Supplement

Additional Details for the Models in the Main Text

Fixed Effects

Table S1 shows the estimates for fixed effects in the covariation models in the main text.

Table S1

Fixed Effects in the Covariation Models in the Main Text

Model 1: Physiological Covariation						
Effect	***Question Addressed***	***Est.***	***SE***	***df***	***t***	***p***
Responder IBI reactivity	Is there significant covariation?	0.06	0.04	75.9	1.48	.14
Responder IBI reactivity by condition	Does covariation vary by condition?	-0.04	0.04	75.9	-0.91	.37
Model 2: Physiological Covariation and Talk Time						
Effect	***Question Addressed***	***Est.***	***SE***	***df***	***t***	***p***
Responder IBI reactivity	Is covariation significantly different from zero?	0.05	0.04	69.9	1.38	.17
Responder IBI reactivity by discloser talk time	Does covariation vary by how much the discloser talks?	-0.003	0.001	69.5	-2.93	.005
Responder IBI reactivity by responder talk time	Does covariation vary by how much the responder talks?	-0.001	0.001	69	-0.39	.70
Responder IBI reactivity by condition	Does covariation vary by condition?	-0.05	0.04	70.1	-1.13	.26
Model 3: Physiological Covariation and Neglect/Withdrawal						
Effect	***Question Addressed***	***Est.***	***SE***	***df***	***t***	***p***

Responder IBI reactivity	Is covariation significantly different from zero?	0.03	0.05	60.1	0.62	.54
Responder IBI reactivity by discloser neglect/withdrawal	Does covariation vary by the discloser's neglect/withdrawal?	0.05	0.05	60.3	1.06	.30
Responder IBI reactivity by responder neglect/withdrawal	Does covariation vary by the responder's neglect/withdrawal?	-0.10	0.05	59.6	-1.94	.057
Responder's IBI reactivity by condition	Does covariation vary by condition?	-0.04	0.05	60.8	-0.73	.47

Model 4: Physiological Covariation and Behavioral Positivity

Effect	***Question Addressed***	***Est.***	***SE***	***df***	***t***	***p***
Responder IBI reactivity	Is covariation significantly different from zero?	0.02	0.04	57.,5	0.37	.71
Responder IBI reactivity by discloser behavioral positivity	Does covariation vary by the discloser's behavioral positivity?	0.11	0.05	56.7	1.93	.058
Responder IBI reactivity by responder behavioral positivity	Does covariation vary by the responder's behavioral positivity?	0.09	0.04	56.7	2.14	.037
Responder IBI reactivity by condition	Does covariation vary by condition?	0.02	0.05	56.9	0.51	.62

Random Effects

Table S2 shows the estimates for random effects in the covariation models in the main text.

Table S2

(Co-)variance parameters

Random effects ([co-]variances)	**Est.**	***SE***	***z***	***p***
Model 1: Physiological covariation				
Variance in covariation	0.06	0.02	2.88	.002
Residual variance	0.87	0.04	23.07	< .001
Model 2: Physiological covariation and talk time				
Variance in covariation	0.05	0.02	2.48	.007
Residual variance	0.87	0.04	22.49	< .001
Model 3: Physiological covariation and neglect/withdrawal				
Variance in covariation	0.06	0.02	2.59	.005
Residual variance	0.87	0.04	20.84	< .001
Model 4: Physiological covariation and behavioral positivity				
Variance in covariation	0.05	0.02	2.27	0.01
Residual variance	0.88	0.04	20.49	< .001

Sensitivity Analyses

We conducted three sets of sensitivity analyses (Thabane et al., 2013).

Interactions between Behaviors and Condition

First, we conducted models with interactions between behaviors and condition on covariation. We found no evidence that the behavior-covariation relationships presented in the main text were moderated by condition so we trimmed these interaction terms from our models. The direction of estimates for behavior-covariation associations were consistent when these interactions were included (see Table S3).

Table S3

Behavior-Covariation Associations with Behavior-Condition Interactions in the Model

	Est.	***SE***	***df***	***t***	***p***
Discloser talk time and covariation	-0.003	0.001	68.9	-2.66	.010
Responder talk time and covariation	-0.001	0.001	68.7	-0.87	.39
Discloser neglect/withdrawal and covariation	0.05	0.06	58.4	0.95	.34
Responder neglect/withdrawal and covariation	-0.08	0.05	59.9	-1.44	.15
Discloser positive emotion and covariation	0.10	0.05	55.2	1.77	.082
Responder positive emotion and covariation	0.12	0.04	55.2	2.66	.010

No Detrending for the Influence of Time

Second, we conducted models in which participants' IBI responses were within-person standardized but not detrended for the influence of time. In other words, do participants still show the same behavior-covariation associations, even if their IBI responses change in a linear way over time? The direction of estimates for behavior-covariation associations presented in the main text (with detrended IBI responses) were consistent with those found when using IBI responses that were not detrended (see Table S4).

Table S4

Behavior-Covariation Associations with Non-Detrended IBI Responses

	Est.	***SE***	***df***	***t***	***p***
Discloser talk time and covariation	-0.003	0.001	69.8	-3.22	.002
Responder talk time and covariation	< .001	0.001	69.4	0.07	.94
Discloser neglect/withdrawal and covariation	0.01	0.05	60.2	0.31	.76
Responder neglect/withdrawal and covariation	-0.13	0.05	60	-2.52	.015
Discloser behavioral positivity and covariation	0.05	0.06	57	0.79	.43
Responder behavioral positivity and covariation	0.09	0.05	57	1.89	.064

IBI Reactivity at Different Temporal Resolutions

Third, we conducted models in which participants' IBI responses were averaged across 10 seconds and 30 seconds, in comparison to the models in the main text in which IBI responses were averaged across 20 seconds. In Table S5, we report the estimates with IBI responses across all three time intervals. All fixed effects in the models with 20-second intervals and the models with 30-second intervals were consistent in terms of the direction of effects and the level of significance. We found two differences in the models with 10-second intervals versus those with 20- and 30-second intervals. One, the effect of responder neglect/withdrawal on covariation was nonsignificant (and negative) when examining IBI reactivity in 10-second intervals, but this effect was "marginally significant" (and negative) when examining IBI reactivity in 20-second and 30-second intervals. Two, the effect of discloser behavioral positivity was nonsignificant (and positive) when examining IBI reactivity in 10-second intervals, but this effect was "marginally significant" (and positive) when examining IBI reactivity in 20-second and 30-

second intervals. These effects should continue to be examined in future research, potentially with behaviors measured at smaller timescales as well.

Table S5

Fixed Effects in the Covariation Models in the Main Text

Model 1: Physiological Covariation															
	IBI in 10-second intervals					**IBI in 20-second intervals**					**IBI in 30-second intervals**				
Effect	***Est.***	***SE***	***df***	***t***	***p***	***Est.***	***SE***	***df***	***t***	***p***	***Est.***	***SE***	***df***	***t***	***p***
Responder IBI reactivity	0.05	0.03	72.8	1.49	.14	0.06	0.04	75.9	1.48	.14	0.06	0.05	72.3	1.37	.18
Responder IBI reactivity by condition	-0.04	0.03	72.8	-1.36	.18	-0.04	0.04	75.9	-0.91	.37	-0.03	0.05	72.3	-0.71	.48
Model 2: Physiological Covariation and Talk Time															
	IBI in 10-second intervals					**IBI in 20-second intervals**					**IBI in 30-second intervals**				
Effect	***Est.***	***SE***	***df***	***t***	***p***	***Est.***	***SE***	***df***	***t***	***p***	***Est.***	***SE***	***df***	***t***	***p***
Responder IBI reactivity	0.04	0.03	67.8	1.23	.22	0.05	0.04	69.9	1.38	.17	0.06	0.05	67.3	1.31	.19
Responder IBI reactivity by discloser talk time	-0.002	<0.001	67.4	-2.60	.014	-0.003	0.001	69.5	-2.93	.005	-0.003	0.001	66.8	-2.27	.027

Responder IBI reactivity by responder talk time	-0.05	<0.001	67.2	-0.83	.41	-0.001	0.001	69	-0.39	.70	-0.001	0.001	66.7	-0.51	.61
Responder IBI reactivity by condition	-0.05	0.03	67.9	-1.55	.13	-0.05	0.04	70.1	-1.13	.26	-0.04	0.05	67.3	-0.79	.44

Model 3: Physiological Covariation and Neglect/Withdrawal

	IBI in 10-second intervals					**IBI in 20-second intervals**					**IBI in 30-second intervals**				
Effect	***Est.***	***SE***	***df***	***t***	***p***	***Est.***	***SE***	***df***	***t***	***p***	***Est.***	***SE***	***df***	***t***	***p***
Responder IBI reactivity	0.03	0.04	57	0.73	.47	0.03	0.05	60.1	0.62	.54	0.05	0.05	56.3	0.89	.38
Responder IBI reactivity by discloser neglect/withdrawal	0.03	0.04	57.6	0.85	.40	0.05	0.05	60.3	1.06	.30	0.02	0.05	56.6	0.36	.72
Responder IBI reactivity by responder neglect/withdrawal	-0.05	0.04	56.8	1.27	.21	-0.10	0.05	59.6	-1.94	.057	-0.11	0.06	56	-1.89	.065
Responder's IBI reactivity by condition	-0.04	0.04	57.7	-1.11	.27	-0.04	0.05	60.8	-0.73	.47	0.002	0.05	56.7	0.03	.97

Model 4: Physiological Covariation and Behavioral Positivity

	IBI in 10-second intervals	**IBI in 20-second intervals**	**IBI in 30-second intervals**

Effect	*Est.*	*SE*	*df*	*t*	*p*	*Est.*	*SE*	*df*	*t*	*p*	*Est.*	*SE*	*df*	*t*	*p*
Responder IBI reactivity	0.02	0.03	54.8	0.49	.63	0.02	0.04	57.5	0.37	.71	0.01	0.05	54.3	0.13	.90
Responder IBI reactivity by discloser behavioral positivity	0.05	0.04	54.4	1.08	.29	0.11	0.05	56.7	1.93	.058	0.11	0.06	54.2	1.98	.052
Responder IBI reactivity by responder behavioral positivity	0.08	0.04	54.1	2.21	.03	0.09	0.04	56.7	2.14	.037	0.10	0.05	54	2.15	.036
Responder IBI reactivity by condition	-0.01	0.04	54.5	-0.33	.74	0.02	0.05	56.9	0.51	.62	0.03	0.05	54.1	0.56	.58

Associations between Behaviors and IBI Reactivity Over Time

Analytic Approach

We conducted dyadic growth curve models to understand the association between behaviors and IBI reactivity over time (Kashy et al., 2008). All models were conducted in SAS 9.4, using PROC MIXED for mixed models with IBI reactivity multiplied by -1 (so that higher values indicate more ANS arousal) at each 20-second interval as the outcome. We treated dyads as distinguishable, where the distinguishing factor was role: discloser vs. responder. We estimated the following fixed effect parameters separately for disclosers and responders: time (centered at the first 20-second interval of the study), actor neglect/withdrawal, partner neglect/withdrawal, and interactions between time and actor and partner behaviors. We also adjusted for the main effect of condition.

We used covariance parameters to adjust for nonindependence within-person and within-dyad. We estimated random intercepts for disclosers and responders, as well as random slopes for time for disclosers and responders. We used an unstructured covariance matrix, which resulted in the estimation of four variances, four between-person covariances, and two within-person covariances for each model. We also specified a first-order autoregressive structure on the residuals at level one. This resulted in the estimation of one variance of residuals for disclosers, one variance of residuals for responders, one covariance between the residuals of disclosers and responders at the same time point, and one within-person first-order autocorrelation of the residuals.

Talk Time

Disclosers' own talk time did not predict their IBI reactivity at any 20-second interval of the conversation (effect of talk time on IBI reactivity: *b*s from -0.05 to 0.08, *ps* > .64; interaction

between talk time and time: $F(1, 71.6) = 0.33$, $p = .42$). Responders' own talk time did not predict their IBI reactivity at any 20-second interval of the conversation (effect of talk time on IBI reactivity: *b*s from 0.31 to 0.32, *ps* > .12; interaction between responder talk time and time: $F(1, 71.1) = 0.01$, $p = .92$.

For disclosers, their partners' talk time did not predict their IBI reactivity at any 20-second interval of the conversation (effect of partner talk time on IBI reactivity: *b*s from 0.06 to 0.26, *ps* < .05; interaction between partner talk time and time: $F(1, 71.5) = 0.66$, $p = .42$). For responders, their partners' talk time significantly predicted their IBI reactivity throughout the first eight 20-sec intervals of the conversation (*b*s from -0.63 to -0.39, *p*s < .05): the more disclosers talked, the lower the reactivity of responders (interaction between partner talk time and time: $F(1, 71.7) = 9.04$, $p = .004$. The association between IBI reactivity and partner talk time was nonsignificant for the rest of the conversation (*bs* from -0.35 to -0.15, *p*s > .05).

Neglect/Withdrawal

Disclosers' own neglect/withdrawal did not predict their IBI reactivity at any 20-second interval of the conversation (effect of neglect/withdrawal on IBI reactivity: *b*s from -1.42 to -0.80, *ps* > .85; interaction between neglect/withdrawal and time: $F(1, 60.7) < 0.01$, $p = .95$). We observed a similar pattern for responders: responders' own neglect/withdrawal did not predict their IBI reactivity at any 20-second interval of the conversation (effect of neglect/withdrawal on IBI reactivity: *b*s from -9.05 to 4.27, *ps* > .33; interaction between responder neglect/withdrawal and time: $F(1, 59.8) = 3.74$, $p = .058$.

For disclosers, their partners' neglect/withdrawal predicted their IBI reactivity at the beginning of the conversation (effect of partner neglect/withdrawal on IBI reactivity during the first 80s: *b*s from 22.22 to 28.62, *ps* < .05; interaction between partner neglect/withdrawal and

time: $F(1, 61.5) = 77.6$, $p = .008$). The effect of partner neglect/withdrawal on IBI reactivity during the rest of the conversation was nonsignificant: *bs* from -1.24 to 20.89, *p*s > .05). For responders, their partners' neglect/withdrawal did not significantly predict their IBI reactivity during any intervals of the conversation (*b*s from -3.78 to 15.17, *p*s > .05) although the association between IBI reactivity and partner neglect/withdrawal was stronger (and positive) at the beginning of the conversation than it was at the end (interaction between partner neglect/withdrawal and time: $F(1, 60.1) = -3.15$, $p = .0025$).

Behavioral Positivity

Disclosers' own behavioral positivity did not predict their IBI reactivity at any 20-second interval of the conversation (effect of behavioral positivity on IBI reactivity: *b*s from -9.63 to -1.06, *ps* > .29; interaction between behavioral positivity and time: $F(1, 58.7) = 0.52$, $p = .47$). Responders' own behavioral positivity did not predict their IBI reactivity at any 20-second interval of the conversation (effect of behavioral positivity on IBI reactivity: *b*s from -10.27 to 5.92, *ps* > .22) although the association between IBI reactivity and partner behavioral positivity was stronger (and positive) at the beginning of the conversation than it was at the end (interaction between behavioral positivity and time: $F(1, 59.1) = 6.23$, $p = .015$).

For disclosers, their partners' behavioral positivity did not predict their IBI reactivity at any 20-second interval of the conversation (effect of behavioral positivity on IBI reactivity: *b*s from -4.94 to 1.70, *ps* > .70; interaction between behavioral positivity and time: $F(1, 58) = 0.42$, $p = .30$). Responders' own behavioral positivity did not predict their IBI reactivity at any 20-second interval of the conversation (effect of behavioral positivity on IBI reactivity: *b*s from -10.74 to 2.58, *ps* > .29; interaction between partner behavioral positivity and time: $F(1, 59) = 3.17$, $p = .08$.

Covariation of Parasympathetic Nervous System Activity

We examined covariation of parasympathetic nervous system activity using the same models as those reported in the main text, except the physiological response examined was the root mean square of successive differences (RMSSD). We used ECG to obtain RMSSD, which is a measure of parasympathetic nervous system activity that is based on the amount of time in between successive heartbeats (Thomas et al., 2019). Specifically, it is calculated as the square root of the mean of the squares of the successive differences between heartbeats. We subtracted each person's baseline RMSSD value from their RMSSD value at every time interval during the conversation to create reactivity scores. Higher numbers reflect less activation of the PNS relative to baseline. Fixed effects are reported in Table S5; random effects are reported in Table S6.

Table S5

Fixed Effects for Covariation Models with RMSSD

Model 1: RMSSD Covariation						
Effect	***Question Addressed***	***Est.***	***SE***	***df***	***t***	***p***
Responder RMSSD reactivity	Is there significant covariation of RMSSD?	-0.02	0.04	75.7	-0.53	.60
Responder RMSSD reactivity by condition	Does RMSSD covariation vary by condition?	-0.001	0.03	75.7	-0.02	.98
Model 2: RMSSD Covariation and Talk Time						
Effect	***Question Addressed***	***Est.***	***SE***	***df***	***t***	***p***
Responder RMSSD reactivity	Is RMSSD covariation significantly different from zero?	-0.03	0.03	69.8	-0.71	.48
Responder RMSSD reactivity by discloser talk time	Does RMSSD covariation vary by how much the discloser talks?	0.001	0.001	68.9	0.87	.38
Responder RMSSD reactivity by responder talk time	Does RMSSD covariation vary by how much the responder talks?	-0.002	0.001	68.7	-2.29	.025
Responder RMSSD reactivity by condition	Does RMSSD covariation vary by condition?	-0.005	0.03	70	-0.14	.89
Model 3: RMSSD Covariation and Neglect/Withdrawal						
Effect	***Question Addressed***	***Est.***	***SE***	***df***	***t***	***p***
Responder RMSSD reactivity	Is RMSSD covariation significantly different from zero?	-0.02	0.04	60.3	-0.49	.63

Responder RMSSD reactivity by discloser neglect/withdrawal	Does RMSSD covariation vary by the discloser's neglect/withdrawal?	0.02	0.04	59.9	0.37	.71
Responder RMSSD reactivity by responder neglect/withdrawal	Does RMSSD covariation vary by the responder's neglect/withdrawal?	-0.02	0.04	59.7	-0.42	.67
Responder's RMSSD reactivity by condition	Does RMSSD covariation vary by condition?	-0.01	0.04	60.6	-0.27	.79

Model 4: RMSSD Covariation and Behavioral Positivity

Effect	*Question Addressed*	*Est.*	*SE*	*df*	*t*	*p*
Responder RMSSD reactivity	Is RMSSD covariation significantly different from zero?	-0.02	0.04	57.5	-0.45	.66
Responder RMSSD reactivity by discloser behavioral positivity	Does RMSSD covariation vary by the discloser's behavioral positivity?	0.09	0.05	56.7	2.00	.050
Responder RMSSD reactivity by responder behavioral positivity	Does RMSSD covariation vary by the responder's behavioral positivity?	0.06	0.04	56.9	1.72	.091
Responder RMSSD reactivity by condition	Does RMSSD covariation vary by condition?	0.02	0.04	56.7	0.43	.67

Table S6

(Co-)variance parameters

Random effects ([co-]variances)	**Est.**	***SE***	***z***	***p***
Model 1: RMSSD covariation				
Variance in covariation	0.02	0.01	1.48	.07
Residual variance	0.91	0.40	23.04	< .001

Model 2: RMSSD covariation and talk time				
Variance in covariation	0.02	0.01	1.19	.12
Residual variance	0.91	0.04	22.45	< .001
Model 3: RMSSD covariation and neglect/withdrawal				
Variance in covariation	0.03	0.02	1.63	.052
Residual variance	0.91	0.04	20.83	< .001
Model 4: RMSSD covariation and behavioral positivity				
Variance in covariation	0.02	0.02	1.24	.11
Residual variance	0.90	0.04	20.47	< .001

RMSSD Covariation

On average, RMSSD covariation was not significant across couples (see Table S5). However, there was evidence of *variability* in covariation from dyad to dyad (see Table S6). In standard deviation units, the estimate of the random slope was 0.15 units, about seven times the size of the fixed effect for covariation.

RMSSD Covariation and Talk Time

We examined the associations between discloser and responder speaking time with RMSSD covariation. Discloser speaking time was not associated with RMSSD covariation (see Table S5). Responder talk time was negatively associated with RMSSD covariation (see Table S5). Dyads with responders who talked more (+1 SD) showed significant, negative covariation, b = -0.11, SE = 0.05, $t(69)$ = -2.14, p = .036, 95% CI: -0.20, -0.01. In contrast, dyads with

responders who talked less (-1 SD) showed positive covariation, $b = 0.06$, $SE = 0.05$, $t(69.4) = 1.16$, $p = .25$, 95% CI: -0.04, 0.16.

RMSSD Covariation and Neglect/Withdrawal

We examined the associations between discloser and responder neglect/withdrawal behavior with RMSSD covariation. Neither discloser neglect/withdrawal nor responder neglect/withdrawal was associated with covariation (see Table S5).

RMSSD Covariation and Behavioral Positivity

We examined associations between discloser and responder behavioral positivity with RMSSD covariation. Both discloser and responder behavioral positivity were positively related to covariation, though neither of these effects surpassed the conventional cutoff for statistical significance (see Table S5). Dyads with disclosers high in positive emotion (+1 SD) showed positive covariation (though it was not significantly different from zero), $b = 0.07$, $SE = 0.06$, $t(56.5) = 1.27$, $p = .21$, 95% CI: -0.04, 0.18). Dyads with disclosers low in positive emotion (-1 SD) showed negative covariation (though, again, it was not significantly different from zero), $b = -0.10$, $SE = 0.06$, $t(57.6) = -1.74$, $p = .09$, 95% CI: -0.22, 0.02. Dyads with responders high in positive emotion (+1 SD) showed positive covariation (though it was not significantly different from zero), $b = 0.04$, $SE = 0.05$, $t(56.3) = 0.85$, $p = .40$, 95% CI: -0.06, 0.15). Dyads with responders low in positive emotion (-1 SD) showed negative covariation (though, again, it was not significantly different from zero), $b = -0.08$, $SE = 0.05$, $t(58.3) = -1.52$, $p = .13$, 95% CI: -0.18, 0.02.