Corresponding Author: Brett Peters (petersb@ohio.edu)

Online Supplementary Materials

Partners' attachment insecurity predicts greater physiological threat in anticipation of attachment-relevant interactions

Contents	**Page**

Corresponding Author: Brett Peters (petersb@ohio.edu)

Section 1: Manipulation Check

In this section we present the manipulation check for the experimental design that we were unable to include the main manuscript.

A previous publication using this dataset reported on the extent to which participants followed the emotion regulation instructions, which prevented us from included the same analyses in the main manuscript (see Peters & Jamieson, 2016). However, to allay concerns that participants may not have followed instructions, we include a summary of the manipulation check, below.

Perceptions of Partners' Emotion Regulation Strategies

As reported in Peters & Jamieson (2016), after the conversation, participants completed partner attribution measures to assess perceptions of their partners' emotion regulation strategies. Participants rated the extent to which their partners made eye contact, communicated emotions using different hand positions and movements, expressed emotion, and would make an excellent communicator on 9-point scales (-4 = *strongly disagree*, 0 = *neither agree nor disagree*, 4 = *strongly agree*). These four items were summed to form a partner attribution composite (α = .723). Higher scores reflected more expressive affective displays. Participants also rated the extent to which they held back their emotions (-4 *strongly disagree*, 4 = *strongly agree*), with higher values indicating participants engaged in more expressive suppression.

Manipulation Check Results

Next, we summarize the analyses previously reported by Peters and Jamieson (2016) on self-report items that assessed if participants followed the emotion regulation instructions. As originally reported by Peters and Jamieson (2016), couples assigned to the suppression condition reported their partners engaging in more expressive suppression regulation strategies, regardless

of role, than did couples in the expression condition, $B = .30$, $t = 2.73$, $p = .008$, $r = .28$, 95% CI [.08, .51]. In addition, we observed a marginally significant Condition × Role interaction, $B = .16$, $t = 1.67$, $p = .099$, $r = .18$, 95% CI [-.03, .35]. Whereas suppressors did not differ significantly from expressers in their partner-reports of suppression ($p = .479$ $r = .08$), suppression targets reported their partners engaging in more suppression than did expression targets, $B = .46$, $t = 3.15$, $p = .002$, $r = .24$, 95% CI [.17, .74].

Summary

Our manipulation check suggests that regulators were following instructions. More specifically, regulators' interaction partners (i.e., targets), who were unaware of the emotion regulation manipulation, rated regulators as engaging in more suppression when in the suppression condition. These results are also similar to another study involving stranger dyads that demonstrated that similar emotion suppression instructions did lead to reduced affective displays (Peters, Overall, & Jamieson, 2014). Furthermore, similar validation data have also been provided by others who have used the same or very similar manipulation (e.g., Ben-Naim, Hirschberger, Ein-Dor, & Mikulincer, 2013). Taken together, our operationalization of expressive suppression is theoretically grounded, has been used in past emotion regulation research, and evidence suggests participants followed the instructions.

Corresponding Author: Brett Peters (petersb@ohio.edu)

Section 2: Stroke Volume Analyses

In this section, we include additional analyses on stroke volume (SV) – a measure of cardiac efficiency. We discuss (1) why we did not include SV in the main manuscript, and (2) why we chose SV over a more common measure of cardiac efficiency, cardiac output (CO).

Rationale for Excluding Stroke Volume (SV) from main manuscript

Decreases in SV can indicate worsened cardiac efficiency, and have been observed in threat states. However, threat is also associated with "little or no change" in cardiac efficiency (Jamieson, Nock, & Mendes, 2012). Thus, changes in SV alone are not indicative of psychological threat, which is why we did not focus on the measure in the manuscript. Instead, we reported our analyses on total peripheral resistance (TPR) given that increases (relative to baseline) indicate psychological threat whereas decreases suggest challenge. On average, participants in this sample exhibited increased TPR relative to baseline, regardless of role or condition, which is why we primarily refer to TPR as an indicator of more or less threat.

Assessing SV rather than Cardiac Output (CO)

Nonetheless, we conducted analyses on SV in order to index cardiac efficiency. We opted to use stroke volume rather than cardiac output in these analyses due to PEP differences (see Peters & Jamieson, 2016, for a detailed discussion). Briefly, an increase in stroke volume indicates improved cardiac efficiency and is typically observed in challenge states, whereas a decrease or little change in stroke volume is suggestive of threat. We assessed cardiac efficiency with SV rather than with the more common metric of cardiac output [cardiac output = stroke volume * heart rate] because of the possibility for sympathetic arousal effects driving cardiac output effects. For instance, if the regulator role was more demanding than the target role, this could produce differences in pre-ejection period scores. If so, cardiac output could increase

because arousal increases. Thus, we opted to assess beat-to-beat cardiac efficiency (for another example of this approach see Yeager, Lee, & Jamieson, 2016). In fact, stroke volume may more directly indicate challenge/threat relative to cardiac output because: (a) heart rate contributes little to the differentiation of challenge/threat, and (b) HR is affected by a complex interaction of neural, sympathetic, parasympathetic, and endocrine processes (e.g., Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001).

Stroke Volume Reactivity Results

We describe the results from additional analyses examining SV reactivity both in anticipation of and during the conversation.

Anticipation phase. Analogous models from the main manuscript were run predicting SV reactivity during the anticipation phase. The results are displayed on the left hand side of Table S1. No significant effects were observed during the anticipatory phase (*p*s > .17, *r*s > .12).

Conversation phase. Next, we assessed SV reactivity in the conversation phase. The results are displayed on the right hand side of Table S1. As observed by Jamieson & Peters (2016), a main effect for Role was revealed, $B = -1.81$, $SE = .862$, $t = -2.10$, $p = .039$, $r = .47$. This main effect was qualified by a Role × Condition interaction, $B = 1.99$, $SE = .86$, $t = 2.31$, $p = .023$, $r = .26$. Although suppressors did not differ from expressers (p = .605), suppression targets ejected less blood per beat compared with expression targets, $B = 3.24$, $SE = 1.45$, $t = 2.24$, $p = .03$, $r = .19$.

Corresponding Author: Brett Peters (petersb@ohio.edu)

Table S1. *Effects of Partner's Attachment Insecurity, Emotion Regulation Condition (Suppression vs. Expression) and Role (Regulator vs. Target of Regulation) on SV during the Anticipation and Conversation Phases*

	Anticipation Phase			**Conversation**		
	B	*SE*	*t*	*B*	*SE*	*t*
Condition	0.32	0.77	0.42	1.25	1.16	1.08
Role	0.59	0.69	0.85	-1.81	0.86	-2.10*
Role × Condition	0.51	0.69	0.74	1.99	0.86	2.31*
Partner Effects						
Partner Anxiety	-0.45	0.64	-0.70	-0.23	0.87	-0.26
Partner Anxiety × Condition	-0.34	0.64	-0.53	-0.79	0.87	-0.91
Partner Anxiety × Role	-0.23	0.64	-0.36	-0.35	0.87	-0.41
Partner Anxiety × Condition × Role	0.79	0.64	1.23	-0.11	0.87	-0.12
Partner Avoidance	0.04	0.80	0.05	-0.78	1.11	-0.71
Partner Avoidance × Condition	0.59	0.80	0.75	2.15	1.11	1.95†
Partner Avoidance × Role	-1.03	0.81	-1.28	0.40	1.16	0.34
Partner Avoidance × Condition × Role	-0.58	0.81	-0.72	1.09	1.16	0.94
Actor Effects						
Anxiety	-0.47	0.63	-0.75	-0.17	0.91	-0.19
Anxiety × Condition	-0.88	0.63	-1.38	-0.91	0.91	-1.01
Anxiety × Role	-0.45	0.64	-0.71	-0.28	0.91	-0.30
Anxiety × Condition × Role	-0.21	0.64	-0.34	-0.26	0.91	-0.29
Avoidance	1.04	0.79	1.31	1.11	1.09	1.02
Avoidance × Condition	0.95	0.79	1.21	0.66	1.09	0.61
Avoidance × Role	0.66	0.81	0.82	-0.72	1.14	-0.64
Avoidance × Condition × Role	-1.11	0.81	-1.38	-2.33	1.14	-2.04*

Note. †$p < .10$ *$p < .05$. **$p < .01$. Role was contrast coded -1 regulator, 1 target. Condition was contrast coded -1 expressive suppression, 1 emotional expression.

The effects of partner's anxiety and avoidance are shown under the *Partner Effects* heading in the second column of Table S1. A marginally significant *Partner* Avoidance × Condition interaction emerged during the conversation, $B = 2.15$, $SE = 1.11$, $t = 1.945$, $p = .054$, $r = .16$. As shown in Figure S1, individuals with partners high in avoidance exhibited lower SV reactivity (more threat) in the suppression versus expression condition, $B = 3.31$, $SE = 1.56$, $t = 2.12$, $p = .038$, $r = .19$, whereas individuals with partners low in avoidance did not differ as a function of condition assignment, $B = -.81$, $SE = 1.58$, $t = -0.52$, $p = .608$, $r = .05$.

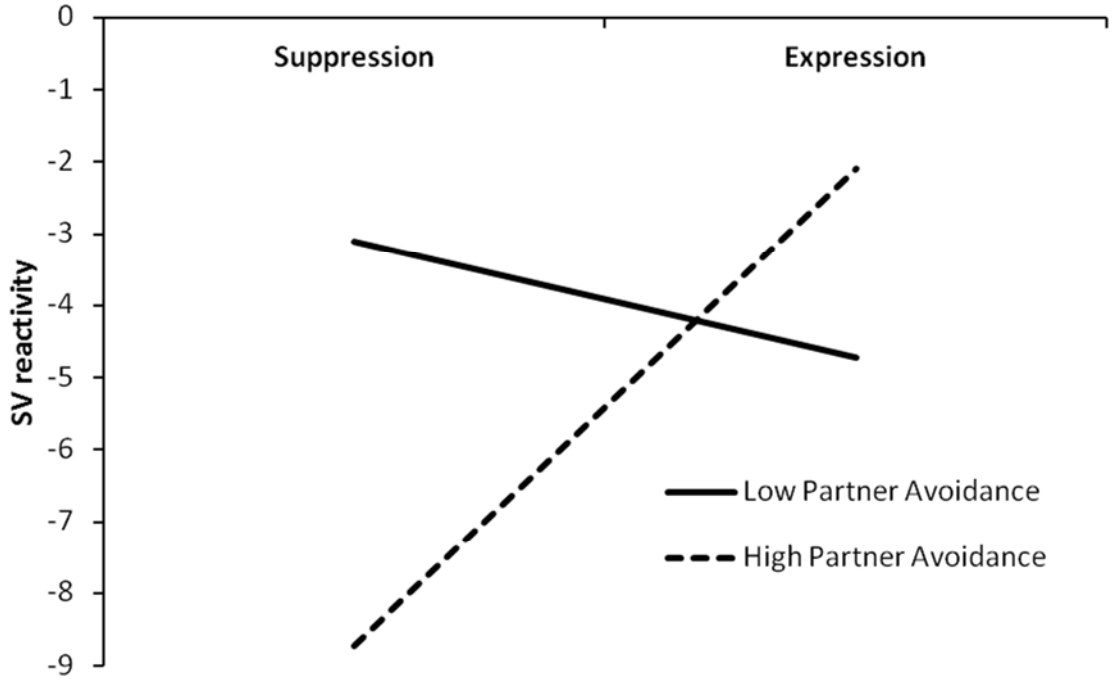

Figure S1. SV reactivity for participants during the conversation by Emotion Regulation Condition and *Partner* Attachment Avoidance. *Note*. Partner Avoidance indexed at 1 *SD* above and 1 *SD* below the mean; SV = Stroke Volume.

The effects of individuals' own anxiety and avoidance are shown under the *Actor Effects* heading in the second column of Table S1. The Role × Condition interaction was qualified by a significant *Actor* Avoidance × Condition × Role interaction, $B = -2.33$, $SE = 1.14$, $t = -2.04$, $p = .043$, $r = .18$. Simple slope analyses revealed two effects with $p < .10$. As shown in Figure S2, Panel B, targets low in avoidance exhibited lower SV reactivity (more threat) in the suppression condition relative to those in the expression condition, $B = 4.84$, $SE = 2.12$, $t = 2.29$, $p = .024$, $r = .19$. Additionally, as depicted in Panel A, regulators in the expression condition low in attachment avoidance exhibited lower SV reactivity (more threat) than those high in attachment avoidance, $B = -3.61$, $SE = 2.17$, $t = -1.67$, $p = .098$, $r = .14$; however, this effect was only marginally significant.

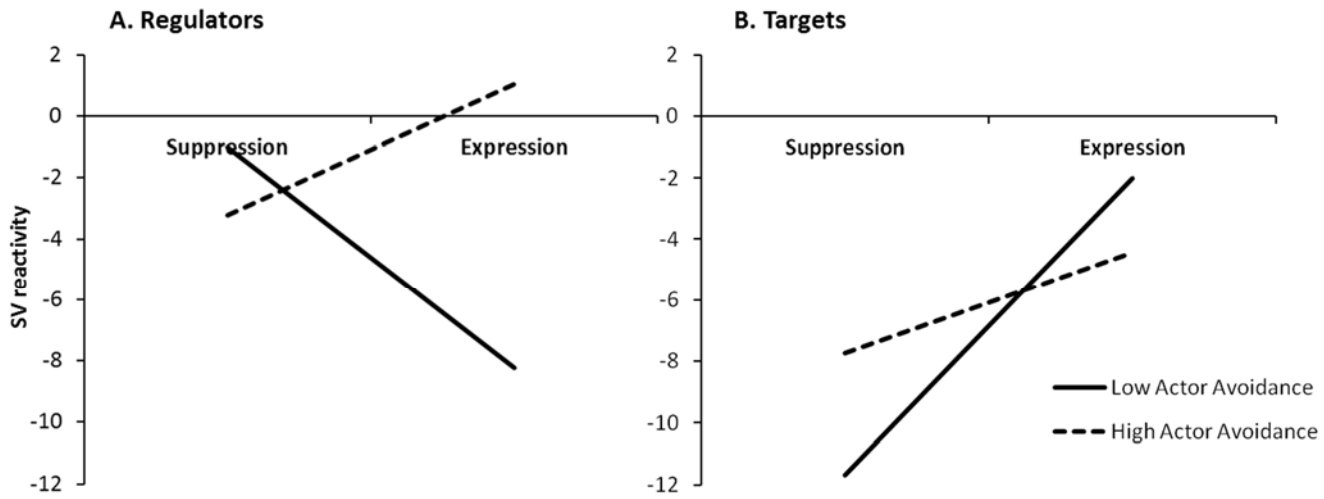

Figure S2. SV reactivity for participants during the anticipatory phase by Role, Emotion Regulation Condition, and Actor Attachment Avoidance. *Note*. Actor Avoidance indexed at 1 *SD* above and 1 *SD* below the mean; SV = Stroke Volume.

Summary of Results

Analyses of SV did not reveal a similar pattern to the TPR analyses (*Partner* Avoidance × Condition × Role interaction) during the anticipation phase. However, during the conversation, there was a consistent SV and TPR effect, such that individuals with partners higher in attachment avoidance exhibited an exacerbated threat response (↑ TPR, ↓ SV) in the suppression (vs. expression) condition. Analyses also revealed an *Actor* Avoidance × Condition × Role interaction that did not have a clear theoretical interpretation given we did not have a corresponding interaction with TPR. Given that SV is not a consistent indicator of threat, we opted to exclude stroke volume analyses from the manuscript as we would have reported additional interactions that did not enhance a test of our predictions. Moreover, even if we had included stroke volume in the manuscript, our interpretation of the results would have remained the same given that TPR is a clearer indicator of challenge and threat.

Section 3: References

Ben-Naim, S., Hirschberger, G., Ein-Dor, T., & Mikulincer, M. (2013). An experimental study of emotion regulation during relationship conflict interactions: The moderating role of attachment orientations. *Emotion*, *13*(3), 506–19. http://doi.org/10.1037/a0031473

Blascovich, J. J., Mendes, W. B., Hunter, S. B., Lickel, B., & Kowai-Bell, N. (2001). Perceiver threat in social interactions with stigmatized others. *Journal of Personality and Social Psychology*, *80*(2), 253–267. http://doi.org/10.1037/0022-3514.80.2.253

Jamieson, J. P., Nock, M. K., & Mendes, W. B. (2012). Mind over matter: Reappraising arousal improves cardiovascular and cognitive responses to stress. *Journal of Experimental Psychology. General*, *141*(3), 417–22. http://doi.org/10.1037/a0025719

Peters, B. J., & Jamieson, J. P. (2016). The consequences of suppressing affective displays in romantic relationships: A challenge and threat perspective. *Emotion*, *16*(7), 1050–1066. http://doi.org/10.1037/emo0000202

Peters, B. J., Overall, N. C., & Jamieson, J. P. (2014). Physiological and cognitive consequences of suppressing and expressing emotion in dyadic interactions. *International Journal of Psychophysiology*, *94*(1), 100–107. http://doi.org/10.1016/j.ijpsycho.2014.07.015

Yeager, D. S., Lee, H. Y., & Jamieson, J. P. (2016). How to improve adolescent stress responses: Insights from an integration of implicit theories and biopsychosocial models. *Psychological Science*, 1–14. http://doi.org/10.1177/0956797616649604