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Lightening the load: perceived partner responsiveness fosters more positive appraisals of relational sacrifices

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Supplemental Online Materials for Visserman et al. (2022): Perceived Partner Responsiveness and Sacrifice Appraisals

In these Supplemental Online Materials, we present details of additional analyses and results pertaining to: 1) associations between perceived partner responsiveness (PPR) and all sacrifice appraisals analyzed separately, 2) the directionality of the mediation processes, and 3) a sequential mediation model predicting sacrifice behavior that includes the roles of closeness and negative affect (Study 3).

Section 1: Associations Between Perceived Partner Responsiveness and All Sacrifice Appraisals

Below we present the results for the associations between PPR and all sacrifice appraisals analyzed separately in each study.

Study 1

Table S1

Comparisons of sacrifice costs appraisals between the high responsiveness, low responsiveness, and the control condition in Study 1

Sacrifice Costs	<i>Difference (SE)</i>	95% CI	<i>Cohen's d</i>	<i>t</i>	<i>F</i>	η^2	<i>p</i>
<i>Condition</i>							
Total effect					8.46	.03	.031
High vs. low	-.68 (.17)	-1.07, -.29	.43	-4.10			< .001
High vs. control	-.39 (.17)	-.78, .003	.25	-2.33			.020
Low vs. control	-.36 (.17)	-.10, .68	.18	1.75			.080

Table S2

Comparisons of sacrifice satisfaction appraisals between the high responsiveness, low responsiveness, and the control condition in Study 1

Sacrifice Satisfaction	Difference (SE)	95% CI	Cohen's <i>d</i>	<i>t</i>	<i>F</i>	η^2	<i>p</i>
Condition							
Total effect					12.57	.05	< .001
High vs. low	.81 (.16)	.43, 1.19	.54	5.01			< .001
High vs. control	.40 (.16)	.02, .78	.26	2.47			.014
Low vs. control	-.41 (.16)	-.78, -.03	.26	-2.53			.012

Table S3

Comparisons of personal benefits appraisals between the high responsiveness, low responsiveness, and the control condition in Study 1

Personal Benefits	Difference (SE)	95% CI	Cohen's <i>d</i>	<i>t</i>	<i>F</i>	η^2	<i>p</i>
Condition							
Total effect					17.71	.06	< .001
High vs. low	.89 (.15)	.54, 1.25	.63	5.86			< .001
High vs. control	.32 (.15)	-.04, .68	.22	2.10			.037
Low vs. control	-.57 (.15)	-.93, -.21	.38	-3.75			< .001

Table S4

Comparisons of anticipated regret appraisals between the high responsiveness, low responsiveness, and the control condition in Study 1

Anticipated Regret	<i>Difference (SE)</i>	95% CI	<i>Cohen's d</i>	<i>t</i>	<i>F</i>	η^2	<i>p</i>
<i>Condition</i>							
Total effect					7.41	.03	.001
High vs. low	-.60 (.16)	-.99, -.22	.41	-3.72			< .001
High vs. control	-.45 (.16)	-.83, .06	.29	-2.73			.007
Low vs. control	.16 (.16)	-.22, .54	.10	0.97			.332

Studies 2a and 2b

In Studies 2a and 2b, sacrifice appraisals were operationalized only as sacrifice costs.

Study 3

Table S5

Associations of perceived partner responsiveness with appraisals of sacrifice costs, sacrifice level, and personal benefits in the lab conversation of Study 3

Partner Responsiveness	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>
Sacrifice level	-.25	.08	-.40, -.10	166.3	-3.29	.001
Sacrifice costs	-.24	.08	-.39, -.08	177.3	-3.06	.003
Personal benefits	.24	.08	.09, .39	171.3	3.35	.001

Study 4

Table S6

Associations of perceived partner responsiveness with appraisals of sacrifice level, sacrifice costs, and personal benefits in Study 4

Partner Responsiveness	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>
Sacrifice level	-.37	.10	-.57, -.17	228	-3.72	< .001
Sacrifice costs	-.08	.11	-.29, .14	228	-0.49	.491
Sacrifice satisfaction	.38	.07	.24, .51	228	5.46	< .001
Personal benefits	.28	.09	.11, .46	228	3.25	.001
Relational benefits	.41	.07	.27, .56	228	5.66	< .001
Regret	-.37	.07	-.52, -.23	228	-5.02	< .001

Table S7

Associations of need satisfaction from partner with appraisals of sacrifice level, sacrifice costs, sacrifice satisfaction, personal benefits, relational benefits, and regret in Study 4

Need Satisfaction from Partner	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>
Sacrifice level	-.18	.09	-.36, -.01	228	-2.04	.043
Sacrifice costs	-.03	.10	-.22, .16	228	-0.31	.757
Sacrifice satisfaction	.34	.06	.22, .46	228	5.51	< .001
Personal benefits	.38	.08	.23, .53	228	5.05	< .001
Relational benefits	.44	.06	.32, .57	228	6.94	< .001
Regret	-.35	.07	-.48, -.22	228	-5.30	< .001

Section 2: Directionality of Mediation Processes

To gain a better understanding of the direction of the indirect effects of PPR on sacrifice appraisals, mediated by felt closeness and negative affect toward the partner, we conducted additional tests to support the direction of the a-paths and the b-paths in these models in Studies 2b, 3, and 4.

To support the a-paths (i.e., PPR predicting closeness or negative affect), we controlled for earlier reports of closeness or negative affect to ensure that PPR affects closeness and negative affect above and beyond how these feelings reported earlier may be associated with perceptions of partner responsiveness.

We also aimed to gain clarity on the directionality of the b-paths (i.e., closeness or negative affect predicting sacrifice appraisals, above and beyond how sacrifice appraisals may also shape closeness and negative affect). In Studies 2b, 3, and 4, we could not control for earlier levels of sacrifice appraisals when testing the link between closeness or negative affect and current appraisals. Note that in Study 2b, in which we repeatedly assessed sacrifice appraisals, participants reported, on average, about two sacrifices over the course of the study, which limits our ability to perform lagged analyses in this study too. As an alternative method, we examined *reversed* mediation models in which sacrifice appraisals served as the mediator and closeness or negative affect as the outcome. This method enables us to compare whether the reversed causal direction may also produce a significant indirect effect as well as the percentage of mediation that occurs in the original versus the reversed models. Note that closeness and negative affect were examined in separate analyses because they are treated as the outcome in the reversed mediation models.

The results of these analyses are reported in the auxiliary analyses sections in the main manuscript. Here we present the full tables of the original and reversed mediation models. The 95% CIs for the indirect effects were obtained with the Monte Carlo method for assessing mediation (MCMAM) using unstandardized estimates. This simulation method estimates a 95% confidence interval for the indirect effect using 20,000 simulations (Selig & Preacher, 2008). The confidence interval is significant at $p < .05$ when the interval does not include the value of zero.

Study 2b

Table S8

Original and reversed indirect effect models for the associations between perceived partner responsiveness, closeness, and sacrifice costs appraisals in Study 2b

Original: Closeness	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Closeness	.31	.05	.22, .40	363.4	6.82	<.001	
Closeness – Sacrifice Costs	-.24	.09	-.42, -.06	399.7	-2.68	.008	
PPR – Sacrifice Costs							
<i>Total effect</i>	-.17	.07	-.31, -.02	384.7	-2.20	.028	
<i>Direct effect</i>	-.09	.08	-.25, .07	373.9	-1.13	.259	
<i>Indirect effect</i>	-.07	.03	-.14, -.02			.012	47.06
Reversed: Closeness	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Sacrifice Costs	-.17	.07	-.31, -.02	384.7	-2.20	.028	
Sacrifice Costs – Closeness	-.06	.03	-.13, .01	288.2	-1.77	.077	
PPR – Closeness							
<i>Total effect</i>	.31	.05	.22, .40	363.4	6.82	<.001	
<i>Direct effect</i>	.30	.05	.21, .39	363.3	6.65	<.001	
<i>Indirect effect</i>	.01	.007	-.001, .03			.168	2.90

Table S9

Original and reversed indirect effect models for the associations between perceived partner responsiveness, negative affect, and sacrifice costs appraisals in Study 2b

Original: Negative Affect	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Negative Affect	-.41	.06	-.52, -.30	374.6	-7.32	<.001	
Negative Affect – Sacrifice Costs	.23	.07	.09, .37	392.9	3.15	.002	
PPR – Sacrifice Costs							
<i>Total effect</i>	-.17	.07	-.31, -.02	384.7	-2.20	.028	
<i>Direct effect</i>	-.07	.08	-.23, .08	398.2	-0.93	.353	
<i>Indirect effect</i>	-.09	.03	-.16, -.04			.003	58.82
Reversed: Negative Affect	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Sacrifice Costs	-.17	.07	-.31, -.02	384.7	-2.20	.028	
Sacrifice Costs – Negative Affect	.10	.04	.02, .19	289.3	2.42	.016	
PPR – Negative Affect							
<i>Total effect</i>	-.41	.06	-.52, -.30	374.6	-7.32	<.001	
<i>Direct effect</i>	-.39	.06	-.50, -.29	375.1	-7.12	<.001	
<i>Indirect effect</i>	-.02	.01	-.04, .00			.099	4.88

Study 3**Table S10**

Original and reversed indirect effect models for the associations between perceived partner responsiveness, closeness, and sacrifice appraisals in Study 3

Original: Closeness	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Closeness	.75	.05	.66, .84	158.0	16.45	<.001	
Closeness – Sacrifice Appraisals	.25	.08	.09, .41	194.2	3.06	.003	
PPR – Sacrifice Appraisals							
<i>Total effect</i>	.24	.06	.13, .35	177.0	4.33	<.001	
<i>Direct effect</i>	.04	.08	-.12, .20	197.0	0.54	.593	
<i>Indirect effect</i>	.19	.06	.07, .31			.002	83.33

Reversed: Closeness	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Sacrifice Appraisals	.24	.06	.13, .35	177.0	4.33	<.001	
Sacrifice Appraisals – Closeness	.18	.06	.06, .29	194.2	3.03	.003	
PPR – Closeness							
<i>Total effect</i>	.75	.05	.66, .84	158.0	16.45	<.001	
<i>Direct effect</i>	.70	.05	.61, .80	169.4	15.09	<.001	
<i>Indirect effect</i>	.04	.02	.01, .08			.016	6.67

Table S11

Original and reversed indirect effect models for the associations between perceived partner responsiveness, negative affect, and sacrifice appraisals in Study 3

Original: Negative Affect	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Negative Affect	-.46	.09	-.64, -.28	199.0	-4.95	<.001	
Negative Affect – Sacrifice Appraisals	-.17	.04	-.25, -.09	185.4	-4.22	<.001	
PPR – Sacrifice Appraisals							
<i>Total effect</i>	.24	.06	.13, .35	177.0	4.33	<.001	
<i>Direct effect</i>	.14	.06	.04, .26	188.0	2.60	.010	
<i>Indirect effect</i>	.08	.02	.04, .13			.001	41.67
Reversed: Negative Affect	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Sacrifice Appraisals	.24	.06	.13, .35	177.0	4.33	<.001	
Sacrifice Appraisals – Negative Affect	-.43	.11	-.64, -.21	192.0	-3.84	<.001	
PPR – Negative Affect							
<i>Total effect</i>	-.46	.09	-.64, -.28	199.0	-4.95	<.001	
<i>Direct effect</i>	-.39	.09	-.57, -.20	198.5	-4.16	<.001	
<i>Indirect effect</i>	-.10	.04	-.18, -.04			.005	15.22

Study 4

Table S12

Original and reversed indirect effect models for the associations between perceived partner responsiveness, closeness, and sacrifice appraisals in Study 4

Original: Closeness	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Closeness	.81	.05	.71, .92	228	15.62	<.001	
Closeness – Sacrifice Appraisals	.21	.07	.07, .36	228	2.89	.004	
PPR – Sacrifice Appraisals							
<i>Total effect</i>	.32	.06	.20, .43	228	5.40	<.001	
<i>Direct effect</i>	.14	.08	-.02, .31	228	1.73	.085	
<i>Indirect effect</i>	.17	.04	.06, .30			.003	56.25
Reversed: Closeness	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Sacrifice Appraisals	.32	.06	.20, .43	228	5.40	<.001	
Sacrifice Appraisals – Closeness	.17	.06	.05, .28	228	2.89	.004	
PPR – Closeness							
<i>Total effect</i>	.81	.05	.71, .92	228	15.62	<.001	
<i>Direct effect</i>	.76	.05	.65, .67	228	13.97	<.001	
<i>Indirect effect</i>	.05	.02	.02, .10			.012	6.17

Table S13

Original and reversed indirect effect models for the associations between perceived partner responsiveness, negative affect, and sacrifice appraisals in Study 4

Original: Negative Affect	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Negative Affect	-.79	.06	-.91, -.67	228	-12.57	<.001	
Negative Affect – Sacrifice Appraisals	-.23	.06	-.35, -.12	228	-3.91	<.001	
PPR – Sacrifice Appraisals							
<i>Total effect</i>	.32	.06	.20, .43	228	5.40	<.001	
<i>Direct effect</i>	.13	.07	-.02, .28	228	1.77	.078	
<i>Indirect effect</i>	.18	.05	.09, .29			<.001	59.38

Reversed: Negative Affect	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
PPR – Sacrifice Appraisals	.32	.06	.20, .43	228	5.40	<.001	
Sacrifice Appraisals – Negative Affect	-.27	.07	-.41, -.13	228	-3.91	<.001	
PPR – Negative Affect							
<i>Total effect</i>	-.79	.06	-.91, -.67	228	-12.57	<.001	
<i>Direct effect</i>	-.71	.07	-.83, -.58	228	-10.88	<.001	
<i>Indirect effect</i>	-.09	.03	-.14, -.04			.002	10.13

In Study 4 we also examined the indirect effect of need satisfaction from partner on sacrifice appraisals, mediated by PPR, and additionally examined the reversed mediation model (i.e., sacrifice appraisals as the mediator).

Table S14

Original and reversed indirect effect models for the associations between need satisfaction from partner, perceived partner responsiveness, and sacrifice appraisals in Study 4

Original: Need Satisfaction	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
Need Satisfaction – PPR	.48	.05	.38, .58	228	9.55	<.001	
PPR – Sacrifice Appraisals	.20	.07	.07, .34	228	3.01	.003	
Need Satisfaction – Sacrifice Appraisals							
<i>Total effect</i>	.29	.05	.18, .39	228	5.50	<.001	
<i>Direct effect</i>	.19	.06	.07, .30	228	3.05	.003	
<i>Indirect effect</i>	.10	.04	.03, .17			.006	34.48
Reversed: Need Satisfaction	<i>b</i>	<i>SE</i>	95% CI	<i>df</i>	<i>t</i>	<i>p</i>	% Mediation
Need Satisfaction – Sacrifice Appraisals	.29	.05	.18, .39	228	5.50	<.001	
Sacrifice Appraisals – PPR	.19	.06	.07, .31	228	3.01	.003	
Need Satisfaction – PPR							
<i>Total effect</i>	.48	.05	.38, .58	228	9.55	<.001	
<i>Direct effect</i>	.43	.05	.32, .53	228	8.12	<.001	
<i>Indirect effect</i>	.06	.02	.02, .10			.005	10.42

Section 3: Sequential Mediation Predicting Sacrifice Behavior: With Closeness and Negative Affect

In Study 3 we examined a sequential mediation model with PPR predicting sacrifice appraisals (path 1), sacrifice appraisals predicting sacrifice intentions (path 2), and sacrifice intentions ultimately predicting (self-reported) behavior toward making the change sacrifice at follow-up two weeks later (path 3). Theoretically, the dual-pathway mediation, from PPR to closeness and negative affect toward the partner, in turn predicting sacrifice appraisals, could be positioned in a larger model where PPR predicts closeness or negative affect (path 1), closeness or negative affect predict sacrifice appraisals (path 2), appraisals predict sacrifice intentions (path 3), and lastly, intentions predict sacrifice behavior at follow-up (path 4). We did not originally set out to examine such larger model, because a) we aimed to present the replication of the dual-pathway mediation similarly as in the other studies, and b) analyses on the follow-up data are more limited in statistical power and we aimed to limit the burden on the sequential model. Note that a sensitivity analysis revealed that the follow-up data accommodated the detection of minimum unstandardized slope of .21 for the association between PPR and sacrifice behavior.

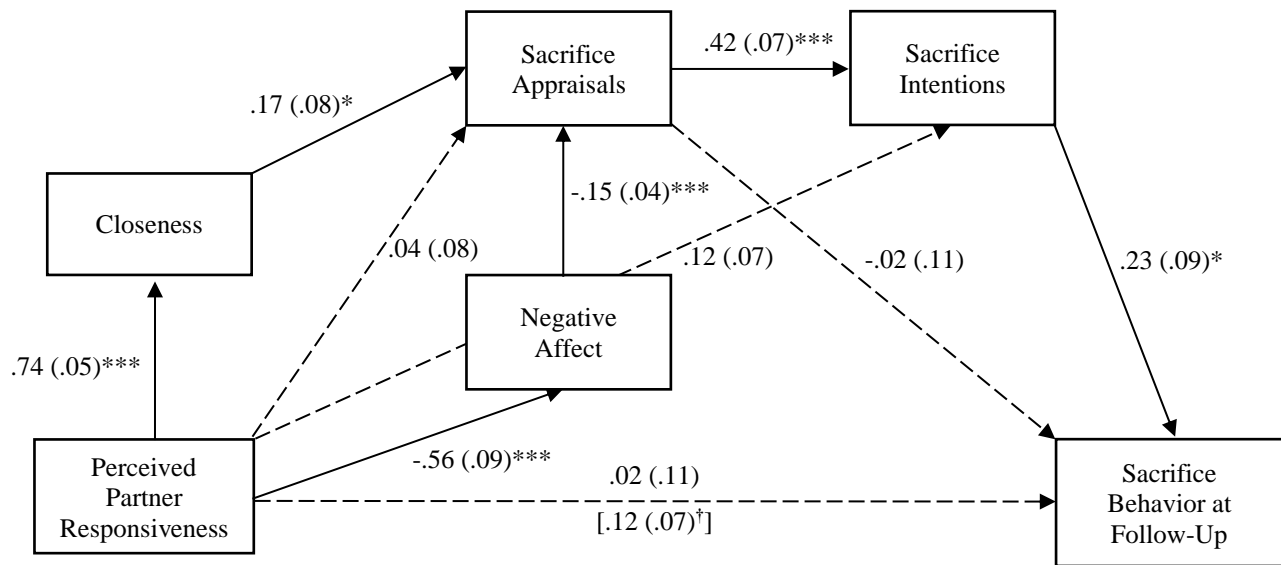
However, for full transparency, we explored a sequential mediation model in Mplus similar to the one presented in the manuscript, but that also included the dual-pathway from PPR to closeness and negative affect predicting sacrifice appraisals, and examined the indirect effects through either closeness or negative affect ultimately predicting sacrifice behavior (see *Figure S1*). We assigned either closeness or negative affect as paths 1 and 2 for estimating the indirect effect to sacrifice behavior, but included both variables at each step of the model.

First, as reported in the manuscript, greater PPR marginally predicted greater sacrifice behavior at follow-up ($b = .13$, $SE = .07$, 95% CI = $[-.02, .27]$, $z = 1.76$, $p = .079$). As step one in

the sequential mediation model, greater PPR predicted greater closeness ($b = .74$, $SE = .05$, 95% CI = [.65, .83], $z = 16.17$, $p < .001$) as well as lower negative affect ($b = -.56$, $SE = .09$, 95% CI = [-.74, -.38], $z = -6.16$, $p < .001$). Second, the sacrifice was appraised more positively the closer participants felt close to their partner ($b = .17$, $SE = .08$, 95% CI = [.003, .33], $z = 1.99$, $p = .046$) and the lower negative affect they experienced toward them ($b = -.15$, $SE = .04$, 95% CI = [-.23, -.07], $z = -3.53$, $p < .001$), while controlling for PPR. Third, more positive sacrifice appraisals predicted greater sacrifice intentions ($b = .42$, $SE = .07$, 95% CI = [.28, .55], $z = 6.07$, $p < .001$), while controlling for PPR, closeness, and negative affect. Finally, greater sacrifice intentions predicted greater sacrifice behavior at follow-up ($b = .23$, $SE = .09$, 95% CI = [.05, .42], $z = 2.51$, $p = .012$), while controlling for PPR, closeness, negative affect, and sacrifice appraisals. The direct effect of PPR on sacrifice behavior was reduced to non-significance ($b = .02$, $SE = .11$, 95% CI = [-.20, .23], $z = 0.16$, $p = .871$), while the indirect effect with paths 1 and 2 assigned to closeness was non-significant ($b = .012$, $SE = .008$, 95% CI = [-.004, .028], $z = 1.50$, $p = .133$), and the indirect effect with paths 1 and 2 assigned to negative affect was marginally significant ($b = .008$, $SE = .004$, 95% CI = [.00, .017], $z = 1.85$, $p = .065$). Thus, although all steps within this larger sequential mediation model were significant, the indirect effects were not fully supported, which may be due to a lack of statistical power.

Figure S1

The sequential mediation model for the association between perceived partner responsiveness in the lab and sacrifice behavior at follow-up, mediated by closeness and negative affect, sacrifice appraisals, and sacrifice intentions in Study 3



Note. All reported values are unstandardized estimates (*b* values), with their standard errors reported between parentheses. Between brackets are the values for the total effect of partner responsiveness on sacrifice behavior at follow-up. Solid lines represent the indirect effects.

[†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.