Supplemental Material

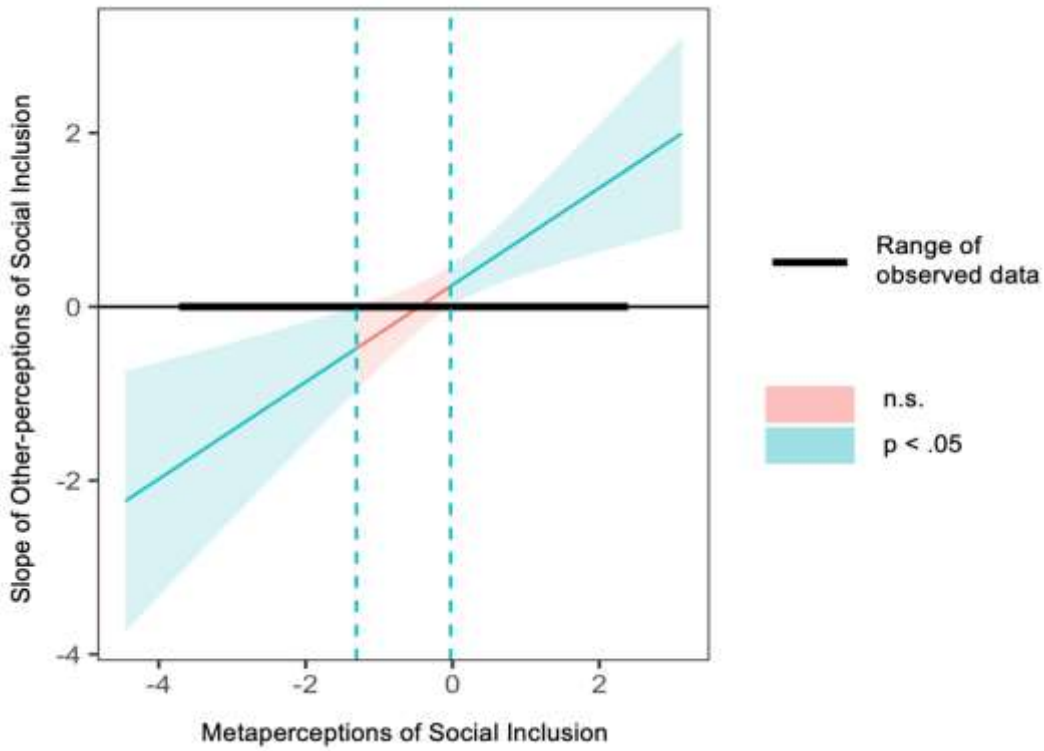
Table S1

Overview of Study Parts, Research Variables, Hypotheses, and Results

Study Part	Relevant Variables	Preregistered Hypothesis	Results
Study Part A: Laboratory	*Metaperceptions and other-perceptions of social inclusion*	*H1a: Metaperceptions of social inclusion are associated with momentary self-esteem, other-perceptions of social inclusion are not.*	*Metaperceptions positively relate to momentary self-esteem. Other-perceptions do not relate to momentary self-esteem in any model.*[1]
		H1b: Metaperceptions of social inclusion moderate the association between other-perceptions and momentary self-esteem.	*Metaperceptions moderated the association between other-perceptions and momentary self-esteem in 1 model.*[2]
Study Part B: ESM	*Self-perceptions and metaperceptions of social inclusion*	*H2a: Self-perceptions of social inclusion are associated with momentary self-esteem.*	*Self-perceptions positively relate to momentary self-esteem.*
		H2b: Metaperceptions of social inclusion predict momentary self-esteem above and beyond self-perceptions.	*Metaperceptions do not relate to momentary self-esteem.*[1]
Study Part B: Subsample analyses	*Self-perceptions, metaperceptions, and other-perceptions of social inclusion*	*see Hypotheses 1 and 2*	*Full model: Self-perceptions positively relate to momentary self-esteem; further perception types show no associations.*
			Partial model[3]*: Meta-perceptions positively relate to momentary self-esteem, other-perceptions do not.*
Both Study Parts	*Personality traits*	*Personality traits moderate the associations between interpersonal perceptions of social inclusion and momentary self-esteem.*	
		H3a: Neuroticism	*Study Part A: N dampens the association between meta- and other-perceptions and momentary self-esteem.* *Study Part B: No moderating effect.*
		H3b: Extraversion	*No moderating effects.*
		H3c: Agreeableness	*Study Part A: No moderating effects.* *Study Part B: A strengthens association between self-perceptions and momentary self-esteem.*

Note. [1] The effects did not remain significant after adjusting *p*-values to control for multiple testing. [2] The moderation was significant in the model with neuroticism. [3] Partial model without self-perceptions at predictor at the within or between-person level.

Johnson-Neyman Plot Showing the Interaction between Metaperceptions and Other-Perceptions of Social Inclusion on Momentary Self-Esteem in the Model with Neuroticism as a Predictor at Level 2



Note. Significant moderation effects of metaperceptions on other-perceptions of social inclusion are indicated by the green line, whereas non-significant moderation effects are indicated by a red line. Accordingly, the figure shows that positive metaperceptions above a value of 0 significantly strengthen the association between other-perceptions and momentary self-esteem, while negative metaperceptions below a value of -1.5 weaken this link.

Power Simulations

Power simulations were carried out for two parameters (1) the simple within-person effect of metaperceptions (in Part A) or self-perceptions of social inclusion (in Part B and the subsample analysis), and (2) the simple between-person effect of neuroticism. We assessed power as the relative number of *p*-values below .05. All simulations were run with the R package "SimrR" (Green & MacLeod, 2016) with 500 iterations. Consistent with previous literature (Cohen, 1988), a power of 80% or more can be considered satisfactory. In our power simulation, we applied a stepwise approach and moved from larger to smaller estimates for each level, stopping when the power fell below the threshold of sufficient power (i.e., < .80).

Table S2

Power Simulations for Study Part A, Study Part B, and the Subsample Analysis

	Part A	Part B	Subsample Analysis
L1-estimate			
.40	94.60% (93.01, 95.92)	100.0% (99.26, 100.0)	100.0% (99.26, 100.0)
.35	88.00% (84.82, 90.72)	/	/
.30	76.50% (73.75, 79.10)	/	99.00% (97.68, 99.67)
.20	/	/	82.60% (78.99, 85.82)
.15	/	/	59.80% (55.35, 64.13)
.10	/	95.80% (93.65, 97.38)	/
L2-estimate			
.45	84.60% (81.13, 87.65)		
.40	74.20% (70.13, 77.98)	98.80% (97.41, 99.56)	91.80% (89.04, 94.05)
.35	63.00% (58.60, 67.24)	/	84.00% (80.49, 87.10)
.30	/	90.60% (87.70, 93.01)	76.00% (72.01, 79.68)
.25	/	80.00% (70.82, 87.33)	56.60% (52.13, 60.99)
.20	/	53.80% (49.32, 58.24)	/

Note. Values in brackets indicate 95% confidence interval.

Table S3

Intercorrelations among Within-Person Variables for the Subsample-Analysis in Study Part B

Variable	*M*	*SD*	*ICC*	1	2	3	4	5	6
1. Momentary Self-Esteem	6.93	2.16	.54						
2. Self-Perception	8.48	1.48	.32	.26**					
3. Metaperception	8.09	1.54	.43	.26**	.75**				
4. Other-Perception	8.68	1.52	.16	.17**	.47**	.48**			
5. Level of Acquaintance	8.75	1.53	.22	.13**	.12**	.23**	.07		
6. Day of ESM	2.61	2.11	.04	– .01	.10*	.09*	.06	– .02	
7. Gender of Interaction Partner	0.34	0.47	.22	.01	– .05	– .05	– .03	– .04	.05

Note. N = 628 observations nested in 178 individuals. *M* and *SD* represent mean and standard deviation. Gender of interaction partner was coded 0 for same-sex and 1 for other-sex regarding the gender of the participant. * indicates $p < .05$, ** indicates $p < .01$.

Table S4

Intercorrelations among Between-Person Variables for the Subsample-Analysis in Study Part B

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Momentary Self-Esteem	6.92	1.83								
2. Neuroticism	3.88	1.09	– .47**							
3. Extraversion	4.77	0.95	.27**	– .26**						
4. Agreeableness	5.13	0.78	.17**	– .27**	.20**					
5. Self-Perception	8.47	1.25	.27**	– .13	.14	.32**				
6. Metaperception	8.14	1.37	.28**	– .18*	.17*	.33**	.82**			
7. Other-Perception	8.70	1.14	.23**	– .12	.07	.32**	.62**	.66**		
8. Age	17.62	0.93	– .02	– .07	– .02	– .07	– .03	– .07	.00	
9. Gender	0.78	0.41	– .12	.35**	– .05	.10	.05	.00	– .01	– .16*

Note. N = 178 individuals. *M* and *SD* represent mean and standard deviation. Situational variables (momentary self-esteem, self-, meta-, and other-perceptions of social inclusion) were averaged across rating rounds and individuals. Gender was coded 0 for males and 1 for females. * indicates $p < .05$, ** indicates $p < .01$.

Table S5

Multilevel Models explaining Momentary Self-Esteem as a Function of Meta, and Other-Perceptions of Social Inclusion, Personality Traits, and Covariates for the Subsample-Analysis in Study Part B

	Basic Model			Neuroticism			Extraversion			Agreeableness		
	Model 1			Model 2a			Model 2b			Model 2c		
	Est.	*SE*	*p*	*Est.*	*SE*	*p*	*Est.*	*SE*	*p*	*Est.*	*SE*	*p*
Fixed Effects												
Intercept, γ_{00}	7.25	0.29	< .001	6.74	0.27	< .001	7.22	0.29	< .001	7.31	0.29	< .001
Within-person effects												
Metaperception, γ_{10}	0.21	0.06	.001	0.22	0.06	< .001	0.20	0.06	.001	0.22	0.06	< .001
Other-Perception, γ_{20}	0.04	0.05	.469	0.02	0.05	.721	0.04	0.05	.401	0.05	0.05	.344
Meta x Other-Perception, γ_{30}	0.01	0.05	.833	– 0.01	0.05	.912	0.02	0.05	.743	0.02	0.05	.670
Level of Acquaintance, γ_{40}	– 0.01	0.05	.871	0.00	0.05	.996	– 0.01	0.05	.896	0.01	0.05	.813
Day of ESM, γ_{50}	– 0.02	0.03	.565	– 0.02	0.03	.512	– 0.02	0.03	.555	– 0.02	0.03	.448
Gender of Interaction Partner, γ_{60}	0.25	0.15	.092	0.26	0.15	.074	0.24	0.15	.101	0.26	0.15	.080
Between-person effects												
Metaperception, γ_{01}	0.34	0.13	.010	0.23	0.12	.055	0.27	0.13	.038	0.30	0.13	.021
Other-perception, $_{02}$	0.13	0.16	.400	0.12	0.14	.380	0.15	0.15	.316	0.10	0.16	.523
Gender, γ_{03}	– 0.54	0.32	.095	0.18	0.31	.566	– 0.50	0.31	.108	– 0.60	0.32	.060
Personality, γ_{04}				– 0.76	0.12	< .001	0.43	0.14	.002	0.24	0.18	.188
Cross-level interactions												
Personality x Metaperception, γ_{11}				– 0.03	0.05	.587	0.00	0.07	.999	0.19	0.07	.188
Personality x Other-Perception, γ_{21}				0.06	0.05	.270	– 0.06	0.05	.254	– 0.07	0.06	.240
Personality x Meta x Other-Perception, γ_{31}				– 0.01	0.04	.743	0.01	0.06	.846	0.16	0.06	.008
Random Effects												
Variance Intercept, $\sigma^2_{u_0}$			2.16			1.56			2.01			2.09
Residual Variance, σ^2_e			2.02			2.02			2.02			1.98
ICC			0.52			0.44			0.50			0.51
AIC			2498.18			2465.22			2494.76			2489.44
R^2_w/ R^2_b			0.09 / 0.11			0.22 / 0.31			0.12 / 0.16			0.12 / 0.14

Note. *N* = 178 individu
R^2_w indicates modeled v
significance level of p

Table S6

Unstandardized Regression Effects of Meta and Other-Perceptions and Personality on Momentary Self-Esteem in Study Part A, Including Unadjusted and Adjusted p-Values

	Basic Model			Neuroticism			Extraversion			Agreeableness		
	Model 1			Model 2a			Model 2b			Model 2c		
	Est.	*p*	BH	*Est.*	*p*	BH	*Est.*	*p*	BH	*Est.*	*p*	BH
Fixed Effects												
Within-person effects												
Metaperception, γ_{10}	0.34	.002	.010	0.34	.002	.010	0.35	.003	.010	0.35	.003	.010
Other-Perception, γ_{20}	0.23	.065	.120	0.25	.039	.078	0.26	.036	.077	0.22	.072	.122
Meta x Other-Perception, γ_{30}	0.28	.057	.109	0.56	.001	.007	0.32	.034	.077	0.28	.079	.126
Between-person effects												
Metaperception, γ_{01}	0.77	< .001	< .001	0.48	< .001	.004	0.63	< .001	< .001	0.68	< .001	< .001
Other-perception, $_{02}$	0.15	.265	.356	0.16	.187	.275	0.06	.661	.756	0.17	.212	.298
Personality, γ_{04}				– 0.70	< .001	< .001	0.37	.026	.072	0.47	.0.34	.077
Cross-level interactions												
Personality x Metaperception, γ_{11}				– 0.04	.705	.611	– 0.11	.321	.412	0.01	.961	.961
Personality x Other-Perception, γ_{21}				0.08	.509	.778	0.07	.515	.611	– 0.02	.916	.946
Personality x Meta x Other-Perception, $\gamma_{3:}$				– 0.35	.015	.042	– 0.26	.113	.172	0.04	.877	.935
Random Effects												
Variance Intercept, $\sigma^2_{u_0}$			1.57			1.13			1.41			1.46
Residual Variance, σ^2_e			1.99			1.91			1.95			1.99
ICC			0.44			0.37			0.42			0.42
AIC			1208.27			1185.31			1205.45			1211.44
R^2_w/ R^2_b			0.22 / 0.29			0.33 / 0.44			0.26 / 0.34			0.25 / 0.32

Note. N = 101 individuals providing 303 observations. R^2_w indicates modeled variance at the within-person level, R^2_b indicates modeled variance at the between-person level. p = unadjusted p-value, BH = adjusted p-value after Benjamini & Hochberg (FDR).

Table S7

Unstandardized Regression Effects of Meta and Other-Perceptions and Personality on Momentary Self-Esteem in Study Part B, Including Unadjusted and Adjusted p-Values

	Basic Model			**Neuroticism**			**Extraversion**			**Agreeableness**		
	Model 1			Model 2a			Model 2b			Model 2c		
	Est.	*p*	BH	*Est.*	*p*	BH	*Est.*	*p*	BH	*Est.*	*p*	BH
Fixed Effects												
Within-person effects												
Self-perception, γ_{10}	0.24	< .001	< .001	0.25	< .001	< .001	0.25	< .001	< .001	0.26	< .001	< .001
Metaperception, γ_{20}	0.06	.041	.085	0.06	.038	.085	0.06	.038	.085	0.05	.079	.124
Between-person effects												
Self-perception, γ_{01}	0.21	.352	.489	0.15	.458	.546	0.18	.404	.518	0.19	.414	.518
Metaperception, γ_{02}	0.48	.028	.085	0.35	.073	.123	0.41	.056	.110	0.46	.035	.085
Personality, γ_{04}				– 0.76	< .001	< .001	0.40	< .001	.001	0.16	.265	.391
Cross-level interactions												
Personality x Self-perception, γ_{11}				– 0.01	.804	.809	– 0.02	.487	.553	0.08	.005	.016
Personality x Metaperception, γ_{21}				– 0.01	.809	.809	0.06	.064	.114	– 0.02	.514	.559
Random Effects												
Variance Intercept, $\sigma^2_{u_0}$			2.03			1.50			1.89			2.01
Residual Variance, σ^2_e			2.34			2.34			2.34			2.33

ICC	0.46	0.39	0.45	0.46
AIC	11338.63	11286.43	11326.64	11331.54
R_w^2/ R_b^2	0.16 / 0.22	0.26 / 0.40	0.19 / 0.27	0.16 / 0.22

Note. N = 218 individuals providing 2,928 observations. R_w^2indicates modeled variance at the within-person level, R_b^2 indicates modeled variance at the between-person level. p = unadjusted p-value, BH = adjusted p-value after Benjamini & Hochberg (FDR).

	Basic Model			**Neuroticism**			**Extraversion**			**Agreeableness**		
	Model 1			Model 2a			Model 2b			Model 2c		
	Est.	*p*	BH	*Est.*	*p*	BH	*Est.*	*p*	BH	*Est.*	*p*	BH
Fixed Effects												
Within-person effects												

Table S8

Unstandardized Regression Effects of Meta and Other-Perceptions and Personality on Momentary Self-Esteem in Study Part B Subsample Analysis, Including Unadjusted and Adjusted p-Values

Self-perception, γ_{10}	0.34	< .001	< .001	0.34	< .001	< .001	0.33	< .001	< .001	0.26	< .001	< .001
Metaperception, γ_{20}	0.01	.909	.978	0.01	.897	.978	0.00	.952	.989	0.05	.079	.870
Other-Perception, γ_{30}	0.00	.972	.989	–0.01	.833	.968	0.01	.875	.976	0.01	.788	.968
Meta x Other-Perception, γ_{40}	0.03	.578	.870	0.01	.785	.968	0.03	.480	.870	0.04	.443	.870
Between-person effects												
Self-perception, γ_{01}	0.10	.626	.870	0.09	.611	.870	0.09	.637	.870	0.19	.414	.870
Metaperception, γ_{02}	0.27	.144	.566	0.16	.331	.870	0.21	.260	.747	0.46	.198	.610
Other-perception, γ_{03}	0.12	.448	.870	0.11	.424	.870	0.14	.355	.870	0.09	.571	.870
Personality, γ_{04}				– 0.76	< .001	< .001	0.43	.002	.015	0.16	.265	.610
Cross-level interactions												
Personality x Self-perception, γ_{11}				0.11	.079	.377	0.05	.509	.870	– 0.04	.667	.870
Personality x Metaperception, γ_{21}				– 0.09	.134	.566	– 0.02	.827	.968	0.18	.031	.167
Personality x Other-Perception, γ_{31}				0.04	.502	.870	– 0.07	.162	.579	– 0.05	.420	.870
Personality x Meta x Other-Perception, γ_{4}				– 0.00	.989	.989	0.03	.635	.870	0.14	.013	.079
Random Effects												
Variance Intercept, $\sigma^2_{u_0}$			2.20			1.60			2.05			2.12
Residual Variance, σ^2_e			1.93			1.91			1.91			1.98
ICC			0.53			0.46			0.52			0.53
AIC			2479.57			2445.07			2477.03			2559.70
R^2_w/ R^2_b			0.10 / 0.11			0.23 / 0.31			0.14 / 0.16			0.13 / 0.14

Note. N = 178 individuals providing 628 observations. R_w^2 indicates modeled variance at the within-person level, R_b^2 indicates modeled variance at the between-person level. p = unadjusted p-value, BH = adjusted p-value after Benjamini & Hochberg (FDR).

Table S9

Unstandardized Regression Effects of Meta and Other-Perceptions and Personality on Momentary Self-Esteem in Study Part B Subsample Analysis, Including Unadjusted and Adjusted p-Values

	Basic Model			**Neuroticism**			**Extraversion**			**Agreeableness**		
	Model 1			Model 2a			Model 2b			Model 2c		
	Est.	*p*	BH	*Est.*	*p*	BH	*Est.*	*p*	BH	*Est.*	*p*	BH
Fixed Effects												
Within-person effects												
Metaperception, γ_{20}	0.21	.001	.007	0.22	< .001	.005	0.20	.001	.009	0.22	< .001	.005
Other-Perception, γ_{30}	0.04	.469	.682	0.02	.721	.849	0.04	.401	.611	0.05	.344	.611
Meta x Other-Perception, γ_{40}	0.01	.833	.902	– 0.01	.912	.941	0.02	.743	.849	0.02	.670	.849
Between-person effects												
Metaperception, γ_{02}	0.34	.010	.036	0.23	.055	.149	0.27	.038	.113	0.30	.021	.032
Other-perception, γ_{03}	0.13	.400	.611	0.12	.380	.611	0.15	.316	.595	0.10	.523	.729
Personality, γ_{04}				– 0.76	< .001	< .001	0.43	.002	.010	0.24	.188	.467
Cross-level interactions												
Personality x Metaperception, γ_{21}				– 0.03	.587	.783	0.00	.999	.999	0.19	.008	.032
Personality x Other-Perception, γ_{31}				0.06	.270	.540	– 0.06	.254	.540	– 0.07	.240	.540
Personality x Meta x Other-Perception, γ_{4}				– 0.01	.743	.849	0.01	.846	.902	0.16	.008	.032
Random Effects												
Variance Intercept, $\sigma^2_{u_0}$			2.16			1.56			2.01			2.09
Residual Variance, σ^2_e			2.02			2.02			2.02			1.98
ICC			0.52			0.44			0.50			0.51
AIC			2498.18			2465.22			2494.76			2489.44
R^2_w/ R^2_b			0.09 / 0.11			0.22 / 0.31			0.12 / 0.16			0.12 / 0.14

Note. N = 178 individuals providing 628 observations. R_w^2 indicates modeled variance at the within-person level, R_b^2 indicates modeled variance at the between-person level. p = unadjusted p-value, BH = adjusted p-value after Benjamini & Hochberg (FDR).