152	0.067	2.265	0.024	0.228	0.145
FEQ_25	0.073	0.089	0.827	0.408	0.111	0.048
FEQ_29	-0.254	0.099	-2.562	0.010	-0.382	-0.163
FEQ_32	0.660	0.089	7.445	0.000	0.994	0.436
FEQ_34	-0.007	0.100	-0.075	0.940	-0.011	-0.005

Intercepts:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_04	4.526	0.121	37.351	0.000	4.526	2.072
.FEQ_05	6.225	0.097	64.018	0.000	6.225	3.551
.FEQ_07	5.837	0.111	52.606	0.000	5.837	2.918
.FEQ_09	4.151	0.135	30.678	0.000	4.151	1.702
.FEQ_11	3.040	0.117	25.942	0.000	3.040	1.439
.FEQ_12	3.412	0.123	27.805	0.000	3.412	1.542
.FEQ_24	5.812	0.110	52.685	0.000	5.812	2.922
.FEQ_27	5.178	0.118	44.051	0.000	5.178	2.444
.FEQ_36	2.649	0.117	22.595	0.000	2.649	1.253
.FEQ_37	4.351	0.123	35.284	0.000	4.351	1.957
.FEQ_08	5.677	0.119	47.844	0.000	5.677	2.654
.FEQ_10	4.935	0.135	36.667	0.000	4.935	2.034
.FEQ_14	4.492	0.109	41.176	0.000	4.492	2.284
.FEQ_15	3.102	0.116	26.678	0.000	3.102	1.480
.FEQ_20	6.425	0.087	73.483	0.000	6.425	4.076
.FEQ_25	4.000	0.128	31.309	0.000	4.000	1.737
.FEQ_29	5.357	0.130	41.259	0.000	5.357	2.289
.FEQ_32	3.732	0.127	29.474	0.000	3.732	1.635
.FEQ_34	4.382	0.120	36.541	0.000	4.382	2.027
fa2_scaleN	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_04	2.502	0.200	12.492	0.000	2.502	0.524

.FEQ_05	1.928	0.143	13.456	0.000	1.928	0.628
.FEQ_07	2.854	0.177	16.121	0.000	2.854	0.713
.FEQ_09	2.815	0.211	13.364	0.000	2.815	0.473
.FEQ_11	2.321	0.156	14.905	0.000	2.321	0.520
.FEQ_12	2.795	0.185	15.096	0.000	2.795	0.571
.FEQ_24	2.627	0.163	16.158	0.000	2.627	0.664
.FEQ_27	2.812	0.216	12.998	0.000	2.812	0.626
.FEQ_36	2.297	0.163	14.132	0.000	2.297	0.514
.FEQ_37	4.466	0.246	18.134	0.000	4.466	0.904
.FEQ_08	2.905	0.206	14.092	0.000	2.905	0.635
.FEQ_10	4.737	0.249	19.034	0.000	4.737	0.805
.FEQ_14	3.829	0.188	20.328	0.000	3.829	0.990
.FEQ_15	3.393	0.228	14.869	0.000	3.393	0.772
.FEQ_20	2.432	0.185	13.164	0.000	2.432	0.979
.FEQ_25	5.292	0.266	19.886	0.000	5.292	0.998
.FEQ_29	5.333	0.260	20.526	0.000	5.333	0.973
.FEQ_32	4.223	0.236	17.876	0.000	4.223	0.810
.FEQ_34	4.673	0.228	20.451	0.000	4.673	1.000
fa2_scaleN	2.271	0.288	7.894	0.000	1.000	1.000

### Reliability

```
# reliability
s1.fa2_scaleN <- feq_sample_1 %>% select(FEQ_04, FEQ_05, FEQ_07, FEQ_09, FEQ_11, FEQ_12,
                                         FEQ_24, FEQ_27, FEQ_36, FEQ_37, FEQ_08, FEQ_10,
                                         FEQ_14, FEQ_15, FEQ_20, FEQ_25, FEQ_29, FEQ_32, FEQ_34)

set.seed(42)
ci.reliability(data = s1.fa2_scaleN, type="hierarchical", conf.level = 0.95,
               interval.type="bca", B=1000)
alpha.fa2_scaleN = alpha(s1.fa2_scaleN)
print(alpha.fa2_scaleN, digits = 3)

#Items, die neg. auf neg. Faktor laden sind:
#Item 29 (Für zu spät kommen entschuldigen)
#Item 34 (Sagen, wie verletzt man ist)
#Items mit geringen Ladungen:
#Item 25, Item 14 (Scham), Item 20, Item 37 (knapp)
```

```
$est
[1] 0.7423917
```

```
$se
[1] 0.03449481
```

```
$ci.lower
[1] 0.6592128
```

```
$ci.upper
[1] 0.7985142
```

```
$conf.level
[1] 0.95
```

\$type  
[1] "hierarchical omega"

\$interval.type  
[1] "bca bootstrap"

Some items were negatively correlated with the total scale and probably should be reversed.

Reliability analysis  
Call: alpha(x = s1.fa2\_scaleN)

raw_alpha	std.alpha	G6(smc)	average_r	S/N	ase	mean	sd	median_r
0.832	0.834	0.878	0.209	5.02	0.0134	4.59	1.07	0.231

lower	alpha	upper	95% confidence boundaries
0.806	0.832	0.858	

Reliability if an item is dropped:

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha	se	var.r	med.r
FEQ_04	0.817	0.819	0.865	0.201	4.54	0.0146	0.0336	0.228	
FEQ_05	0.820	0.821	0.866	0.203	4.58	0.0143	0.0355	0.228	
FEQ_07	0.819	0.820	0.867	0.202	4.57	0.0144	0.0374	0.231	
FEQ_09	0.816	0.819	0.865	0.201	4.53	0.0147	0.0329	0.227	
FEQ_11	0.820	0.823	0.866	0.205	4.65	0.0144	0.0322	0.227	
FEQ_12	0.819	0.822	0.867	0.204	4.61	0.0144	0.0343	0.228	
FEQ_24	0.822	0.824	0.870	0.207	4.69	0.0142	0.0352	0.228	
FEQ_27	0.817	0.819	0.868	0.201	4.53	0.0146	0.0363	0.217	
FEQ_36	0.817	0.820	0.866	0.201	4.54	0.0146	0.0338	0.217	
FEQ_37	0.830	0.832	0.877	0.215	4.94	0.0135	0.0387	0.256	
FEQ_08	0.817	0.820	0.867	0.202	4.55	0.0146	0.0362	0.227	
FEQ_10	0.817	0.820	0.866	0.202	4.57	0.0145	0.0374	0.212	
FEQ_14	0.832	0.835	0.877	0.219	5.06	0.0133	0.0371	0.242	
FEQ_15	0.821	0.823	0.870	0.206	4.66	0.0143	0.0378	0.227	
FEQ_20	0.829	0.832	0.876	0.216	4.96	0.0136	0.0378	0.248	
FEQ_25	0.836	0.837	0.879	0.222	5.13	0.0130	0.0361	0.251	
FEQ_29	0.846	0.846	0.883	0.234	5.50	0.0122	0.0304	0.251	
FEQ_32	0.820	0.823	0.869	0.206	4.66	0.0143	0.0378	0.231	
FEQ_34	0.837	0.839	0.880	0.224	5.20	0.0129	0.0352	0.251	

Item statistics

	n	raw.r	std.r	r.cor	r.drop	mean	sd
FEQ_04	325	0.620	0.6248	0.6192	0.5466	4.53	2.19
FEQ_05	325	0.582	0.5996	0.5846	0.5202	6.22	1.76
FEQ_07	325	0.598	0.6084	0.5891	0.5287	5.84	2.00
FEQ_09	325	0.637	0.6289	0.6214	0.5569	4.15	2.44
FEQ_11	325	0.570	0.5648	0.5551	0.4934	3.04	2.12
FEQ_12	325	0.584	0.5829	0.5686	0.5052	3.41	2.22
FEQ_24	325	0.540	0.5372	0.5104	0.4643	5.81	1.99
FEQ_27	325	0.628	0.6296	0.6055	0.5576	5.18	2.12
FEQ_36	325	0.627	0.6232	0.6128	0.5576	2.65	2.12
FEQ_37	325	0.405	0.4003	0.3385	0.3074	4.35	2.23
FEQ_08	325	0.618	0.6187	0.5960	0.5465	5.68	2.14
FEQ_10	325	0.616	0.6078	0.5922	0.5329	4.94	2.43

```

FEQ_14 325 0.328 0.3364 0.2804 0.2370 4.49 1.97
FEQ_15 325 0.560 0.5575 0.5258 0.4827 3.10 2.10
FEQ_20 325 0.368 0.3903 0.3370 0.2976 6.42 1.58
FEQ_25 325 0.303 0.2942 0.2317 0.1946 4.00 2.31
FEQ_29 325 0.101 0.0974 0.0257 -0.0142 5.36 2.34
FEQ_32 325 0.566 0.5536 0.5274 0.4816 3.73 2.29
FEQ_34 325 0.255 0.2585 0.1946 0.1515 4.38 2.17

```

Non missing response frequency for each item

```

      1   2   3   4   5   6   7   8   9 miss
FEQ_04 0.065 0.148 0.178 0.123 0.154 0.098 0.120 0.086 0.028 0
FEQ_05 0.000 0.028 0.074 0.071 0.123 0.209 0.237 0.191 0.068 0
FEQ_07 0.009 0.068 0.065 0.117 0.154 0.166 0.182 0.166 0.074 0
FEQ_09 0.157 0.160 0.172 0.095 0.114 0.083 0.083 0.092 0.043 0
FEQ_11 0.308 0.222 0.154 0.065 0.083 0.080 0.052 0.025 0.012 0
FEQ_12 0.234 0.231 0.135 0.102 0.077 0.105 0.049 0.062 0.006 0
FEQ_24 0.006 0.065 0.086 0.092 0.166 0.185 0.169 0.151 0.080 0
FEQ_27 0.055 0.089 0.095 0.120 0.135 0.194 0.188 0.083 0.040 0
FEQ_36 0.434 0.203 0.129 0.037 0.046 0.055 0.062 0.025 0.009 0
FEQ_37 0.120 0.132 0.154 0.123 0.117 0.151 0.123 0.058 0.022 0
FEQ_08 0.031 0.062 0.117 0.083 0.120 0.163 0.200 0.160 0.065 0
FEQ_10 0.086 0.160 0.080 0.092 0.108 0.160 0.151 0.102 0.062 0
FEQ_14 0.055 0.138 0.160 0.135 0.175 0.151 0.123 0.058 0.003 0
FEQ_15 0.289 0.209 0.163 0.105 0.068 0.062 0.068 0.028 0.009 0
FEQ_20 0.003 0.015 0.055 0.040 0.114 0.215 0.302 0.206 0.049 0
FEQ_25 0.151 0.194 0.151 0.092 0.123 0.120 0.077 0.065 0.028 0
FEQ_29 0.055 0.095 0.114 0.089 0.148 0.114 0.172 0.126 0.086 0
FEQ_32 0.206 0.182 0.148 0.111 0.086 0.108 0.098 0.043 0.018 0
FEQ_34 0.108 0.135 0.126 0.148 0.160 0.126 0.126 0.043 0.028 0

```

## Subsample 2 (without 6 items)

### CFA

```

#####CFA -6 genannte Items in Subsample 2
## f2 scale: Negative expressiveness (N)

# unidimensionality minus 6 Items, Subsample 2
fa2_model_scaleN <- "
fa2_scaleN =~ FEQ_04 + FEQ_05 + FEQ_07 + FEQ_09 + FEQ_11 + FEQ_12 + FEQ_24 + FEQ_27
+
      FEQ_36 + FEQ_08 + FEQ_10 + FEQ_15 + FEQ_32
"

s2.fa2.cfa_scaleN <- cfa(fa2_model_scaleN, data = feq_sample_2, estimator = "MLM", mimic =
"Mplus")

summary(s2.fa2.cfa_scaleN, fit.measures = T, standardized = T)

```

```

Estimator              ML
Optimization method    NLMINB
Number of free parameters 39

```

```

Number of observations 325

```

Model Test User Model:

```

Standard  Robust

```

Test Statistic	424.333	368.689
Degrees of freedom	65	65
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.151
Satorra-Bentler correction (Mplus variant)		

#### Model Test Baseline Model:

Test statistic	1610.697	1437.137
Degrees of freedom	78	78
P-value	0.000	0.000
Scaling correction factor		1.121

#### User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.766	0.777
Tucker-Lewis Index (TLI)	0.719	0.732
<b>Robust Comparative Fit Index (CFI)</b>		<b>0.771</b>
<b>Robust Tucker-Lewis Index (TLI)</b>		<b>0.725</b>

#### Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-8621.040	-8621.040
Loglikelihood unrestricted model (H1)	-8408.874	-8408.874
Akaike (AIC)	17320.080	17320.080
Bayesian (BIC)	17467.649	17467.649
Sample-size adjusted Bayesian (BIC)	17343.945	17343.945

#### Root Mean Square Error of Approximation:

RMSEA	0.130	0.120
90 Percent confidence interval - lower	0.119	0.109
90 Percent confidence interval - upper	0.142	0.131
P-value RMSEA <= 0.05	0.000	0.000
<b>Robust RMSEA</b>		<b>0.129</b>
90 Percent confidence interval - lower		0.116
90 Percent confidence interval - upper		0.142

#### Standardized Root Mean Square Residual:

<b>SRMR</b>	<b>0.082</b>	<b>0.082</b>
-------------	--------------	--------------

#### Parameter Estimates:

Standard errors	Robust.sem
Information	Expected
Information saturated (h1) model	Structured

#### Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
fa2_scaleN =~						
FEQ_04	1.000				1.549	0.687
FEQ_05	0.749	0.069	10.901	0.000	1.160	0.617



FEQ_07	0.690	0.072	9.526	0.000	1.069	0.541
FEQ_09	1.060	0.083	12.812	0.000	1.642	0.682
FEQ_11	0.920	0.082	11.212	0.000	1.425	0.663
FEQ_12	0.969	0.074	13.134	0.000	1.502	0.693
FEQ_24	0.798	0.071	11.316	0.000	1.236	0.641
FEQ_27	0.875	0.070	12.505	0.000	1.355	0.636
FEQ_36	0.811	0.083	9.833	0.000	1.257	0.589
FEQ_08	0.821	0.079	10.406	0.000	1.271	0.585
FEQ_10	0.565	0.093	6.066	0.000	0.875	0.372
FEQ_15	0.595	0.085	6.995	0.000	0.922	0.449
FEQ_32	0.650	0.086	7.583	0.000	1.007	0.435

#### Intercepts:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_04	4.277	0.125	34.167	0.000	4.277	1.895
.FEQ_05	6.074	0.104	58.255	0.000	6.074	3.231
.FEQ_07	5.806	0.110	52.976	0.000	5.806	2.939
.FEQ_09	4.292	0.134	32.129	0.000	4.292	1.782
.FEQ_11	3.172	0.119	26.599	0.000	3.172	1.475
.FEQ_12	3.517	0.120	29.249	0.000	3.517	1.622
.FEQ_24	5.668	0.107	52.951	0.000	5.668	2.937
.FEQ_27	5.206	0.118	44.083	0.000	5.206	2.445
.FEQ_36	2.655	0.118	22.437	0.000	2.655	1.245
.FEQ_08	5.542	0.120	46.003	0.000	5.542	2.552
.FEQ_10	4.726	0.130	36.258	0.000	4.726	2.011
.FEQ_15	3.132	0.114	27.490	0.000	3.132	1.525
.FEQ_32	3.809	0.129	29.626	0.000	3.809	1.643
fa2_scaleN	0.000			0.000	0.000	

#### Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_04	2.692	0.234	11.480	0.000	2.692	0.529
.FEQ_05	2.188	0.200	10.934	0.000	2.188	0.619
.FEQ_07	2.760	0.189	14.610	0.000	2.760	0.707
.FEQ_09	3.105	0.279	11.125	0.000	3.105	0.535
.FEQ_11	2.592	0.187	13.875	0.000	2.592	0.561
.FEQ_12	2.443	0.204	11.962	0.000	2.443	0.520
.FEQ_24	2.195	0.191	11.499	0.000	2.195	0.589
.FEQ_27	2.697	0.189	14.233	0.000	2.697	0.595
.FEQ_36	2.972	0.242	12.305	0.000	2.972	0.653
.FEQ_08	3.099	0.215	14.401	0.000	3.099	0.657
.FEQ_10	4.756	0.279	17.050	0.000	4.756	0.861
.FEQ_15	3.369	0.266	12.686	0.000	3.369	0.798
.FEQ_32	4.358	0.247	17.634	0.000	4.358	0.811
fa2_scaleN	2.401	0.313	7.672	0.000	1.000	1.000

#### Reliability

```
# reliability minus 6 Items, Subsample 2
s2.fa2_scaleN <- feq_sample_2 %>% select(FEQ_04, FEQ_05, FEQ_07, FEQ_09, FEQ_11, FEQ_12,
                                         FEQ_24, FEQ_27, FEQ_36, FEQ_08, FEQ_10, FEQ_15, FEQ_32)

set.seed(42)
ci.reliability(data = s2.fa2_scaleN, type="hierarchical", conf.level = 0.95,
               interval.type="bca", B=1000)
alpha.fa2_scaleN = alpha(s2.fa2_scaleN)
```

```
print(alpha.fa2_scaleN, digits = 3)
```

```
$est
```

```
[1] 0.8614583
```

```
$se
```

```
[1] 0.01527295
```

```
$ci.lower
```

```
[1] 0.830116
```

```
$ci.upper
```

```
[1] 0.8874102
```

```
$conf.level
```

```
[1] 0.95
```

```
$type
```

```
[1] "hierarchical omega"
```

```
$interval.type
```

```
[1] "bca bootstrap"
```

Reliability analysis

Call: alpha(x = s2.fa2\_scaleN)

raw_alpha	std.alpha	G6(smc)	average_r	S/N	ase	mean	sd	median_r
0.871	0.872	0.889	0.344	6.82	0.0106	4.45	1.35	0.332

lower	alpha	upper	95% confidence boundaries
0.85	0.871	0.892	

Reliability if an item is dropped:

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha	se	var.r	med.r
FEQ_04	0.858	0.860	0.875	0.338	6.12	0.0116	0.0118	0.326	
FEQ_05	0.861	0.862	0.878	0.342	6.23	0.0115	0.0138	0.328	
FEQ_07	0.864	0.865	0.881	0.349	6.43	0.0112	0.0133	0.345	
FEQ_09	0.856	0.858	0.876	0.335	6.05	0.0119	0.0141	0.327	
FEQ_11	0.859	0.861	0.875	0.341	6.20	0.0116	0.0118	0.332	
FEQ_12	0.858	0.859	0.873	0.337	6.11	0.0117	0.0118	0.328	
FEQ_24	0.859	0.860	0.878	0.338	6.13	0.0116	0.0148	0.326	
FEQ_27	0.858	0.859	0.878	0.337	6.11	0.0117	0.0148	0.328	
FEQ_36	0.862	0.864	0.881	0.346	6.34	0.0114	0.0138	0.333	
FEQ_08	0.861	0.862	0.879	0.343	6.26	0.0115	0.0147	0.329	
FEQ_10	0.870	0.871	0.881	0.360	6.75	0.0106	0.0111	0.363	
FEQ_15	0.866	0.868	0.885	0.354	6.59	0.0110	0.0145	0.367	
FEQ_32	0.867	0.868	0.882	0.354	6.58	0.0109	0.0134	0.366	

Item statistics

	n	raw.r	std.r	r.cor	r.drop	mean	sd
FEQ_04	325	0.676	0.679	0.657	0.596	4.28	2.26

FEQ_05	325	0.635	0.647	0.612	0.564	6.07	1.88
FEQ_07	325	0.579	0.590	0.547	0.496	5.81	1.98
FEQ_09	325	0.710	0.702	0.675	0.631	4.29	2.41
FEQ_11	325	0.659	0.657	0.638	0.580	3.17	2.15
FEQ_12	325	0.683	0.684	0.668	0.608	3.52	2.17
FEQ_24	325	0.671	0.677	0.642	0.604	5.67	1.93
FEQ_27	325	0.680	0.684	0.650	0.606	5.21	2.13
FEQ_36	325	0.615	0.615	0.572	0.531	2.66	2.14
FEQ_08	325	0.641	0.638	0.600	0.559	5.54	2.17
FEQ_10	325	0.512	0.501	0.456	0.403	4.73	2.35
FEQ_15	325	0.546	0.546	0.486	0.456	3.13	2.06
FEQ_32	325	0.556	0.546	0.497	0.455	3.81	2.32

Non missing response frequency for each item

	1	2	3	4	5	6	7	8	9	miss
FEQ_04	0.098	0.178	0.172	0.108	0.114	0.126	0.111	0.058	0.034	0
FEQ_05	0.006	0.034	0.095	0.071	0.114	0.218	0.225	0.154	0.083	0
FEQ_07	0.012	0.065	0.083	0.086	0.138	0.206	0.197	0.148	0.065	0
FEQ_09	0.145	0.145	0.154	0.105	0.132	0.095	0.108	0.062	0.055	0
FEQ_11	0.292	0.188	0.172	0.083	0.095	0.071	0.052	0.028	0.018	0
FEQ_12	0.203	0.206	0.182	0.108	0.086	0.068	0.105	0.031	0.012	0
FEQ_24	0.012	0.058	0.080	0.114	0.175	0.191	0.212	0.077	0.080	0
FEQ_27	0.046	0.080	0.123	0.132	0.114	0.194	0.160	0.108	0.043	0
FEQ_36	0.422	0.228	0.111	0.049	0.043	0.062	0.049	0.012	0.025	0
FEQ_08	0.037	0.080	0.086	0.117	0.135	0.138	0.206	0.132	0.068	0
FEQ_10	0.080	0.145	0.154	0.098	0.108	0.129	0.154	0.080	0.052	0
FEQ_15	0.237	0.262	0.172	0.102	0.071	0.065	0.046	0.031	0.015	0
FEQ_32	0.212	0.175	0.120	0.105	0.105	0.126	0.083	0.058	0.015	0

## Three-scale solution

### Positive Family Expressiveness (P)

Identical with two-scale solution (see page 1 – 10)

### Negative-dominant Family Expressiveness (ND)

#### Subsample 1

#### CFA

```
#Negativ dominant
# unidimensionality ND
fa3_model_scaleND <- "
fa3_scaleND =~ FEQ_04 + FEQ_05 + FEQ_07 + FEQ_09 + FEQ_11 + FEQ_12 + FEQ_24 +
FEQ_27 +
FEQ_36 + FEQ_37
"

s1.fa3.cfa_scaleND <- cfa(fa3_model_scaleND, data = feq_sample_1, estimator = "MLM", mimic =
"Mplus")
```

```
summary(s1.fa3.cfa_scaleND, fit.measures = T, standardized = T)
```

E stimator	ML
Optimization method	NLMINB
Number of free parameters	30

Number of observations 325

Model Test User Model:

	Standard	Robust
Test Statistic	256.522	225.845
Degrees of freedom	35	35
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.136
Satorra-Bentler correction (Mplus variant)		

Model Test Baseline Model:

Test statistic	1273.335	1176.111
Degrees of freedom	45	45
P-value	0.000	0.000
Scaling correction factor		1.083

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.820	0.831
Tucker-Lewis Index (TLI)	0.768	0.783
Robust Comparative Fit Index (CFI)		0.823
Robust Tucker-Lewis Index (TLI)		0.772

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-6526.187	-6526.187
Loglikelihood unrestricted model (H1)	-6397.926	-6397.926
Akaike (AIC)	13112.375	13112.375
Bayesian (BIC)	13225.889	13225.889
Sample-size adjusted Bayesian (BIC)	13130.732	13130.732

Root Mean Square Error of Approximation:

RMSEA	0.140	0.130
90 Percent confidence interval - lower	0.124	0.115
90 Percent confidence interval - upper	0.156	0.145
P-value RMSEA <= 0.05	0.000	0.000
Robust RMSEA		0.138
90 Percent confidence interval - lower		0.121
90 Percent confidence interval - upper		0.155

Standardized Root Mean Square Residual:

SRMR	0.069	0.069
------	-------	-------

Parameter Estimates:

Standard errors	Robust.sem
Information	Expected
Information saturated (h1) model	Structured

# Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
fa3_scaleND =~						
FEQ_04	1.000				1.612	0.738
FEQ_05	0.691	0.048	14.469	0.000	1.114	0.636
FEQ_07	0.673	0.062	10.805	0.000	1.085	0.542
FEQ_09	1.078	0.074	14.602	0.000	1.738	0.712
FEQ_11	0.913	0.077	11.798	0.000	1.472	0.697
FEQ_12	0.971	0.067	14.452	0.000	1.566	0.708
FEQ_24	0.654	0.068	9.694	0.000	1.055	0.531
FEQ_27	0.745	0.071	10.497	0.000	1.201	0.567
FEQ_36	0.924	0.070	13.160	0.000	1.490	0.705
FEQ_37	0.449	0.082	5.475	0.000	0.723	0.325

# Intercepts:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_04	4.526	0.121	37.351	0.000	4.526	2.072
.FEQ_05	6.225	0.097	64.018	0.000	6.225	3.551
.FEQ_07	5.837	0.111	52.606	0.000	5.837	2.918
.FEQ_09	4.151	0.135	30.678	0.000	4.151	1.702
.FEQ_11	3.040	0.117	25.942	0.000	3.040	1.439
.FEQ_12	3.412	0.123	27.805	0.000	3.412	1.542
.FEQ_24	5.812	0.110	52.685	0.000	5.812	2.922
.FEQ_27	5.178	0.118	44.051	0.000	5.178	2.444
.FEQ_36	2.649	0.117	22.595	0.000	2.649	1.253
.FEQ_37	4.351	0.123	35.284	0.000	4.351	1.957
fa3_scaleND	0.000				0.000	0.000

# Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_04	2.173	0.209	10.402	0.000	2.173	0.455
.FEQ_05	1.831	0.150	12.231	0.000	1.831	0.596
.FEQ_07	2.824	0.221	12.750	0.000	2.824	0.706
.FEQ_09	2.930	0.218	13.437	0.000	2.930	0.493
.FEQ_11	2.297	0.191	12.050	0.000	2.297	0.515
.FEQ_12	2.442	0.205	11.894	0.000	2.442	0.499
.FEQ_24	2.842	0.176	16.149	0.000	2.842	0.719
.FEQ_27	3.049	0.241	12.669	0.000	3.049	0.679
.FEQ_36	2.247	0.180	12.471	0.000	2.247	0.503
.FEQ_37	4.418	0.272	16.221	0.000	4.418	0.894
fa3_scaleND	2.600	0.294	8.855	0.000	1.000	1.000

# Reliability

```
# reliability ND
s1.fa3_scaleND <- feq_sample_1 %>% select(FEQ_04, FEQ_05, FEQ_07, FEQ_09, FEQ_11,
FEQ_12,
FEQ_24, FEQ_27, FEQ_36, FEQ_37)

set.seed(42)
ci.reliability(data = s1.fa3_scaleND, type="hierarchical", conf.level = 0.95,
interval.type="bca", B=1000)
alpha.fa3_scaleND = alpha(s1.fa3_scaleND)
print(alpha.fa3_scaleND, digits = 3)
```

\$est

[1] 0.8612578

\$se

[1] 0.01316458

\$ci.lower

[1] 0.8365492

\$ci.upper

[1] 0.8852567

\$conf.level

[1] 0.95

\$type

[1] "hierarchical omega"

\$interval.type

[1] "bca bootstrap"

Reliability analysis

Call: alpha(x = s1.fa3\_scaleND)

raw_alpha	std.alpha	G6(smc)	average_r	S/N	ase	mean	sd	median_r
0.858	0.859	0.872	0.379	6.1	0.0116	4.52	1.41	0.373

lower alpha upper    95% confidence boundaries  
0.836 0.858 0.881

Reliability if an item is dropped:

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha	se	var.r	med.r
FEQ_04	0.836	0.836	0.846	0.362	5.11	0.0135	0.0162	0.366	
FEQ_05	0.844	0.844	0.853	0.375	5.40	0.0128	0.0177	0.372	
FEQ_07	0.850	0.851	0.861	0.388	5.70	0.0123	0.0174	0.381	
FEQ_09	0.837	0.838	0.848	0.365	5.18	0.0135	0.0167	0.366	
FEQ_11	0.841	0.842	0.850	0.372	5.34	0.0131	0.0157	0.366	
FEQ_12	0.838	0.840	0.853	0.368	5.24	0.0133	0.0180	0.366	
FEQ_24	0.851	0.853	0.862	0.391	5.78	0.0123	0.0170	0.376	
FEQ_27	0.847	0.848	0.861	0.382	5.56	0.0126	0.0207	0.381	
FEQ_36	0.837	0.839	0.850	0.366	5.20	0.0134	0.0183	0.361	
FEQ_37	0.867	0.867	0.877	0.420	6.52	0.0110	0.0123	0.415	

Item statistics

	n	raw.r	std.r	r.cor	r.drop	mean	sd
FEQ_04	325	0.752	0.755	0.739	0.672	4.53	2.19
FEQ_05	325	0.667	0.685	0.651	0.589	6.22	1.76
FEQ_07	325	0.605	0.616	0.562	0.503	5.84	2.00
FEQ_09	325	0.750	0.738	0.716	0.658	4.15	2.44
FEQ_11	325	0.704	0.700	0.674	0.615	3.04	2.12
FEQ_12	325	0.729	0.724	0.691	0.641	3.41	2.22
FEQ_24	325	0.597	0.598	0.541	0.494	5.81	1.99

```
FEQ_27 325 0.648 0.649 0.590 0.547 5.18 2.12
FEQ_36 325 0.736 0.734 0.705 0.655 2.65 2.12
FEQ_37 325 0.447 0.442 0.334 0.308 4.35 2.23
```

Non missing response frequency for each item

```
      1   2   3   4   5   6   7   8   9 miss
FEQ_04 0.065 0.148 0.178 0.123 0.154 0.098 0.120 0.086 0.028 0
FEQ_05 0.000 0.028 0.074 0.071 0.123 0.209 0.237 0.191 0.068 0
FEQ_07 0.009 0.068 0.065 0.117 0.154 0.166 0.182 0.166 0.074 0
FEQ_09 0.157 0.160 0.172 0.095 0.114 0.083 0.083 0.092 0.043 0
FEQ_11 0.308 0.222 0.154 0.065 0.083 0.080 0.052 0.025 0.012 0
FEQ_12 0.234 0.231 0.135 0.102 0.077 0.105 0.049 0.062 0.006 0
FEQ_24 0.006 0.065 0.086 0.092 0.166 0.185 0.169 0.151 0.080 0
FEQ_27 0.055 0.089 0.095 0.120 0.135 0.194 0.188 0.083 0.040 0
FEQ_36 0.434 0.203 0.129 0.037 0.046 0.055 0.062 0.025 0.009 0
FEQ_37 0.120 0.132 0.154 0.123 0.117 0.151 0.123 0.058 0.022 0
```

## Subsample 2

### CFA

```
#####ND in Subsample 2
# unidimensionality ND
fa3_model_scaleND <- "
fa3_scaleND =~ FEQ_04 + FEQ_05 + FEQ_07 + FEQ_09 + FEQ_11 + FEQ_12 + FEQ_24 +
FEQ_27 +
      FEQ_36 + FEQ_37
"

s2.fa3.cfa_scaleND <- cfa(fa3_model_scaleND, data = feq_sample_2, estimator = "MLM", mimic =
"Mplus")

summary(s2.fa3.cfa_scaleND, fit.measures = T, standardized = T)
```

Estimator	ML
Optimization method	NLMINB
Number of free parameters	30

Number of observations	325
------------------------	-----

#### Model Test User Model:

	Standard	Robust
Test Statistic	205.064	184.511
Degrees of freedom	35	35
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.111
Satorra-Bentler correction (Mplus variant)		

#### Model Test Baseline Model:

Test statistic	1201.468	1110.470
Degrees of freedom	45	45
P-value	0.000	0.000
Scaling correction factor		1.082

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.853	0.860
Tucker-Lewis Index (TLI)	0.811	0.820
<b>Robust Comparative Fit Index (CFI)</b>		<b>0.856</b>
Robust Tucker-Lewis Index (TLI)		0.815

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-6555.144	-6555.144
Loglikelihood unrestricted model (H1)	-6452.613	-6452.613
Akaike (AIC)	13170.289	13170.289
Bayesian (BIC)	13283.804	13283.804
Sample-size adjusted Bayesian (BIC)	13188.646	13188.646

Root Mean Square Error of Approximation:

RMSEA	0.122	0.115
90 Percent confidence interval - lower	0.106	0.099
90 Percent confidence interval - upper	0.139	0.130
P-value RMSEA <= 0.05	0.000	0.000
<b>Robust RMSEA</b>		<b>0.121</b>
90 Percent confidence interval - lower		0.104
90 Percent confidence interval - upper		0.138

Standardized Root Mean Square Residual:

<b>SRMR</b>	<b>0.064</b>	<b>0.064</b>
-------------	--------------	--------------

Parameter Estimates:

Standard errors	Robust.sem
Information	Expected
Information saturated (h1) model	Structured

Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
fa3_scaleND =~						
FEQ_04	1.000				1.622	0.719
FEQ_05	0.726	0.066	11.085	0.000	1.178	0.627
FEQ_07	0.650	0.070	9.321	0.000	1.055	0.534
FEQ_09	0.963	0.078	12.384	0.000	1.562	0.649
FEQ_11	0.933	0.080	11.645	0.000	1.514	0.704
FEQ_12	0.991	0.070	14.115	0.000	1.608	0.742
FEQ_24	0.724	0.065	11.100	0.000	1.175	0.609
FEQ_27	0.778	0.068	11.494	0.000	1.263	0.593
FEQ_36	0.791	0.080	9.850	0.000	1.284	0.602
FEQ_37	0.589	0.083	7.063	0.000	0.955	0.430

Intercepts:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_04	4.277	0.125	34.167	0.000	4.277	1.895
.FEQ_05	6.074	0.104	58.255	0.000	6.074	3.231



.FEQ_07	5.806	0.110	52.976	0.000	5.806	2.939
.FEQ_09	4.292	0.134	32.129	0.000	4.292	1.782
.FEQ_11	3.172	0.119	26.599	0.000	3.172	1.475
.FEQ_12	3.517	0.120	29.249	0.000	3.517	1.622
.FEQ_24	5.668	0.107	52.951	0.000	5.668	2.937
.FEQ_27	5.206	0.118	44.083	0.000	5.206	2.445
.FEQ_36	2.655	0.118	22.437	0.000	2.655	1.245
.FEQ_37	4.406	0.123	35.751	0.000	4.406	1.983
fa3_scaleND	0.000			0.000	0.000	

Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_04	2.460	0.241	10.205	0.000	2.460	0.483
.FEQ_05	2.144	0.197	10.877	0.000	2.144	0.607
.FEQ_07	2.791	0.195	14.304	0.000	2.791	0.715
.FEQ_09	3.360	0.272	12.337	0.000	3.360	0.579
.FEQ_11	2.332	0.195	11.979	0.000	2.332	0.504
.FEQ_12	2.114	0.202	10.489	0.000	2.114	0.450
.FEQ_24	2.343	0.198	11.849	0.000	2.343	0.629
.FEQ_27	2.938	0.198	14.813	0.000	2.938	0.648
.FEQ_36	2.903	0.250	11.612	0.000	2.903	0.638
.FEQ_37	4.025	0.274	14.697	0.000	4.025	0.815
fa3_scaleND	2.632	0.325	8.099	0.000	1.000	1.000

### Reliability

```
# reliability ND
s2.fa3_scaleND <- feq_sample_2 %>% select(FEQ_04, FEQ_05, FEQ_07, FEQ_09, FEQ_11,
FEQ_12,
FEQ_24, FEQ_27, FEQ_36, FEQ_37)

set.seed(42)
ci.reliability(data = s2.fa3_scaleND, type="hierarchical", conf.level = 0.95,
interval.type="bca", B=1000)
alpha.fa3_scaleND = alpha(s2.fa3_scaleND)
print(alpha.fa3_scaleND, digits = 3)
```

\$est

[1] 0.8622727

\$se

[1] 0.01278729

\$ci.lower

[1] 0.8362411

\$ci.upper

[1] 0.8863265

\$conf.level

[1] 0.95

\$type

[1] "hierarchical omega"

\$interval.type  
[1] "bca bootstrap"

Reliability analysis  
Call: alpha(x = s2.fa3\_scaleND)

raw_alpha	std.alpha	G6(smc)	average_r	S/N	ase	mean	sd	median_r
0.862	0.863	0.869	0.387	6.3	0.0114	4.51	1.43	0.383

lower alpha upper 95% confidence boundaries  
0.84 0.862 0.884

Reliability if an item is dropped:

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha	se	var.r	med.r
FEQ_04	0.842	0.843	0.849	0.373	5.36	0.0132	0.01097	0.370	
FEQ_05	0.847	0.848	0.853	0.382	5.56	0.0127	0.01187	0.386	
FEQ_07	0.854	0.855	0.856	0.395	5.88	0.0121	0.01005	0.386	
FEQ_09	0.848	0.849	0.854	0.384	5.60	0.0127	0.01112	0.376	
FEQ_11	0.845	0.846	0.847	0.380	5.51	0.0129	0.00855	0.382	
FEQ_12	0.841	0.843	0.843	0.373	5.36	0.0132	0.00921	0.376	
FEQ_24	0.849	0.850	0.855	0.386	5.67	0.0125	0.01189	0.376	
FEQ_27	0.850	0.850	0.855	0.387	5.68	0.0125	0.01205	0.382	
FEQ_36	0.851	0.853	0.858	0.392	5.79	0.0123	0.01044	0.385	
FEQ_37	0.863	0.863	0.868	0.413	6.33	0.0113	0.00902	0.406	

Item statistics

	n	raw.r	std.r	r.cor	r.drop	mean	sd
FEQ_04	325	0.743	0.740	0.710	0.657	4.28	2.26
FEQ_05	325	0.681	0.693	0.651	0.600	6.07	1.88
FEQ_07	325	0.612	0.622	0.571	0.513	5.81	1.98
FEQ_09	325	0.696	0.684	0.639	0.592	4.29	2.41
FEQ_11	325	0.712	0.706	0.683	0.624	3.17	2.15
FEQ_12	325	0.747	0.741	0.725	0.666	3.52	2.17
FEQ_24	325	0.663	0.670	0.621	0.576	5.67	1.93
FEQ_27	325	0.662	0.666	0.616	0.564	5.21	2.13
FEQ_36	325	0.644	0.642	0.586	0.543	2.66	2.14
FEQ_37	325	0.530	0.528	0.439	0.403	4.41	2.23

Non missing response frequency for each item

	1	2	3	4	5	6	7	8	9	miss
FEQ_04	0.098	0.178	0.172	0.108	0.114	0.126	0.111	0.058	0.034	0
FEQ_05	0.006	0.034	0.095	0.071	0.114	0.218	0.225	0.154	0.083	0
FEQ_07	0.012	0.065	0.083	0.086	0.138	0.206	0.197	0.148	0.065	0
FEQ_09	0.145	0.145	0.154	0.105	0.132	0.095	0.108	0.062	0.055	0
FEQ_11	0.292	0.188	0.172	0.083	0.095	0.071	0.052	0.028	0.018	0
FEQ_12	0.203	0.206	0.182	0.108	0.086	0.068	0.105	0.031	0.012	0
FEQ_24	0.012	0.058	0.080	0.114	0.175	0.191	0.212	0.077	0.080	0
FEQ_27	0.046	0.080	0.123	0.132	0.114	0.194	0.160	0.108	0.043	0
FEQ_36	0.422	0.228	0.111	0.049	0.043	0.062	0.049	0.012	0.025	0
FEQ_37	0.083	0.175	0.163	0.089	0.138	0.142	0.120	0.058	0.031	0

## Negative-submissive Family Expressiveness (NS)

### Subsample 1

#### CFA

```
#Negativ submissiv

# unidimensionality scale NS
fa3_model_scaleNS <- "
fa3_scaleNS =~ FEQ_08 + FEQ_10 + FEQ_14 + FEQ_15 + FEQ_20 + FEQ_25 +
               FEQ_29 + FEQ_32 + FEQ_34
"

s1.fa3.cfa_scaleNS <- cfa(fa3_model_scaleNS, data = feq_sample_1, estimator = "MLM", mimic =
"Mplus")

summary(s1.fa3.cfa_scaleNS, fit.measures = T, standardized = T)
```

Estimator	ML
Optimization method	NLMINB
Number of free parameters	27

Number of observations	325
------------------------	-----

#### Model Test User Model:

	Standard	Robust
Test Statistic	192.828	181.841
Degrees of freedom	27	27
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.060
Satorra-Bentler correction (Mplus variant)		

#### Model Test Baseline Model:

Test statistic	582.162	546.471
Degrees of freedom	36	36
P-value	0.000	0.000
Scaling correction factor		1.065

#### User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.696	0.697
Tucker-Lewis Index (TLI)	0.595	0.596
Robust Comparative Fit Index (CFI)		0.698
Robust Tucker-Lewis Index (TLI)		0.597

#### Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-6165.495	-6165.495
Loglikelihood unrestricted model (H1)	-6069.081	-6069.081
Akaike (AIC)	12384.990	12384.990
Bayesian (BIC)	12487.153	12487.153
Sample-size adjusted Bayesian (BIC)	12401.511	12401.511

#### Root Mean Square Error of Approximation:

RMSEA	0.137	0.133
90 Percent confidence interval - lower	0.120	0.115
90 Percent confidence interval - upper	0.156	0.151
P-value RMSEA <= 0.05	0.000	0.000

<b>Robust RMSEA</b>	<b>0.137</b>
90 Percent confidence interval - lower	0.118
90 Percent confidence interval - upper	0.156

Standardized Root Mean Square Residual:

<b>SRMR</b>	<b>0.099</b>	<b>0.099</b>
-------------	--------------	--------------

Parameter Estimates:

Standard errors	Robust.sem
Information	Expected
Information saturated (h1) model	Structured

Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
fa3_scaleNS =~						
FEQ_08	1.000				0.946	0.442
FEQ_10	2.146	0.287	7.488	0.000	2.031	0.837
FEQ_14	0.737	0.147	5.022	0.000	0.697	0.354
FEQ_15	1.225	0.186	6.587	0.000	1.160	0.553
FEQ_20	0.626	0.125	4.992	0.000	0.592	0.376
FEQ_25	1.041	0.214	4.857	0.000	0.985	0.428
<b>FEQ_29</b>	<b>0.112</b>	<b>0.171</b>	<b>0.655</b>	<b>0.512</b>	<b>0.106</b>	<b>0.045</b>
FEQ_32	1.512	0.216	6.989	0.000	1.431	0.627
<b>FEQ_34</b>	<b>0.656</b>	<b>0.172</b>	<b>3.805</b>	<b>0.000</b>	<b>0.621</b>	<b>0.287</b>

Intercepts:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_08	5.677	0.119	47.844	0.000	5.677	2.654
.FEQ_10	4.935	0.135	36.667	0.000	4.935	2.034
.FEQ_14	4.492	0.109	41.176	0.000	4.492	2.284
.FEQ_15	3.102	0.116	26.678	0.000	3.102	1.480
.FEQ_20	6.425	0.087	73.483	0.000	6.425	4.076
.FEQ_25	4.000	0.128	31.309	0.000	4.000	1.737
.FEQ_29	5.357	0.130	41.259	0.000	5.357	2.289
.FEQ_32	3.732	0.127	29.474	0.000	3.732	1.635
.FEQ_34	4.382	0.120	36.541	0.000	4.382	2.027
fa3_scaleNS	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_08	3.680	0.238	15.477	0.000	3.680	0.804
.FEQ_10	1.763	0.380	4.644	0.000	1.763	0.299
.FEQ_14	3.382	0.210	16.114	0.000	3.382	0.874
.FEQ_15	3.048	0.260	11.745	0.000	3.048	0.694
.FEQ_20	2.133	0.193	11.030	0.000	2.133	0.859
.FEQ_25	4.334	0.293	14.800	0.000	4.334	0.817
.FEQ_29	5.467	0.273	20.056	0.000	5.467	0.998
.FEQ_32	3.164	0.284	11.124	0.000	3.164	0.607

.FEQ_34	4.287	0.246	17.404	0.000	4.287	0.917
fa3_scaleNS	0.896	0.229	3.916	0.000	1.000	1.000

### Reliability

```
# reliability scale NS
s1.fa3_scaleNS <- feq_sample_1 %>% select(FEQ_08, FEQ_10,
                                          FEQ_14, FEQ_15, FEQ_20, FEQ_25, FEQ_29, FEQ_32, FEQ_34)

set.seed(42)
ci.reliability(data = s1.fa3_scaleNS, type="hierarchical", conf.level = 0.95,
               interval.type="bca", B=1000)
alpha.fa3_scaleNS = alpha(s1.fa3_scaleNS)
print(alpha.fa3_scaleNS, digits = 3)
```

\$est

[1] 0.657441

\$se

[1] 0.04133058

\$ci.lower

[1] 0.5637553

\$ci.upper

[1] 0.7277005

\$conf.level

[1] 0.95

\$type

[1] "hierarchical omega"

\$interval.type

[1] "bca bootstrap"

Reliability analysis

Call: alpha(x = s1.fa3\_scaleNS)

raw_alpha	std.alpha	G6(smc)	average_r	S/N	ase	mean	sd	median_r
0.703	0.708	0.733	0.212	2.42	0.0246	4.68	1.18	0.235

lower	alpha	upper	95% confidence boundaries
0.655	0.703	0.752	

Reliability if an item is dropped:

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha	se	var.r	med.r
FEQ_08	0.696	0.702	0.720	0.227	2.35	0.0255	0.0201	0.249	
FEQ_10	0.631	0.643	0.660	0.184	1.80	0.0312	0.0170	0.209	
FEQ_14	0.672	0.675	0.700	0.206	2.08	0.0273	0.0272	0.223	
FEQ_15	0.677	0.684	0.703	0.213	2.17	0.0271	0.0206	0.235	
FEQ_20	0.674	0.673	0.700	0.205	2.06	0.0273	0.0268	0.223	
FEQ_25	0.672	0.679	0.707	0.209	2.11	0.0275	0.0268	0.252	
FEQ_29	0.722	0.721	0.731	0.244	2.58	0.0229	0.0161	0.259	

FEQ_32	0.664	0.673	0.692	0.204	2.06	0.0282	0.0204	0.235
FEQ_34	0.684	0.688	0.711	0.216	2.20	0.0262	0.0249	0.249

#### Item statistics

	n	raw.r	std.r	r.cor	r.drop	mean	sd
FEQ_08	325	0.462	0.462	0.355	0.280	5.68	2.14
FEQ_10	325	0.725	0.709	0.705	0.583	4.94	2.43
FEQ_14	325	0.562	0.579	0.500	0.413	4.49	1.97
FEQ_15	325	0.544	0.541	0.467	0.381	3.10	2.10
FEQ_20	325	0.548	0.588	0.508	0.430	6.42	1.58
FEQ_25	325	0.580	0.566	0.475	0.407	4.00	2.31
FEQ_29	325	0.369	0.365	0.241	0.157	5.36	2.34
FEQ_32	325	0.610	0.591	0.537	0.445	3.73	2.29
FEQ_34	325	0.519	0.525	0.429	0.345	4.38	2.17

#### Non missing response frequency for each item

	1	2	3	4	5	6	7	8	9	miss
FEQ_08	0.031	0.062	0.117	0.083	0.120	0.163	0.200	0.160	0.065	0
FEQ_10	0.086	0.160	0.080	0.092	0.108	0.160	0.151	0.102	0.062	0
FEQ_14	0.055	0.138	0.160	0.135	0.175	0.151	0.123	0.058	0.003	0
FEQ_15	0.289	0.209	0.163	0.105	0.068	0.062	0.068	0.028	0.009	0
FEQ_20	0.003	0.015	0.055	0.040	0.114	0.215	0.302	0.206	0.049	0
FEQ_25	0.151	0.194	0.151	0.092	0.123	0.120	0.077	0.065	0.028	0
FEQ_29	0.055	0.095	0.114	0.089	0.148	0.114	0.172	0.126	0.086	0
FEQ_32	0.206	0.182	0.148	0.111	0.086	0.108	0.098	0.043	0.018	0
FEQ_34	0.108	0.135	0.126	0.148	0.160	0.126	0.126	0.043	0.028	0

#### Subsample 2 (without 2 items)

##### CFA

```
#####Überprüfung NS an Subsample 2
# unidimensionality ohne Item 29, 34
fa3_model_scaleNS <- "
fa3_scaleNS =~ FEQ_08 + FEQ_10 + FEQ_14 + FEQ_15 + FEQ_20 + FEQ_25 +
    FEQ_32
"

s2.fa3.cfa_scaleNS <- cfa(fa3_model_scaleNS, data = feq_sample_2, estimator = "MLM", mimic =
"Mplus")
```

```
summary(s2.fa3.cfa_scaleNS, fit.measures = T, standardized = T)
```

Estimator	ML
Optimization method	NLMINB
Number of free parameters	21

Number of observations	325
------------------------	-----

#### Model Test User Model:

	Standard	Robust
Test Statistic	57.783	50.541
Degrees of freedom	14	14
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.143
Satorra-Bentler correction (Mplus variant)		

#### Model Test Baseline Model:

Test statistic	411.352	372.475
Degrees of freedom	21	21
P-value	0.000	0.000
Scaling correction factor		1.104

#### User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.888	0.896
Tucker-Lewis Index (TLI)	0.832	0.844
<b>Robust Comparative Fit Index (CFI)</b>		<b>0.892</b>
Robust Tucker-Lewis Index (TLI)		0.839

#### Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-4717.625	-4717.625
Loglikelihood unrestricted model (H1)	-4688.734	-4688.734
Akaike (AIC)	9477.250	9477.250
Bayesian (BIC)	9556.711	9556.711
Sample-size adjusted Bayesian (BIC)	9490.100	9490.100

#### Root Mean Square Error of Approximation:

RMSEA	0.098	0.090
90 Percent confidence interval - lower	0.073	0.065
90 Percent confidence interval - upper	0.125	0.115
P-value RMSEA <= 0.05	0.001	0.005
<b>Robust RMSEA</b>		<b>0.096</b>
90 Percent confidence interval - lower		0.068
90 Percent confidence interval - upper		0.125

#### Standardized Root Mean Square Residual:

<b>SRMR</b>	<b>0.056</b>	<b>0.056</b>
-------------	--------------	--------------

#### Parameter Estimates:

Standard errors	Robust.sem
Information	Expected
Information saturated (h1) model	Structured

#### Latent Variables:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
fa3_scaleNS =~						
FEQ_08	1.000				0.946	0.435
FEQ_10	1.897	0.286	6.641	0.000	1.794	0.763
FEQ_14	0.677	0.149	4.533	0.000	0.640	0.336
FEQ_15	1.197	0.207	5.794	0.000	1.132	0.551
FEQ_20	0.511	0.132	3.880	0.000	0.483	0.289
FEQ_25	1.230	0.215	5.723	0.000	1.163	0.536
FEQ_32	1.651	0.248	6.656	0.000	1.562	0.674

Intercepts:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_08	5.542	0.120	46.003	0.000	5.542	2.552
.FEQ_10	4.726	0.130	36.258	0.000	4.726	2.011
.FEQ_14	4.603	0.106	43.517	0.000	4.603	2.414
.FEQ_15	3.132	0.114	27.490	0.000	3.132	1.525
.FEQ_20	6.348	0.093	68.324	0.000	6.348	3.790
.FEQ_25	3.785	0.120	31.416	0.000	3.785	1.743
.FEQ_32	3.809	0.129	29.626	0.000	3.809	1.643
fa3_scaleNS	0.000			0.000	0.000	

Variances:

	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
.FEQ_08	3.822	0.308	12.409	0.000	3.822	0.810
.FEQ_10	2.303	0.358	6.425	0.000	2.303	0.417
.FEQ_14	3.226	0.199	16.228	0.000	3.226	0.887
.FEQ_15	2.939	0.283	10.366	0.000	2.939	0.696
.FEQ_20	2.572	0.207	12.416	0.000	2.572	0.917
.FEQ_25	3.364	0.284	11.836	0.000	3.364	0.713
.FEQ_32	2.934	0.303	9.669	0.000	2.934	0.546
fa3_scaleNS	0.894	0.251	3.569	0.000	1.000	1.000

*Reliability*

```
# reliability scale NS
s2.fa3_scaleNS <- feq_sample_2 %>% select(FEQ_08, FEQ_10,
                                          FEQ_14, FEQ_15, FEQ_20, FEQ_25, FEQ_32)

set.seed(42)
ci.reliability(data = s2.fa3_scaleNS, type="hierarchical", conf.level = 0.95,
               interval.type="bca", B=1000)
alpha.fa3_scaleNS = alpha(s2.fa3_scaleNS)
print(alpha.fa3_scaleNS, digits = 3)
```

\$est

[1] 0.7277668

\$se

[1] 0.02535129

\$ci.lower

[1] 0.6683361

\$ci.upper

[1] 0.7674599

\$conf.level

[1] 0.95

\$type

[1] "hierarchical omega"

\$interval.type

[1] "bca bootstrap"



# Reliability analysis

Call: alpha(x = s2.fa3\_scaleNS)

raw_alpha	std.alpha	G6(smc)	average_r	S/N	ase	mean	sd	median_r
0.725	0.719	0.713	0.267	2.55	0.0227	4.56	1.29	0.27

lower alpha upper 95% confidence boundaries  
0.681 0.725 0.77

## Reliability if an item is dropped:

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha se	var.r	med.r
FEQ_08	0.710	0.702	0.693	0.282	2.36	0.0243	0.01539	0.272
FEQ_10	0.650	0.648	0.630	0.235	1.84	0.0297	0.00850	0.268
FEQ_14	0.714	0.705	0.689	0.285	2.39	0.0237	0.01595	0.274
FEQ_15	0.688	0.682	0.672	0.263	2.14	0.0262	0.01443	0.268
FEQ_20	0.723	0.718	0.702	0.298	2.55	0.0234	0.01283	0.272
FEQ_25	0.685	0.676	0.666	0.258	2.09	0.0263	0.01594	0.247
FEQ_32	0.671	0.668	0.646	0.251	2.01	0.0278	0.00874	0.268

## Item statistics

	n	raw.r	std.r	r.cor	r.drop	mean	sd
FEQ_08	325	0.568	0.558	0.429	0.370	5.54	2.17
FEQ_10	325	0.749	0.725	0.694	0.594	4.73	2.35
FEQ_14	325	0.519	0.549	0.425	0.340	4.60	1.91
FEQ_15	325	0.629	0.625	0.531	0.459	3.13	2.06
FEQ_20	325	0.455	0.502	0.357	0.290	6.35	1.68
FEQ_25	325	0.646	0.643	0.556	0.470	3.78	2.18
FEQ_32	325	0.695	0.667	0.615	0.521	3.81	2.32

## Non missing response frequency for each item

	1	2	3	4	5	6	7	8	9	miss
FEQ_08	0.037	0.080	0.086	0.117	0.135	0.138	0.206	0.132	0.068	0
FEQ_10	0.080	0.145	0.154	0.098	0.108	0.129	0.154	0.080	0.052	0
FEQ_14	0.043	0.108	0.175	0.145	0.194	0.148	0.135	0.034	0.018	0
FEQ_15	0.237	0.262	0.172	0.102	0.071	0.065	0.046	0.031	0.015	0
FEQ_20	0.006	0.031	0.037	0.052	0.123	0.231	0.268	0.185	0.068	0
FEQ_25	0.169	0.197	0.132	0.123	0.148	0.105	0.062	0.046	0.018	0
FEQ_32	0.212	0.175	0.120	0.105	0.105	0.126	0.083	0.058	0.015	0