# Regulatory Effectiveness of Social Support

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Abstract

Receiving social support can entail both costs and benefits for recipients. Thus, theories of effective support have proposed that support should address recipients' needs in order to be beneficial. This paper proposes the importance of support that addresses recipients' *self-regulatory* needs. We present a novel construct—Regulatory Effectiveness of Support (RES)—which posits that support that addresses recipients' needs to understand their situation (*truth*) and to feel capable of managing their situation (*control*) will engender support benefits. We hypothesized that receiving support higher on RES would predict beneficial support outcomes. We further hypothesized that these effects would be especially pronounced for self-regulation relevant outcomes, such as better mood and increased motivation, which, in turn, can be important for successful self-regulation. We established the construct validity of RES and then investigated its effects in daily life and in laboratory support discussions. In eight studies and a meta-analysis pooling across studies, results showed that RES predicted self-regulation relevant support outcomes, and these effects of RES were stronger than the effects of perceived responsiveness, a construct that is known to enhance interpersonal relationships. Furthermore, we found that RES was linked to self-regulatory success: Participants who received support higher on RES were more motivated to perform well on a stressful speech, which subsequently predicted better speech performance. These findings enhance knowledge of effective social support by underscoring the importance of addressing recipients' self-regulatory needs in the support process.

*Keywords:* social support, enacted support, self-regulation, truth, control

# Regulatory Effectiveness of Social Support

Interpersonal relationships can be a source of practical and emotional help (social support) in times of difficulty and beyond. Indeed, perceiving that others are available for support should the need arise (known as *perceived support*) has been consistently linked to health benefits (Uchino, 2009). However, support that is actually received in response to a specific situation (known as *received support* or *enacted support*) is not always effective, and the implications of such support for well-being are less clear (Uchino, 2009). Although overt support can sometimes benefit recipients (Feeney & Collins, 2015), it can also worsen recipients' distress and undermine their coping efforts (Bolger & Amarel, 2007; Bolger, Zuckerman, & Kessler, 2000).

In light of these mixed effects of enacted support, there is a pressing need to reveal features of enacted support that benefit recipients and to understand how they might ultimately contribute to well-being. To this end, this paper presents a new theoretical construct: Regulatory Effectiveness of Support (RES). RES posits that enacted social support benefits recipients to the extent that it addresses their self-regulatory needs to better understand their situation (*truth*) and to feel capable of managing their situation (*control*). RES further posits that support that addresses these self-regulatory needs will give rise to psychological states and behaviors that, in turn, can help recipients to engage in effective self-regulation.

The present paper synthesizes theories of social support and self-regulation to present the theoretical foundation for RES, tests the validity of RES, and examines the effects of RES in daily life and in dyadic support discussions. We hypothesized that RES would emerge as a unique construct and predict beneficial support outcomes; in particular, outcomes such as better mood and increased motivation that can have downstream implications for successful self-regulation, such as enhanced performance. Finally, we

predicted that the effects of RES would be independent from responsiveness, a construct frequently used to assess the quality of enacted support. Overall, this work reveals the importance of addressing recipients' *self-regulatory* needs in the support process.

## What Makes Enacted Support Effective?

It has been proposed that social relationships might benefit well-being over time (Uchino, 2009) because enacted support from relationship partners can buffer individuals from the negative effects of stressful experiences (e.g., Uchino, Cacioppo, & Kiecolt-Glaser, 1996) and shape perceptions of support availability, which have consistently been linked to health benefits (Uchino, 2009). Yet, empirical evidence for benefits of enacted support has been mixed. Several lines of research have proposed that the question of whether social support is beneficial versus costly may be explained by how well the support is able to address recipients' needs (Cutrona, 1990; Rini & Dunkel Schetter, 2010; Rini, Dunkel Schetter, Hobel, Glynn, & Sandman, 2006). Broadly, these theories, termed theories of support matching, have proposed that the better support is attuned to recipients' needs, such as their need for a specific type or quantity of support, the more it will benefit them (Cutrona, 1990; Cutrona, Shaffer, Wesner, & Gardner, 2007; Rini & Dunkel Schetter, 2010).

Insight into effective enacted support also comes from perceived responsiveness, which refers to perceptions that a relationship partner "attends to and reacts supportively to central, core defining features of the self" (Reis, Clark, & Holmes, 2004, p. 203). Perceived responsiveness plays an important role in fostering relationship benefits, such as intimacy, and has been examined in a variety of interpersonal contexts (Reis & Gable, 2015). Although perceived responsiveness is not a type of support, it has nevertheless emerged as an important component of effective enacted support (Maisel, Gable, & Strachman, 2008), such as mitigating the costs associated with overt support attempts (Maisel & Gable, 2009).

## Which Needs Matter in Social Support Contexts?

As such work suggests, providing support so that it addresses recipients' needs may play a pivotal role in determining its effectiveness. However, several open questions remain. First, most theories of support matching have stressed the importance of attending to recipients' needs in a broad sense, or have discussed needs in regards to a specific type or quantity of support. However, if support must address recipients' needs in order to be beneficial, a theoretical framework specifying *which needs* matter in support contexts is necessary.

Second, it is unknown whether the potential benefits of receiving support that is tailored to particular needs are distinct from the benefits of receiving good quality support in general (e.g., support that is given in a caring manner) or from the benefits of receiving support that addresses other kinds of needs. Support outcomes may look different depending on which needs the support has addressed. For example, enacted support that addresses the recipient's need for care and positive regard may play a critical role in fostering feelings of closeness between the recipient and provider, as it may help the distressed person feel accepted and loved. However, it might play a lesser role in promoting the recipient's efforts to cope if it has not addressed the recipients' feelings or cognitions regarding the problem itself.

Despite the potential importance of giving the right type of support, it is also possible that recipients have needs that can be addressed effectively by multiple types (and subtypes) of support in a particular context. For example, when dealing with a demanding group project, a support recipient might need assistance reframing the situation so that it seems less demanding, but not necessarily need or want validation of her negative evaluation of the situation. Importantly, reframing and validation are both instantiations of emotional support. As this example illustrates, however, even if a support attempt involves emotional support, more specificity about the recipient's underlying concerns (e.g., to understand the

situation better *vs.* to feel listened to) is necessary in order to address them properly. Providing validation, although a form of emotional support, would not necessarily address the recipient's needs in this context.

Further underscoring the need for more theorizing in this area, the evidence for matching support by type has been mixed. For example, one study found that the effects of matched support (informational support provided in response to requests for information) and mismatched support (emotional support provided in response to requests for information) on perceptions of responsiveness were both positive, and these effects did not differ significantly from each other (Cutrona et al., 2007). This is also consistent with additional work suggesting that emotional support was viewed as more helpful even when tangible support was needed (Cutrona, Cohen, & Igram, 1990). This suggests that there may be additional ways of addressing recipients' needs that are independent from or not captured by support type alone.

## Addressing Recipients' Self-Regulatory Needs

One approach that has not been emphasized traditionally in theories of effective social support is addressing recipients' *self-regulatory needs*, which refers to attending to recipients' motives and goals. Recent research has begun to demonstrate the importance of addressing recipients' self-regulatory needs in social support contexts. For example, Zee and colleagues (2018) found that the benefits of invisible (indirect) and visible (direct) social support depended on the recipient's self-regulatory orientation. Prior work had found that visible support is generally costly for recipients because it undermines their sense of competence (Bolger & Amarel, 2007). Consistent with this, Zee and colleagues (2018) found that invisible support, but not visible support, was a match for recipients with a predominant assessment self-regulatory orientation who are concerned with measuring up to evaluative standards. In contrast, invisible support was not a match for recipients with a predominant

locomotion self-regulatory orientation who are concerned with taking action and moving to a new state as swiftly as possible. Instead, visible support was a match. Importantly, these effects persisted even when accounting for perceived responsiveness. Other lines of research have also found beneficial effects of addressing recipients' self-regulatory needs, such that receiving support that better addressed recipients' self-regulatory needs subsequently predicted mood improvement (Cavallo, Zee, & Higgins, 2016).

Newer theoretical perspectives also suggest the importance of addressing self-regulatory needs in support. Such work has proposed that enacted support can do more than buffer stress responses; it can also help people thrive through adversity, such as overcoming challenges or persisting in the face of difficulty (Feeney & Collins, 2015). These features of support imply that support may enable recipients to self-regulate more effectively, such as by increasing their motivation and helping them to successfully pursue goals.

## Self-Regulatory Needs: Truth and Control

Such findings provide preliminary evidence for the importance of addressing recipients' self-regulatory needs in engendering beneficial support outcomes. In order to be able to assess whether support has addressed recipients' self-regulatory needs, however, it is necessary to have a framework for understanding which needs are important in the first place.

We integrated advances in motivation and self-regulation research to answer this question. Higgins's (2012, 2018) theory of self-regulatory effectiveness broadly posits that people are motivated by more than the pursuit of desired outcomes and the avoidance of undesired outcomes; they are also motivated to feel effective in their life pursuits. This is accomplished by enhancing their understanding of their situation (addressing their need for *truth*) and by feeling able to manage their situation (addressing their need for *control*).

This theory also specified the importance of *value* effectiveness (obtaining desired

outcomes)[1]. An important feature that distinguishes value from truth and control is that it is about outcomes or endpoints, whereas truth and control are about a *process*, that is, *how* a particular endpoint is achieved. The three types of effectiveness are related in that experiencing truth and control effectiveness can enable recipients to achieve their desired outcomes (value effectiveness). For these reasons and due to our interest in support *processes*, we focused our discussion and investigations on truth and control.

In addition to identifying truth and control and their role in contributing to feelings of effectiveness, several programs of research have found that the combination of high truth and high control can lead to successful goal pursuit, including performance (Higgins, 2012, 2018; Pierro, Chernikova, Lo Destro, Higgins, & Kruglanski, 2018). Truth and control are both necessary for performing well on complex tasks (Chernikova et al., 2016; Higgins, 2012, 2018; Pierro et al., 2018). Moreover, even if truth and control do not directly give rise to a desired outcome, experiencing truth effectiveness and control effectiveness can be motivating in its own right: This creates a self-regulatory force that increases motivation, which in turn can increase the likelihood of successful goal pursuit and attainment (Higgins, 2018).

[1]In our earlier theorizing about Regulatory Effectiveness of Support (RES), we included a value facet to reflect Higgins's theory. However, our current theorizing on RES only encompasses truth and control for several reasons. First, as noted above, truth and control reflect a process, whereas value does not. Because our goal was to understand features of the support process leading to beneficial outcomes, it seemed more appropriate to focus on the process-oriented aspects of the theory. Second, in the course of carrying out this work, newer research emerged which demonstrated the importance of high truth and high control. Such work generally indicated the benefits of experiencing high truth effectiveness and high control effectiveness for goal pursuit, performance, and health behaviors—the types of downstream self-regulatory outcomes that are relevant to social support and of interest in our investigation.

## Regulatory Effectiveness of Support: Addressing Truth and Control

We reasoned that addressing truth and control needs might also be important in the context of enacted support given that concepts similar to truth and control have been shown to predict beneficial support outcomes in prior work, as we discuss below. We developed a construct capturing the degree to which enacted support addresses these self-regulatory needs: Regulatory Effectiveness of Support (RES). RES posits that enacted support benefits recipients to the extent that the support addresses their self-regulatory needs to understand their situation (truth) and to feel capable of managing the situation (control).

In line with this premise, prior research has identified features of effective enacted support that reflect truth and control. Regarding truth, support providers can offer information or appraisals that clarify or change recipients' understanding of the problem. Concepts related to truth are known to be important for enacted social support. Although work on stress appraisals and emotion regulation strategies, such as cognitive reappraisal, are frequently studied as intra-individual processes (Folkman, Lazarus, Dunkel Schetter, DeLongis, & Gruen, 1986; Gross & John, 2003), they can also be accomplished via social support (S. Cohen, Sherrod, & Clark, 1986; Marroquín, 2011; Pauw, Sauter, Kleef, & Fischer, 2017; Reeck, Ames, & Ochsner, 2016; Zaki & Williams, 2013). This overlaps with experiencing truth effectiveness due to an emphasis on changing one's interpretation of a negative experience. Furthermore, it is known that changing one's understanding of a problem can promote coping and lessen negative affect (Folkman et al., 1986; Gross, 2002), and receiving support can help individuals obtain this changed understanding (Rimé, 2009; Thoits, 1986). Researchers have also proposed that in order for social support interventions to be successful, they will need to enhance people's understanding of the problem they are facing through cognitive modification (Cutrona & Cole, 2000).

Regarding control, effective support can boost recipients' feelings of competence (Bolger

& Amarel, 2007; Howland & Simpson, 2010). For instance, when people are experiencing low self-efficacy, explicit social support can help them to restore their self-efficacy, which in turn reduces stress (Crockett, Morrow, & Muyshondt, 2016). Related to this, perceived threats to recipients' efficacy are a primary reason that explicit support attempts sometimes fail. Control is congruent with this explanation of support's costs. Recipients may interpret that the reason they are being helped is that the provider views them as incapable of managing the situation, thereby undermining their sense of efficacy (Bolger & Amarel, 2007; Fisher, Nadler, & Whitcher-Alagna, 1982; Newsom, 1999). In contrast, support that enhances recipients' sense of efficacy leads to more positive outcomes, such as reduced distress (Bolger & Amarel, 2007). These and other findings suggest that, to make support effective, the support needs to help recipients feel that they are able to manage the situation.

## Relation of RES to Existing Theories of Support

Regulatory Effectiveness of Support (RES) offers a new theoretical construct to illuminate components of beneficial enacted support and to generate predictions regarding support outcomes and downstream implications of receiving support that addresses recipients' self-regulatory needs. In this section, we briefly outline the relation of RES to existing theories of enacted support and highlight ways in which RES differs from these theories. We acknowledge that this is not an exhaustive discussion of enacted support theories, and we do not discuss theories of perceived support due to our focus on enacted support.

Theories of support matching have proposed that support should be matched to recipients' needs in order to be effective. While several theories touch on the notion of matching, we consider two theories in particular. The first is Cutrona and colleagues' Optimal Matching model (Cutrona, 1990). Empirical investigations of this model have emphasized the importance of matching support by type, such as the provision of informational support in response to requests for information and emotional support in

response to emotional disclosures (Cutrona et al., 2007). The second is Rini and Dunkel Schetter's Support Effectiveness Model (Rini & Dunkel Schetter, 2010; Rini et al., 2006). This model specifies several dimensions of effective support. Because providing the right type and quantity of support are included in these dimensions, it can also be considered a support matching theory. RES is compatible with these and other matching theories in its emphasis on addressing recipients' needs, but it is distinct from these theories in its emphasis on *self-regulatory* needs.

Relatedly, work on support types developed in order to understand mechanisms through which enacted support might benefit recipients. Some common types of support that have been discussed include emotional support, informational support, and tangible support. RES proposes the importance of addressing recipients' need for truth effectiveness and control effectiveness, but it is agnostic regarding the support types or behaviors through which this is accomplished. Emotional support could be enacted in such a way that it addresses control effectiveness (e.g., reassurance about one's ability to manage the problem) and/or addresses truth effectiveness (e.g., reappraising the situation), but it could also be enacted in a way that it addresses neither of these needs. Thus, knowing what type of support was given does not necessarily reveal the degree to which such support addressed recipients' truth and control needs. For example, if the emotional support only entailed validating the recipients' negative feelings, it would not have addressed the recipient's self-regulatory needs for truth and control. For these reasons, support types can be thought of as tactics that may be used in the service of addressing truth and control. However, support types alone do not necessarily elucidate how well recipients' self-regulatory needs were addressed.

Other perspectives have emphasized the notion of skillful support (Bolger et al., 2000; Rafaeli & Gleason, 2009; Zee & Bolger, 2019). In particular, autonomy support may be considered one form of skillful support. Autonomy support, which stems from

Self-Determination Theory, gives the recipient agency in dictating how a support interaction unfolds. This involves allowing recipients to freely express themselves and providing help that respects the recipient's sense of self (Ryan & Solky, 1996; Weinstein, Legate, Kumashiro, & Ryan, 2015). Although there are some surface level similarities between autonomy support and the control facet of RES, they differ in an important way: While autonomy support is about allowing recipients to exert control over the *support process*, the control facet of RES is about allowing recipients to experience a greater sense of efficacy in their ability to manage *the problem or situation itself*. In addition, work on autonomy support does not include the notion of truth per se, which further differentiates RES from this construct.

Contemporary support theories have expanded the field's understanding of the relevance and function of social support. Work by Feeney and Collins (2015) has proposed that social support does more than simply buffer the negative effects of stressful experiences; support can play a role in enabling individuals to thrive through adversity and to engage in life's opportunities beyond adversity (e.g., becoming one's ideal self). This work also highlights the function of support in "helping others to emerge from the stressor in ways that enable them to flourish" and "developing close other's strengths and abilities relevant to coping with the adversity." This is congruent with RES in its emphasis on support as a process that helps recipients to feel effective in regards to the situation they are facing.

It is also noteworthy that this theory explicitly highlights perceived responsiveness as a component of effective enacted support. However, additional components are also proposed: fortification, reframing, reconstruction, and persistence. To our knowledge, specific constructs and measures for assessing these support functions do not presently exist. RES can help to address this gap, although it was not developed for this purpose. Processes such as fortification involve bolstering the recipient's ability to manage the stressor, which is related to control. Processes such as reframing and reconstruction involve altering the recipient's understanding, which is related to truth. When truth and control motives are

both addressed, this helps the recipient to feel more effective and in turn persist in the face of challenges.

Lastly, recent perspectives have highlighted the role of enacted support as an interpersonal emotion regulation strategy (Williams, Morelli, Ong, & Zaki, 2018; Zaki & Williams, 2013), which may explain links between social support and depression (Marroquín, 2011). RES is consistent with such theories, but also proposes that support that addresses truth and control can help engender downstream outcomes beyond emotion regulation, such as performance.

## Relation of Regulatory Effectiveness of Support to Perceived Responsiveness

### Importance of Perceived Responsiveness in Social Support Literature

Notably, perceived responsiveness is a common thread linking many of these theories of enacted support. As discussed above, responsiveness is related to theories of support matching in its emphasis on attending to recipients' needs. Indeed, responsiveness has been used as an outcome measure to assess support matching effects in prior empirical work (Cutrona et al., 2007). It is also implicated in the notion of skillful support (Maisel & Gable, 2009; Rafaeli & Gleason, 2009), although see Neff & Karney (2005) for a perspective that differentiates between skillfulness and responsiveness. Moreover, some work has highlighted common origins of autonomy promotion (central to autonomy support) and responsiveness (Cutrona & Russell, 2017).

In addition, PR has been frequently considered in work on social support over the last several years, especially in social psychology. To illustrate, we examined papers on social support published in the Interpersonal Relations and Group Processes section of the *Journal of Personality and Social Psychology* between 2009 and 2018. Of the 18 papers on social

support[2], 13 (72%) referred to the notion of responsiveness in some capacity, and 6 (33%) reported including a measure of responsiveness. These statistics underscore the importance and relevance of responsiveness in the social support literature over the last decade.

## Perceived Responsiveness as a Comparison Construct

Due to the relevance and importance of PR in the social support literature, we focused on PR as a comparison construct. PR provides a useful comparison for RES because it was developed as a construct capturing the quality of interpersonal processes and taps into how well a partner attends to one's needs, but was not developed in order to address questions regarding self-regulatory processes per se. As such, in contrast to RES, PR should predict outcomes that have downstream implications for relationship processes and relationship quality (Reis & Gable, 2015), but may not necessarily predict outcomes that are related to downstream self-regulation. For instance, although PR could contribute to mood improvement by making the recipient feel safe and cared for, it might not necessarily improve the recipient's feelings about the problem itself. Supporting this possibility, some findings have shown that support perceived to be high on responsiveness had much larger effects on positive relationship feelings than on negative mood and positive mood (Bar-Kalifa & Rafaeli, 2013). Furthermore, work by Rime (2009) has suggested that support focused on validation and care is not associated with changes in altered stress appraisals; instead, such support is associated with social variables, such as greater feelings of social integration (for a review, see Rimé, 2009). This suggests that, as originally proposed (Reis et al., 2004), PR may play an especially important role in fostering relational benefits, and this may also

[2]A paper was classified as being about social support if it listed "social support" or a related term (e.g., "advice") as a keyword, or if it clearly discussed support in the abstract even if it did not include support as a keyword (e.g., a paper on secure base interactions was counted as a support paper). There were 19 papers that fit this description, but one paper was excluded from consideration because it was about perceived social support from pets, leaving 18 papers.

apply in the domain of enacted support

## The Present Work

The goal of the present work was to develop a construct capturing the degree to which enacted support addresses recipients' self-regulatory needs and to examine its effects on recipients' support outcomes and downstream self-regulatory success. In Studies 1A, 1B, and 2, we developed and validated a self-report measure of Regulatory Effectiveness of Support (RES) and verified that this construct is distinct from perceived responsiveness (PR). We then examined the predictive and discriminant validity of RES by having participants report on a recent support receipt experience (Study 2) as well as support received in daily life (Studies 3-5) and in dyadic laboratory interactions (Studies 6-7). Finally, we performed a meta-analysis pooling data across studies to gauge the overall effects of RES and to compare these effects to PR's effects. With these studies, we investigated three sets of hypotheses:

### 1. Construct Validity of RES

We hypothesized that RES would emerge as a valid construct, and that this construct would be empirically distinct from PR. Given the inherent interdependence of the truth and control components of self-regulatory effectiveness (Cornwell, Franks, & Higgins, 2014, 2015; Higgins, 2012; Higgins, Cornwell, & Franks, 2014), we also predicted that all RES items would load onto a single factor comprised of two facets: a truth facet and a control facet. We further hypothesized that RES would be strongly associated with perceptions of support effectiveness, thereby providing further evidence of construct validity. We also hypothesized that the effect of RES on perceptions of support effectiveness would be stronger than the effect of PR, as RES was developed specifically to assess the quality of enacted support and PR was developed as a broader construct not specific to enacted support.

## 2. Predictive Validity of RES

We hypothesized that RES would predict beneficial support outcomes. The outcomes we examined map onto outcomes proposed in a recent theoretical model of social support and thriving (Feeney & Collins, 2015). Such work has explicitly proposed that effective support should influence outcomes such as emotions, motivation, physiological responses, lifestyle behaviors, and relational outcomes (Feeney & Collins, 2015, p. 122). We also expanded this set of outcomes by also considering a marker of effective self-regulation, namely performance.

We anticipated that RES would be related to support outcomes that have been shown to be important for effective self-regulation (self-regulation relevant outcomes). Specifically, we hypothesized that RES would predict better mood regulation (higher positive mood and lower negative mood), coping, and motivation to perform well on demanding tasks, as these variables can be considered *indicators* that recipients feel effective. We then examined effects of RES on self-regulation directly, by assessing goal pursuit and performance (Studies 5 and 7). We also tested effects of RES on physiological responses (Study 7) and lifestyle behaviors (coping in Studies 3-5; sleep in Studies 4-5), reflecting the categories above. Lastly, we conducted an exploratory analysis to examine whether one such self-regulation relevant outcomes—increased motivation—mediated the effects of RES on performance (Study 7).

## 3. Discriminant Validity of RES

Finally, we reasoned that if RES captures the degree to which support addresses recipients' *self-regulatory* needs, then it should be more strongly related to self-regulation relevant outcomes compared to a construct that captures attunement to recipients' needs but was not developed in order to address questions about self-regulatory processes per se. Thus, we predicted that RES would more strongly predict the self-regulation relevant outcomes discussed above compared to PR.

To assess another type of beneficial outcome not directly related to self-regulation processes, we also examined relational outcomes, specifically inclusion of the other in the self (IOS) and closeness. These variables were examined because they have been studied in prior investigations of support processes (e.g, Gleason, Iida, Shrout, & Bolger, 2008) and are relevant to a variety of relationship types in which support often occurs (e.g., romantic relationships, friendships). As discussed in the meta-analysis, however, all of these outcome variables can be thought of as being sampled from a broader "population" of support outcomes.

Because the theory from which RES was developed has not yet been connected to relational outcomes, we had no specific predictions regarding the effects of RES on relational outcomes of support. However, because PR has been identified as an important component of relationship development and maintenance (Reis & Gable, 2015), we predicted that PR would have stronger effects than RES on these relational variables.

## Studies 1A & 1B

In Studies 1A and 1B, we sought to develop and validate a self-report measure of Regulatory Effectiveness of Support (RES). In Study 1B, we also examined whether RES could be psychometrically distinguished from perceived responsiveness (PR).

### Methods

**Participants.** In both studies, participants were recruited from Amazon's Mechanical Turk as part of larger studies designed to examine multiple research questions. Participants were required to be involved in a romantic relationship of at least one year in order to be eligible to participate. Although this was a requirement for another part of the study that was unrelated to the present hypotheses, it had the incidental benefit of allowing

us to hold constant the target person participants thought about when making their ratings on our measures.

**Sample Size Determination.** Sample size determinations were made in regards to several research questions. There were 392 participants in Study 1A. However, 24 participants failed an attention check and were removed prior to analysis. This left a final sample of 368 participants (142 male, 196 female, and 30 unspecified), who were 37 years old on average ($SD = 11.40$). They received $0.30 in exchange for their participation.

There were 198 participants in Study 1B. However, 21 participants failed an attention check and were therefore excluded. This left a final sample of 177 (79 male, 98 female), who were 37 years old on average ($SD = 11.30$). They received $2.50 in exchange for their participation.

**Procedure and Materials.** In both Studies 1A and 1B, participants responded to a variety of close relationship measures as part of a larger study. As these measures were administered in relation to other hypotheses and were not examined in regards to the present research question, they will not be discussed further. Relevant to the present research question, participants responded to measures of regulatory effectiveness of support (RES) and perceived responsiveness (PR; Study 1B only). Lists of the RES and PR items used across studies are presented in Table 1 and Table 2, respectively.

***Regulatory Effectiveness of Support (RES).***

Participants completed a self-report measure of RES that we created. Participants were asked to think about a recent time when they received social support from their romantic partner. This measure consisted of three items for each facet of RES (truth and control), for a total of 6 items. Participants indicated their responses along a scale ranging from 1 (*Not at all*) to 7 (*Extremely*). Items were grouped by facet and presented in blocks, and the presentation order of these blocks was randomized to guard against order effects.

There were three items corresponding to the truth facet, or the extent to which receiving support enabled recipients to better understand the situation (e.g., *"The help my partner tried to give me left me with a better understanding of the situation"*). Finally, there were three items corresponding to the control facet, or the extent to which receiving support helped participants to feel capable of managing the situation (e.g., *"The help my partner tried to give me made me feel on top of the situation"*).

***Perceived Responsiveness (PR) (Study 1B only).***

PR was assessed with a 12-item version[3] of the Perceived Responsiveness measure (Reis et al., 2018). This measure asked about participants' general perceptions of their partner's responsiveness using a scale ranging from 1 (*Not at all*) to 7 (*Extremely*). Examples of these items included, *"My partner values my abilities and opinions"* and *"My partner understands me"* ($\alpha = 0.98$).

## Results

**Descriptive Statistics.** Participants' average RES values were were 5.42 ($SD = 1.13$) and 5.72 ($SD = 1.15$) for Studies 1A and 1B, respectively.

Participants' average PR was 5.98 ($SD = 1.19$), and was assessed in Study 1B only. As anticipated, RES and PR in Study 1B were also positively correlated: $r = 0.74$. Although this correlation is somewhat high, correlations of this size are common among close relationship variables. Moreover, this estimate suggests that despite this correlation between RES and PR, more than 45% of the variance between them was unshared. We also note that correlations between RES and PR generally smaller in subsequent studies, ranging from

[3]There were also additional perceived responsiveness items included in this study, for a total of 17 items. Although we present results based on the 12-item version for fidelity to a recently published version of the scale (Reis, Crasta, Rogge, Maniaci, & Carmichael, 2018), we note that including all 17 items yielded essentially the same results.

about .40 to about .65.

**Confirmatory Factor Analysis for RES.** We conducted a confirmatory factor analysis to determine the construct validity of RES using the *lavaan* package for R (Rosseel, 2012). We used maximum likelihood estimation with robust standard errors (MLR). Based on the theory that informed this research (Higgins, 2012, 2018), we specified a one factor hierarchical structure with two facets for RES. With this hierarchical structure, the facets of truth and control nested within a single global factor of RES (see Figure 1). By having facets, items grouped within the same facet are permitted to be more highly correlated with each other than with items grouped in the other facets. Fit statistics indicated that this model provided an excellent fit for the data, Study 1A: CFI = 0.984, RMSEA = 0.075, 90% [0.05, 0.101], Study 1B: CFI = 0.995, RMSEA = 0.048, 90% [0.00, 0.097]. Moreover, running this analysis without specifying separate facets for truth and control yielded a significantly poorer fit, Study 1A: CFI = 0.913, RMSEA = 0.156, 90% [0.136, 0.176], $\Delta\ \chi^2 = 59.32$, $p < 0.001$; Study 1B: CFI = 0.228, RMSEA = 0.539, 90% [0.481, 0.599], $\Delta\ \chi^2 = 100.77$, $p < 0.001$.

**Confirmatory Factor Analysis Distinguishing RES from PR (Study 1B).** Having confirmed a hierarchical structure for RES when considered in isolation, we next estimated a confirmatory factor model to test our prediction that RES and PR make up distinct constructs. We specified two constructs: one for RES and one for PR. For RES, we again specified a hierarchical structure with two facets. As validating PR was beyond the scope of the present paper (for further information about PR, see Reis et al., 2018), the PR latent variable was represented by a summary measure, which was the mean of all PR items. Fit statistics supported treating RES and PR as separate constructs, CFI = 0.976, RMSEA = 0.087, 90% [0.054, 0.121]. We also specified an alternative version of the model in which we fixed the correlation between RES and PR to 1. This model allowed us to test the possibility that RES and PR make up the same construct; if forcing the two variables to be perfectly correlated results in a better fit, or an equally good fit, then one cannot conclude

that they are separate constructs. However, compared to the previous model, which treated RES and PR as separate constructs, this model provided a significantly poorer fit, CFI = 0.913, RMSEA = 0.16, 90% [0.13, 0.19], $\Delta \chi^2 = 42.07$, $p < 0.001$. In other words, despite being correlated, treating RES and PR as separate constructs fit the data significantly better than treating them as redundant constructs.

### Discussion

Data from Studies 1A and 1B provided initial evidence that RES is a valid construct. Moreover, results from Study 1B further suggested that RES is distinct from another construct frequently used to assess the quality of enacted support, perceived responsiveness (PR) (Cutrona et al., 2007; Gable, Gonzaga, & Strachman, 2006; Gable, Gosnell, Maisel, & Strachman, 2012; Howland & Simpson, 2010; Maisel & Gable, 2009).

However, a limitation of Study 1B is that it asked participants to respond to the PR measure thinking about their interactions with their romantic partner in general. In contrast, we had participants respond to the RES measure with a recent support interaction in mind. Another limitation is that while we asked participants to respond to the RES measure thinking back to the last time their partner had offered them support, we did not include measures of outcomes. Hence, predictive and discriminant validity could not be examined.

## Study 2

In Study 2, we aimed to replicate our initial findings demonstrating the factor structure of RES. We also aimed to show the predictive validity of RES and the discriminant validity between RES and PR. Participants were asked to recall the most recent time when their romantic partner tried to give them support for a stressful issue. They then rated RES and PR in regards to that support interaction. They also indicated how negative and

positive their partner's support made them feel and how they felt about their partner following the support interaction.

## Methods

**Participants.** Two hundred and four participants were drawn from Amazon's Mechanical Turk. In order to hold the support provider constant across participants and to be consistent with the prior studies, participants were prescreened to be currently involved in a romantic relationship of at least one year. Participants with duplicate entries were excluded ($n = 22$) and there was one participant who did not contribute data for the relevant variables, resulting in a final sample of 182 participants. There were 93 female participants, 84 male participants, and 5 participants who did not report their gender. The mean age was 34 ($SD = 9.70$). Participants had been in a relationship with their current partner for 4 years on average ($SD = 2.30$). The majority of the sample was married (46%) or cohabiting with their partner (31%). Participants received $3 in exchange for their participation.

Although formal power analyses for the predictive analyses were not performed *a priori* to determine sample size, power calculations conducted after data collection confirmed that this sample size provided more than 80% power to detect a relatively small effect (incremental $f^2 = .05$, where $f^2 = .02$ is a small effect and $f^2 = .15$ is a medium effect; J. Cohen, 1992).

**Procedure.** Participants were invited to complete a study about "life events." After responding to a brief prescreening questionnaire, eligible participants were directed to the main study. Participants were instructed to *"Think back to the most recent time when you were facing an issue that was important to you, and your current romantic partner tried to give you help."* To help participants bring this experience to mind, participants were guided through a series of open-ended questions about the support interaction, such as what the

issue was and what their partner had done to try to help them.

Next, participants rated the support interaction according to the Regulatory Effectiveness of Support (RES) scale. They also rated their perceptions of their partner's responsiveness during the support interaction, how negative and positive they had felt as a result of this support interaction, and their feelings of self-other overlap as a result of this support interaction. Participants also completed additional measures not relevant to the present hypotheses that will not be discussed further.

**Measures.**

***Regulatory Effectiveness of Support.***

We measured RES with the scale developed and validated in Studies 1A and 1B. As in the previous studies, we averaged the items for truth ($\alpha = 0.92$) and control ($\alpha = 0.80$) to create a single index of RES (Spearman-Brown $\rho = 0.72$).

***Perceived Responsiveness.***

Participants responded to a measure of perceived responsiveness (Reis et al., 2018), consisting of 13 items ($\alpha = 0.94$). In contrast to Study 1B, in which items were worded to capture general perceptions of partner responsiveness, in Study 2 we framed items to assess the perceived responsiveness of the support interaction that participants recalled. Examples of these items included, *"During the interaction, my partner valued my abilities and opinions"* and *"During the interaction, my partner really listened to me"* (1 = *Not at all*, 7 = *Extremely*). In order for items to be applicable to a specific support interaction, there are minor differences in some of the items used in Study 2 compared to Study 1B. A full list of the perceived responsiveness items used across all studies is available in Table 2.

***Mood.***

Participants how negative and positive they felt following the support interaction (1 = *Not at all*, 7 = *Extremely*). There were five items measuring negative mood (e.g., *sad*, *overwhelmed*; $\alpha = 0.84$), and five items measuring positive mood (e.g., *happy*, *calm*; $\alpha = 0.84$).

#### *Inclusion of the Other in the Self.*

To examine a relational outcome, participants responded to the Inclusion of the Other in the Self measure (A. Aron, Aron, & Smollan, 1992). This measure was selected as a relational outcome because it has been linked to a range of relationship quality measures (A. Aron et al., 1992). It is also suitable for use in multiple relationship contexts (e.g., friendships as well as romantic relationships, which were examined in subsequent studies). Participants were shown seven different images, each consisting of two circles, one labeled "self" and the second labeled "other". The images varied in the degree to which the circles overlapped. Participants were prompted to select the image that best represented how they felt about themselves and their partner as a result of the support interaction they brought to mind (1 = *No overlap*, 7 = *Near complete overlap*).

### Construct Validity Results

Correlations among variables are provided in Table 3. In this study, the mean values for RES and PR were 6.00 ($SD = 0.99$) and 6.26 ($SD = 0.83$), respectively. Again, they were correlated, $r = 0.67$, 95% CI [0.56, 0.79]. However, about 55% of the variance between RES and PR was unshared[4].

[4]Regarding the correlation between RES and PR, it is known that issues due to collinearity can arise when predictor variables are highly correlated with each other (Fox, 2016). To gauge whether collinearity was problematic, we computed the variance inflation factor for RES and PR. The Variance Inflation Factor (VIF) is an index that allows one to gauge whether the degree of correlation between two predictor variables is problematic (Fox, 2016). Typically, only VIF values greater than 3 are considered problematic. However,

We performed a confirmatory factor analysis using data from Study 2. As in Studies 1A and 1B, we specified a hierarchical one-factor model of RES, with two facets (truth and control). Again, results indicated that this model provided an excellent fit for the data, CFI = 0.981, RMSEA = 0.074, 90% [0.013, 0.126], and repeating the confirmatory factor analysis removing the facets provided a significantly poorer fit, CFI = 0.737, RMSEA = 0.241, 90% [0.202, 0.282], $\Delta\ \chi^2 = 60.75$, $p < 0.001$, thus lending further support to the hierarchical structure.

Using the same approach as Study 1B, we then specified a model adding PR. Once again, we found that treating RES and PR as separate latent variables provided an excellent fit for the data, CFI = 0.983, RMSEA = 0.055, 90% [0.00, 0.093]. A model in which RES and PR were forced to be perfectly correlated provided a significantly poorer fit, CFI = 0.953, RMSEA = 0.09, 90% [0.06, 0.12], $\Delta\ \chi^2 = 8.84$, $p < 0.003$, thereby providing further evidence that they are separate constructs.

### Predictive and Discriminant Validity Results

Having established the construct validity of RES, an important next step was to determine the predictive validity and discriminant validity of RES. To do so, we examined the effects of RES on support outcomes and compared its effects to the effects of PR.

**Bayesian Estimation.** For all predictive models, we analyzed data using Bayesian estimation withe the *brms* package for R (Burkner, 2017). Bayesian statistics offer a more straightforward interpretation of results relative to the conventional Frequentist approach. Bayesian models generate a distribution of possible parameter values (referred to as the posterior distribution), and this distribution can be used to generate credibility intervals (typically 95% intervals). Thus, Bayesian models allow one to draw inferences about the

VIFs were below this cutoff for all studies; the only exception was for the physiological results in Study 7, but this was due to the use of dummy coding.

*probability distribution* of hypothesized effects given the data. In contrast, Frequentist inferences are about the probability distributions of datasets given a hypothesis. In all of our models, we used noninformative, default priors (unless otherwise noted), which typically yields results comparable to those that would have been obtained using conventional approaches. We also used the default settings of *brms* for chains (4 chains) and iterations (2000 iterations).

**Analytic Approach.** To assess the predictive and discriminant validity of RES, we entered RES and PR into a regression model as simultaneous predictors. In the analyses for Study 2 and all subsequent studies, we tested (a) whether the effects of PR and RES were significantly different from 0 and (b) whether they were significantly different *from each other*, following the recommendations of statistical experts (Gelman & Stern, 2006; Shrout & Yip-Bannicq, 2016). This allowed us to directly test our hypothesis that RES would more strongly predict self-regulatory variables compared to PR and that PR would more strongly predict relational variables compared to RES. For Studies 2-7, we also performed additional analyses examining effects of RES and PR in separate models, and results from these analyses are available in the Supplemental Materials for the interested reader.

Unstandardized regression coefficients, standard errors, 95% credibility intervals, and 90% credibility intervals are provided in Table 4 (regression results) and Table 5 (tests of differences in coefficients). Results are also displayed in Figure 2. Unless otherwise noted, all confidence intervals reported in the text refer to 95% intervals.

**Negative Mood.** As expected, there was a significant main effect of RES, such that as RES increased, negative mood decreased, $b$ = -0.37, 95% CI [-0.55, -0.19]. PR was also related to lower negative mood, but zero could not be excluded as a plausible value, $b$ = -0.15, 95% CI [-0.36, 0.06]. The effect of RES on negative mood was stronger than the effect of PR on negative mood, but zero could not be excluded as a plausible value, $b$ = -0.22, 95% CI [-0.59, 0.12].

**Positive Mood.** We found that both RES and PR both predicted higher positive mood, RES: $b = 0.56$, 95% CI [0.34, 0.79]; PR: $b = 0.40$, 95% CI [0.14, 0.67]. The effect of RES on positive mood was stronger than the effect of PR, although, as with negative mood, zero could not be excluded as a plausible value, $b = 0.16$, 95% CI [-0.28, 0.60].

**Inclusion of the Other in the Self.** We had no specific predictions regarding the effect of RES on relational outcomes. There was a positive effect of RES on IOS, but zero could not be excluded as a plausible value, $b = 0.14$, 95% CI [-0.04, 0.33]. As hypothesized, there was a positive effect of PR on IOS, $b = 0.60$, 95% CI [0.38, 0.82]. Moreover, the effect of PR on IOS was stronger than the effect of RES on IOS, $b = -0.46$, 95% CI [-0.82, -0.08].

## Discussion

Study 2 showed that RES predicted lower negative mood and greater positive mood following social support interactions. These results were found even when controlling for PR. We also found that PR predicted higher IOS, and did so to a stronger degree than RES. Although we could not rule out zero as a plausible value for the difference in the effects of RES and PR on negative mood and positive mood, results pointed in the expected direction, with RES predicting lower negative mood and higher positive mood than PR. One limitation of Study 2 is that because participants were asked to recall a prior social support attempt from their partner, it is possible that their reports could have been influenced by retrospective bias. In addition, Study 2 only included mood and IOS as outcomes. Although feeling less negative and more positive can be an indication that recipients felt effective, there are other support outcomes that were also important to examine. We addressed these limitations in the subsequent studies.

## Studies 3-5

The aim of Studies 3-5 was to examine the effects of RES on support outcomes in daily life. We used a daily diary design, in which participants reported on daily RES and PR in relation to support received across five days. An advantage of daily diary designs is that they allow researchers to examine psychological processes as they occur in participants' natural environments (Bolger & Laurenceau, 2013; Bolger, Davis, & Rafaeli, 2003). The diary design also helped to reduce the possibility that our results were influenced by retrospective bias. Due to the use of repeated measures, this also allowed us to examine how fluctuations in RES and PR within the same individual were related to support outcomes.

Studies 3-5 used essentially the same method and included the same measures, unless noted otherwise. Thus, the methods and results for these studies are described together. A pilot daily diary study was also conducted in connection with the present research question, the details of which are presented in the Supplemental Materials.

### Method

**Participants.** Participants were students enrolled in eligible psychology courses at [**masked for review**] who received course credit in exchange for their participation in a five-night daily diary. Studies 3-5 were conducted in successive academic years, and the conclusion of the academic year served as our data collection stopping rule for each study.

#### *Study 3 Participants.*

There were 263 who enrolled in Study 3. Because participants were drawn from an undergraduate participant pool for course credit, we were required to allow every person who signed up to participate. As such, there were some duplicate participants. There were six participants who completed this study twice—once in each semester that the study was

offered—thus their second round of participation was removed from the sample. There were four participants who had previously enrolled in an earlier version of this study (the pilot diary study described above and discussed in the Supplemental Materials), and they were excluded from Study 3 prior to analysis. This left a sample of 253 participants.

Participants were 21 years old on average ($SD = 4.10$). There were 55 male participants, 142 female participants, and one participant who identified as "other"; the remaining participants did not indicate their gender. The majority of participants completed all five diary questionnaires ($n = 196$) or four out of five diary questionnaires ($n = 36$). There were six participants who did not complete any diary questionnaires, leaving a final sample of 247 participants.

***Study 4 Participants.***

There were 210 participants who enrolled in Study 4. There were eight participants who had previously enrolled in an earlier version of this study: One person had participated in the pilot diary study, and seven people had participated in Study 3. These participants were excluded from Study 4 prior to analysis, which reduced the sample to 202 participants. There were three participants who did not nominate a target person and 10 additional participants who nominated a target but did not complete any diary questionnaires. These 13 participants were excluded also, leaving a final sample of 189 participants.

Participants were 21 years old on average ($SD = 4.10$). There were 55 male participants, 142 female participants, and 1 participant who identified as "other"; the remaining two participants did not indicate their gender. Most participants completed all five diary questionnaires ($n = 135$) or four out of five diary questionnaires ($n = 38$).

***Study 5 Participants.***

There were 248 participants who enrolled in Study 5. Three participants had

participated in a previous version of this study and were removed prior to analysis. This left a final sample of 245 participants.

Participants were 21 years old on average ($SD$ = 4.30). There were 91 male participants and 152 female participants; the remaining participants did not indicate their gender. Most participants completed all five diary questionnaires ($n$ = 175) or four out of five diary questionnaires ($n$ =32).

**Procedure and Materials.** In Studies 3-5, participants completed a five night daily diary that ran from Sunday night through Thursday night. On Sunday night, participants responded to a questionnaire consisting of individual difference measures; these measures were administered in regards to other research questions and will not be discussed further. Participants were also instructed to nominate a target person that they would be asked about for the remainder of the study. Participants were instructed to select a relationship partner whom they interacted with on a daily basis. There were 74/68/91 participants who chose a friend as their target person, 86/57/54 who chose their romantic partner, 27/23/32 who chose a parent, 4/12/10 who chose a sibling, 38/23/49 who chose a roommate, 5/4/3 who selected a different type of relationship partner, and 0/3/3 participants who did not report on the nature of their relationship with the target person in Studies 3-5, respectively. In Study 5 only, participants were also asked to identify an academic task that they would be working on over the coming five days, such as a paper, problem set, or exam preparation.

Each night, participants responded to questions about social support they received from the target person that day. The average participant received support from the target person on 3 (Study 3), 3 (Study 4), or 3 (Study 5) out of the 5 diary days. They completed measures of RES, PR, and perceptions of support effectiveness, as well as outcome measures: mood, coping, and inclusion of the other in the self (IOS). We also assessed nightly sleep (Studies 4-5) as well as daily motivation and anticipated performance on the academic task that participants identified on the start of the study (Study 5).

Reliabilities for variables that were composites of two more items were estimated using procedures specified by Cranford et al. (2006) and Bolger and Laurenceau (2013) and are displayed in Table 6. These procedures provide estimates of within-person reliability, between-person reliability, and reliability of change. In particular, reliability of change is important because it assesses how well items within a composite move together over time within the same individual. Generally, reliability values across variables indicated that these composites were sensitive to both between-person differences and within-person change[5].

Within-person and between-person correlations among variables are presented in Tables 7 and 8, respectively. Within-person correlations were estimated as latent relationships between variables in person-specific standard deviation units using Bayesian multilevel modeling to account for repeated-measures obtained on each person. This procedure yields somewhat more conservative estimates compared to some other approaches for calculating within-person correlations, but was used for consistency with the predictive analyses, which also used Bayesian multilevel modeling.

***Regulatory Effectiveness of Support.***

Participants responded to the RES measure, which was the same measure used in Studies 1-2. Specifically, participants were instructed to think about support they had received from the target person that day when making their ratings. If they did not receive support from the target person that day, they checked a box next to each RES item indicating so.

***Perceived Responsiveness.***

[5]Surprisingly, the reliability of change estimates for the truth and control facets in Study 5 were very low. This was puzzling given that these facets showed strong reliability of change in the prior studies and in a pilot study (see Supplemental Materials). Importantly, however, we found that despite the low reliability of change for the separate facets, the RES composite of truth and control nevertheless showed adequate reliability of change, thereby indicating that these facets could be combined.

We administered a three-item perceived responsiveness measure (Maisel & Gable, 2009). These items have been used previously in diary studies (Maisel & Gable, 2009), and they also mapped onto key theoretical components of PR (validating, caring, and understanding). As with RES, participants were instructed to think about support they had received from the target person that day when making their ratings: *"Today, the person I nominated made me feel cared for"*, *"... valued my abilities and opinions"*, and *"... understood me"* (1 = *Not at all*, 7 = *Extremely*). If they did not receive support from the target person that day, they checked a box next to each item indicating so. Reliability estimates of daily PR were generally good, and even though the PR measure had fewer items than the RES measure, reliability of these items was equally good, and in some cases better, than the reliability of the RES items.

Participants were asked not to take support received from other people into account when making their ratings of RES and PR. Again, if participants did not receive any support from the target person that day, they were asked to check a box indicating so. Because RES and PR items asked about support received, only support receipt days were assessed in our analyses.

***Support Effectiveness.***

Support effectiveness was included as a measure of construct validity. Because RES is proposed to be a measure tapping support effectiveness, it should be positively associated with this variable. Each day, participants were asked to indicate how beneficial they found the emotional and practical support they received from the target person, "*In general, how beneficial was the emotional help (e.g., offers of reassurance, expressions of concern) you received during the past 24 hours?*" and "*In general, how beneficial was the practical help (e.g., advice, suggestions of course of action, offers of direct assistance) you received during the past 24 hours?*" (1 = *Not at all*, 7 = *Extremely*). If participants did not receive any emotional support or any practical support, they checked a box indicating so. There was

adequate reliability of emotional support effectiveness and practical support effectiveness across studies (see Table 6). Therefore, for simplicity and ease of comparison across studies, we created a composite by combining daily ratings of emotional support effectiveness and practical support effectiveness.

### *Mood.*

Participants indicated their levels of negative mood and positive mood using a scale ranging from 1 (*Not at all*) to 7 (*Extremely*). Daily negative mood was assessed with three items (*discouraged*, *sad*, *anxious*)[6], and daily positive mood were assessed with two items (*"cheerful"*, *"lively"*).

### *Coping.*

Participants also reported on their daily coping behaviors. Coping items were presented as a checklist, using items adapted from Carver et al. (1989). Similar coping checklists have been used in previous diary studies of daily coping in relationships (Tuskeviciute, Snyder, Stadler, & Shrout, 2018). Participants were asked to check off coping behaviors they had engaged in that day in order to deal with the primary issue for which they received support. There were nine positive coping behaviors, such as: *"I persevered"* and *"I exercised"* (checked = Yes, blank = No).

### *Inclusion of the Other in the Self.*

Inclusion of the Other in the Self (IOS), the same measure that was used in Study 2, was included as a relational outcome (1 = *No overlap*, 7 = *Near complete overlap*).

### *Sleep (Studies 4-5 only).*

[6]Additional mood items were measured. Items were chosen based on results of an exploratory factor analysis.

Studies 4 and 5 also included a measure of nightly sleep quality. Participants were asked to indicate how well they slept the previous night (-3 = *Very poorly*, +3 = *Very well*). To facilitate comparison with the other outcome variables measured, sleep quality was rescaled on a 1 to 7 scale. Participants also reported the time they went to sleep the night before and the time they woke up that morning (sleep duration, in hours), for use as a control variable[7].

We examined sleep quality due to growing awareness of the potential importance of social support for sleep and the possible role this link might plan in accounting for the health-promoting effects of relationships (Grey, Uchino, Trettevik, Cronan, & Hogan, 2018). Sleep has also been suggested an as important antecedent of effective self-regulation, with disrupted sleep leading to self-regulation difficulties (Baumeister, 2003; Hagger, 2010). Thus, sleep was relevant to the present investigation due to its links to both social support and self-regulation.

***Daily Task Motivation (Study 5 only).***

Each night, participants in Study 5 were presented with a reminder of the academic task they had identified in the preliminary questionnaire on the first night of the study. They were asked to indicate how motivated they felt to work on the task that day (1 = *Not at all*, 7 = *Extremely*). If they had already completed the task in question, they were instructed to check a box in lieu of providing a rating.

***Daily Anticipated Task Performance (Study 5 only).***

Participants in Study 5 were also asked to rate their anticipated task performance each

[7]Sleep duration values were the number of hours (to the nearest half hour) between participants' self-reported bed time and self-reported waking time. Negative sleep duration values or extreme sleep duration values (14 hours or more) were manually inspected and corrected if there was a clear reason for the implausible value (e.g., participants indicated 1 pm rather than 1 am as their bed time).

night. They reported how well they thought they would perform on the task, on a scale ranging from (1 = *Not at all*, 7 = *Extremely*). If they had already completed the task in question, they were instructed to check a box in lieu of providing a rating.

## Results

**Analytic Approach.** Results were analyzed using Bayesian multilevel modeling with the *brms* package for R. Following procedures specified by Bolger & Laurenceau (2013), we decomposed the within-person and between-person sources of variability in RES and PR. The model included fixed effect terms for RES (both within-person and between-person centered) and PR (both within-person and between-person centered), controlling for diary day (centered on the middle day of the study, which was the third day). This analysis also included subject-specific random intercepts and random slopes for RES and PR, and allowed for autocorrelated residuals using an autoregressive AR(1) error structure. Note that these analyses only included data from days on which participants receiving support.

Results for the fixed effects are summarized in Tables 9, 13, and 17 for Studies 3-5, respectively. Differences in the fixed effects of RES and PR (RES-PR) are summarized in Tables 10-11, 14-15, and 18-19 for Studies 3-5, respectively. Random effect estimates are provided in Tables 12, 16, and 20 for Studies 3-5, respectively. Results are also displayed in Figures 3, 5, and 7 (within-person effects) and Figures 4, 6, and 8 (between-person effects).

As noted above, we again used Bayesian estimation in these analyses. Bayesian models are especially useful for these data. Due to relatively small number of days collected per subject in our daily diary studies, it can be difficult (and in some cases, impossible) to estimate the necessary random effects using traditional maximum likelihood estimation (MLE). Bayesian estimation has greater facility in handling random effects, which allowed us to estimate random slopes for both of our focal variables: Regulatory Effectiveness of

Support (RES) and Perceived Responsiveness (PR).

**Support Effectiveness.** First, we examined effects of RES and PR on perceptions of support effectiveness as construct validity check. Results indicated that higher within-person RES was associated with higher perceptions of support effectiveness, Study 3: $b = 0.45$, 95% CI [0.35, 0.55]; Study 4: $b = 0.45$, 95% CI [0.30, 0.60]; Study 5: $b = 0.39$, 95% CI [0.26, 0.52]. On days when participants received support higher on RES relative to their own average, the higher their perceptions of the effectiveness of the support. Higher within-person PR was also associated with higher perceptions of support effectiveness, Study 3: $b = 0.28$, 95% CI [0.16, 0.39]; Study 4: $b = 0.34$, 95% CI [0.19, 0.49]; Study 5: $b = 0.38$, 95% CI [0.24, 0.52]. The effect of within-person RES on support effectiveness was generally stronger than the effect of within-person PR, although zero could not be excluded as a plausible value for these differences, Study 3: $b = 0.17$, 95% CI [-0.02, 0.35]; Study 4: $b = 0.11$, 95% CI [-0.16, 0.39]; Study 5: $b = 0.01$, 95% CI [-0.22, 0.24]

There was also an effect of higher between-person RES on higher perceptions of support effectiveness, Study 3: $b = 0.48$, 95% CI [0.34, 0.61]; Study 4: $b = 0.44$, 95% CI [0.30, 0.58]; Study 5: $b = 0.38$, 95% CI [0.27, 0.48]. Participants who experienced higher (*vs.* lower) levels of RES across the diary period tended to perceive the support they received from the target person as more effective. Higher between-person PR also predicted higher perceptions of support effectiveness, Study 3: $b = 0.35$, 95% CI [0.23, 0.47]; Study 4: $b = 0.41$, 95% CI [0.26, 0.55]; Study 5: $b = 0.47$, 95% CI [0.35, 0.59]. The effect of between-person RES on support effectiveness was not reliably stronger than the effect of within-person PR, Study 3: $b = 0.13$, 95% CI [-0.10, 0.36]; Study 4: $b = 0.03$, 95% CI [-0.23, 0.30]; Study 5: $b = -0.09$, 95% CI [-0.29, 0.10].

**Negative Mood.** We examined effects of RES and PR on daily negative mood. Results indicated that higher within-person RES was generally associated with lower negative mood, Study 3: $b = -0.23$, 95% CI [-0.33, -0.14]; Study 4: $b = -0.12$, 95% CI [-0.25,

0.01]; Study 5: $b$ = -0.14, 95% CI [-0.25, -0.03]. On days when participants received support higher on RES relative to their own average, the lower their negative mood that day. Higher within-person PR was not consistently associated with negative mood across studies, Study 3: $b$ = -0.02, 95% CI [-0.13, 0.09]; Study 4: $b$ = -0.16, 95% CI [-0.30, -0.03]; Study 5: $b$ = -0.03, 95% CI [-0.15, 0.09]. The effect of within-person RES on negative mood was generally stronger than the effect of within-person PR, although zero could not be excluded as a plausible value for some of these differences, Study 3: $b$ = -0.21, 95% CI [-0.38, -0.04]; Study 4: $b$ = 0.05, 95% CI [-0.19, 0.28]; Study 5: $b$ = -0.11, 95% CI [-0.30, 0.09]

There was also an effect of higher between-person RES on lower negative mood, although zero could not be excluded as a plausible value in some studies, Study 3: $b$ = -0.16, 95% CI [-0.34, 0.01]; Study 4: $b$ = -0.31, 95% CI [-0.50, -0.12]; Study 5: $b$ = -0.10, 95% CI [-0.23, 0.04]. Participants who experienced higher (*vs.* lower) levels of RES across the diary period tended to feel less negative. Higher between-person PR across the diary period was not reliably linked to lower negative mood, Study 3: $b$ = -0.07, 95% CI [-0.23, 0.08]; Study 4: $b$ = -0.03, 95% CI [-0.22, 0.16]; Study 5: $b$ = -0.09, 95% CI [-0.23, 0.05]. The effect of between-person RES on negative mood was sometimes stronger than the effect of between-person PR, but zero could not be excluded as a plausible value, Study 3: $b$ = -0.09, 95% CI [-0.39, 0.22]; Study 4: $b$ = -0.28, 95% CI [-0.63, 0.08]; Study 5: $b$ = -0.008, 95% CI [-0.25, 0.24].

**Positive Mood.** Higher within-person RES was associated with higher positive mood, but zero could not be ruled out as a plausible value in some studies, Study 3: $b$ = 0.17, 95% CI [0.08, 0.27]; Study 4: $b$ = 0.06, 95% CI [-0.08, 0.20]; Study 5: $b$ = 0.11, 95% CI [-0.02, 0.24]. On days when participants received support higher on RES relative to their own average, the higher their positive mood that day. Higher within-person PR was also associated with positive mood in two out of the three diary studies, Study 3: $b$ = 0.12, 95% CI [0.003, 0.23]; Study 4: $b$ = 0.19, 95% CI [0.05, 0.34]; Study 5: $b$ = 0.03, 95% CI [-0.11,

0.17]. The differences in the effects of RES and PR varied across studies, Study 3: $b$ = 0.05, 95% CI [-0.12, 0.23]; Study 4: $b$ = -0.13, 95% CI [-0.38, 0.13]; Study 5: $b$ = 0.08, 95% CI [-0.15, 0.31]

There was also an effect of higher between-person RES on higher positive mood, Study 3: $b$ = 0.32, 95% CI [0.15, 0.48]; Study 4: $b$ = 0.41, 95% CI [0.25, 0.56]; Study 5: $b$ = 0.25, 95% CI [0.12, 0.37]. Participants who experienced higher (*vs.* lower) levels of RES across the diary period tended to feel more positive. However, we were unable to conclude that higher between-person PR across the diary period was reliably related to higher positive mood, Study 3: $b$ = -0.09, 95% CI [-0.23, 0.05]; Study 4: $b$ = -0.06, 95% CI [-0.23, 0.10]; Study 5: $b$ = 0.08, 95% CI [-0.06, 0.22]. The effect of between-person RES on positive mood was stronger than the effect of between-person PR across studies, but zero could not be ruled out as a plausible value, Study 3: $b$ = 0.41, 95% CI [0.12, 0.69]; Study 4: $b$ = 0.47, 95% CI [0.18, 0.77]; Study 5: $b$ = 0.17, 95% CI [-0.06, 0.40].

**Coping.** Because our measure of coping was administered as a checklist, coping was a count variable. We took the sum of the number of adaptive coping behaviors that participants engaged in each day. Then, following standard practices (Fox, 2016), we square-root transformed this sum to help normalize the distribution and then rescaled the resulting values on a 1-7 scale, the same scale used to measure the other variables. This transformation was used to facilitate comparison across outcomes.

Higher within-person RES was associated with higher coping, Study 3: $b$ = 0.11, 95% CI [0.04, 0.18]; Study 4: $b$ = 0.15, 95% CI [0.05, 0.24]; Study 5: $b$ = 0.06, 95% CI [-0.01, 0.14]. On days when participants received support higher on RES relative to their own average, the more coping behaviors they reported engaging in that day. Within-PR was also associated with higher coping, Study 3: $b$ = 0.04, 95% CI [-0.03, 0.11]; Study 4: $b$ = 0.05, 95% CI [-0.06, 0.15]; Study 5: $b$ = 0.11, 95% CI [0.03, 0.19]. The effects of within-person RES on coping were larger than the effect of within-person PR in two of the three studies,

but zero could not be excluded as a plausible value, Study 3: $b$ = 0.07, 95% CI [-0.05, 0.19]; Study 4: $b$ = 0.10, 95% CI [-0.07, 0.27]; Study 5: $b$ = -0.05, 95% CI [-0.18, 0.09].

Higher between-person RES was related to higher coping, but zero could only be excluded as a plausible value in one study, Study 3: $b$ = 0.07, 95% CI [-0.06, 0.20]; Study 4: $b$ = 0.11, 95% CI [-0.02, 0.25]; Study 5: $b$ = 0.14, 95% CI [0.01, 0.26]. On average, participants who experienced higher (*vs.* lower) levels of RES across the diary period engaged in more coping behaviors. Between-person PR was also sometimes related to higher coping, but not reliably so, Study 3: $b$ = 0.06, 95% CI [-0.05, 0.17]; Study 4: $b$ = 0.07, 95% CI [-0.07, 0.20]; Study 5: $b$ = -0.002, 95% CI [-0.13, 0.13]. There effect of between-person RES on coping was typically strong than the effect of between-person PR, but the differences were somewhat small and zero could not be excluded as a plausible value, Study 3: $b$ = 0.010, 95% CI [-0.21, 0.22]; Study 4: $b$ = 0.05, 95% CI [-0.20, 0.30]; Study 5: $b$ = 0.14, 95% CI [-0.08, 0.35].

**IOS.** We examined effects of RES and PR on daily IOS. Results indicated that higher within-person RES was associated with higher IOS, Study 3: $b$ = 0.11, 95% CI [0.03, 0.20]; Study 4: $b$ = 0.14, 95% CI [0.03, 0.26]; Study 5: $b$ = 0.13, 95% CI [0.03, 0.22]. On days when participants received support higher on RES relative to their own average, the higher their IOS that day. Higher within-person PR was also associated with higher IOS across studies, Study 3: $b$ = 0.46, 95% CI [0.36, 0.54]; Study 4: $b$ = 0.31, 95% CI [0.20, 0.43]; Study 5: $b$ = 0.37, 95% CI [0.24, 0.49]. The effect of within-person PR on IOS was stronger than the effect of within-person RES, although zero could not be excluded as a plausible value in one of the studies, Study 3: $b$ = -0.34, 95% CI [-0.49, -0.19]; Study 4: $b$ = -0.17, 95% CI [-0.38, 0.04]; Study 5: $b$ = -0.24, 95% CI [-0.43, -0.05]

There was also an effect of higher between-person RES on higher IOS, although we could not exclude zero as a plausible value in two of the studies, Study 3: $b$ = 0.10, 95% CI [-0.10, 0.31]; Study 4: $b$ = 0.25, 95% CI [0.05, 0.44]; Study 5: $b$ = 0.07, 95% CI [-0.09, 0.22]. Higher between-person PR across the diary period was related to higher IOS, Study 3: $b$ =

0.62, 95% CI [0.45, 0.80]; Study 4: $b$ = 0.70, 95% CI [0.51, 0.89]; Study 5: $b$ = 0.73, 95% CI [0.56, 0.91]. The effect of between-person PR on IOS was stronger than the effect of between-person RES across all three studies, Study 3: $b$ = -0.52, 95% CI [-0.86, -0.18]; Study 4: $b$ = -0.45, 95% CI [-0.81, -0.10]; Study 5: $b$ = -0.66, 95% CI [-0.96, -0.38].

**Sleep (Studies 4-5 only).** We next assessed nightly sleep quality. To assess within-person effects, we used lagged within-person RES and PR values. This allowed us to ascertain whether receiving support higher (*vs.* lower) on RES and PR relative to one's own average predicted sleeping better later that night. Note that due to the need to use of lagged RES and PR values, there were fewer observations available for analysis.

Higher within-person RES was associated with better sleep, but zero could not be excluded as a plausible value, Study 4: $b$ = 0.11, 95% CI [-0.09, 0.31], Study 5: $b$ = 0.04, 95% CI [-0.11, 0.20]. Higher within-person PR was not reliably associated with sleep quality, Study 4: $b$ = -0.07, 95% CI [-0.29, 0.14]; Study 5: $b$ = 0.08, 95% CI [-0.10, 0.26]. However, there was inconsistency in the difference of these effects, Study 4: $b$ = 0.18, 95% CI [-0.18, 0.55]; Study 5: $b$ = -0.04, 95% CI [-0.32, 0.25]

Between-person RES was related to better sleep quality in Study 4, $b$ = 0.24, 95% CI [0.01, 0.47]. In Study 5, between-person RES was again related to better sleep quality, but zero could not be excluded as a plausible value, $b$ = 0.10, 95% CI [-0.12, 0.31]. Study 4 participants who experienced higher (*vs.* lower) levels of RES across the diary period tended to report better sleep. Higher between-person PR across the diary period was not consistently related to sleep quality, Study 4: $b$ = -0.04, 95% CI [-0.28, 0.20]; Study 5: $b$ = 0.14, 95% CI [-0.09, 0.37]. There was inconsistency in the difference of these effects, Study 4: $b$ = 0.28, 95% CI [-0.15, 0.71]; Study 5: $b$ = -0.04, 95% CI [-0.43, 0.34].

**Task Motivation (Study 5 only).** In Study 5, participants were asked to select an academic task they planned to work on during the diary period. Each day, they were

reminded of this task and reported how motivated they felt to work on it. Within-person RES predicted greater daily task motivation, $b = 0.11$, 95% CI [0.009, 0.22]. On days when participants received support higher (*vs.* lower) on RES relative to their own average, they felt more motivated to work on their task. Within-person PR was not related to daily task motivation, $b = 0.02$, 95% CI [-0.10, 0.14]. The within-person effect of RES on daily motivation was stronger than the effect of within-person PR, but zero could not be excluded as a plausible value, $b = 0.09$, 95% CI [-0.10, 0.28].

Between-person RES was also associated with task motivation. Participants who experienced higher (*vs.* lower) levels of RES across the diary period tended to be more motivated, $b = 0.20$, 95% CI [0.03, 0.37]. Between-person PR was not associated with task motivation, $b = -0.01$, 95% CI [-0.19, 0.18]. The between-person effect of RES on daily motivation was stronger than the effect of between-person PR, but zero could not be excluded as a plausible value, $b = 0.21$, 95% CI [-0.10, 0.52].

**Anticipated Task Performance (Study 5 only).** Study 5 also included measures of anticipated task performance (i.e., how well participants expected they would perform on their task). Neither within-person RES, $b = 0.04$, 95% CI [-0.05, 0.13], nor within-person PR, $b = 0.001$, 95% CI [-0.10, 0.10], was reliably related to daily anticipated task performance. The was no meaningful difference in these effects, $b = 0.04$, 95% CI [-0.12, 0.20].

However, higher between-person RES across the diary period predicted higher anticipated task performance, $b = 0.21$, 95% CI [0.07, 0.34]. Participants who experienced higher (*vs.* lower) levels of RES across the diary period reported greater anticipated task performance. Between-person PR was unrelated to anticipated task performance, $b = -0.001$, 95% CI [-0.15, 0.15]. The effect of between-person RES on anticipated task performance was larger than the effect of between-person PR, but zero could not be excluded as a plausible value, $b = 0.21$, 95% CI [-0.04, 0.46].

**Random Effects.** In addition to generating predicted effects for the average person (fixed effects), our multilevel analysis also enabled us to obtain a distribution of subject-specific effects (random slopes). Although most studies of psychological processes tend to focus on fixed effects, examining subject-specific effects can provide a more complete picture of the phenomenon by revealing the degree of between-subject heterogeneity (Bolger, Zee, Rossignac-Milon, & Hassin, 2019). In the diary studies, we allowed each subject to have their own slopes for within-person RES and within-person PR. Because there was only one value per subject for between-person RES and PR, these values cannot be used to generate subject-specific slopes.

Using guidelines specified by Bolger et al. (2019), suggesting that heterogeneity is noteworthy if the size of the random effect (in standard deviation units) is at least 25% the size of the fixed effect, we found that there was noteworthy heterogeneity in the effects of RES and PR across all diary studies and all outcomes. In all cases, the random effects exceeded this threshold. For some variables, the size of the random effect was larger than the size of the fixed effect. This indicates that, despite the pattern of results suggested by the fixed effects, some subjects showed very strong effects of RES and PR, others showed weak effects or no effect, and some even showed reversals in these effects. This finding is consistent with other work demonstrating that there is widespread between-heterogeneity in daily support processes (Gleason et al., 2008; Shrout et al., 2010). Although beyond the aims of the present investigation, the presence of such heterogeneity suggests there may be moderators of these effects, and we return to this point in the general discussion.

## Discussion

Studies 3-5 examined the effects of RES in daily life. Results suggested that RES was generally related to higher perceptions of support effectiveness, lower negative mood, higher positive mood, and better coping. These effects were largely found both within-person,

indicating that daily fluctuations in RES were related to support outcomes, and between-person, indicating that experiencing higher (*vs.* lower) levels of RES across the diary period was also related to support outcomes. RES was also associated with IOS across studies. In addition, and as expected, PR predicted IOS and did so to a stronger degree than RES.

Studies 4-5 also included additional outcomes relevant to effective self-regulation. Sleep quality was assessed in Studies 4 and 5, given that sleep has been proposed as an important antecedent to self-regulation (Baumeister, 2003; Hagger, 2010). However, effects of RES and PR on sleep were inconclusive. Although there were some trends suggesting that both within-person and between-person RES was related to better sleep, the credibility intervals for these effects included 0. It is important to note that fewer observations were available for our analyses of sleep due to lagging. Therefore, it could be that more observations are needed to detect potential effects of RES on sleep quality. Future research using a longer diary period to increase the precision of the estimated effects of RES would be a useful direction for future work.

Study 5 also assessed participants' goal pursuit by asking them to identify an ongoing academic task and report on their daily task motivation and anticipated performance across the diary period. Both within-person and between-person RES were positively related to daily motivation. Moreover, between-person RES was also linked to better anticipated performance. Although this study did not examine actual goal attainment, the results nevertheless suggest the role of RES in predicting self-regulatory outcomes.

Although results were largely consistent across these studies, there were also some unexpected inconsistencies. First, although within-person RES was related to higher positive mood in Studies and 3, this effect in Study 4 study was small, and zero could not be ruled out as a possible value. Second, although the differences between the effects of RES and PR pointed in the anticipated direction for the most part, there were many cases in which zero

could not be excluded as a plausible value for this difference.

Although we can only speculate as to the reasons for these inconsistencies, it is possible that, because these were diary studies, unmeasured variables besides the quality of support received each day influenced participants' mood, coping, feelings of self-other overlap, and sleep, making it more difficult to detect a differences between the effects of RES and PR. We attempted to reconcile these inconsistencies by meta-analyzing results across studies.

## Study 6

The next step was to test RES in actual support interactions where the support environment could be better controlled. This was the aim of Study 6. Romantic partner dyads attended a laboratory session together and engaged in social support discussions.

### Method

**Participants.** One hundred and four romantic partner dyads participated in a laboratory session. As this study was conducted to investigate multiple hypotheses, we aimed to recruit about 100 couples plus a few extra to allow for potential data loss. Power calculations performed after data collection suggested that this sample size would provide >80% power to detect effects that were small-medium in size or larger.

Participants were recruited via campus flyers, a university paid participant pool, and online advertisements (e.g., websites of campus organizations, Craig's List, etc.). In order to be eligible for the study, couples needed to have been in a romantic relationship for at least one year. They were also required to be cohabiting, which was a requirement for a different part of this study not related to the present hypotheses. Lastly, both partners were required to be proficient in English. Participants were paid $50 per couple.

There was one participant who participated twice, with a different partner each time. The two dyads containing this participant were excluded prior to analysis. There was also one dyad that withdrew from the study. The final sample consisted of 101 dyads ($N = 202$ individuals). There were 90 opposite-sex couples, eight same-sex couples (two male-male, six female-female), and three couples in which one member did not identify as male or female. On average, participants were 27 years old ($SD = 5.80$) and had been in a relationship with their partner for about 4 years ($SD = 3.20$).

**Procedure and Materials.** Upon arrival, dyad members were taken to separate testing rooms to indicate informed consent and complete individual difference and relationship measures. The partners were then reunited to complete a discussion of a shared goal. The individual difference measures and relationship measures were included to investigate hypotheses unrelated to those presented in this paper and will not be discussed further. Similarly, the goal discussion was also included to investigate a different hypothesis; as it was not designed to examine support processes and did not include measures of support, RES, or PR, it will not be discussed further.

Central to the present hypotheses, participants were next asked to complete a questionnaire in which they identified an ongoing stressful issue. They were able to choose any issue, as long as it was not related to their romantic relationship. Dyads then completed two social support discussions. One partner was randomly assigned to be the recipient and was instructed to discuss the issue they had described in the previous questionnaire. Their partner was assigned to be the provider, and was instructed to help the recipient in any way that seemed appropriate. Dyads then had five minutes to converse about the recipient's issue. Dyads switched roles for the second support interaction, so that each person had the opportunity to both receive support for their issue and to provide support to their partner. Out of 202 total possible support discussions, participants completed 199 support discussions. All dyads completed the first support discussion, but there were three dyads that were

unable to complete the second support discussion due to time constraints.

After each support discussion, both partners answered questions about the discussion they had just completed. Only ratings made when participants were in the role of support recipient were examined in our analyses. Correlations among variables are presented in Table 21.

***Regulatory Effectiveness of Support.***

After each support discussion, participants were asked to respond to the RES measure, with items asked specifically in regards to the discussion they had just completed (truth: $\alpha = 0.92$; control: $\alpha = 0.88$; RES: Spearman-Brown $\rho = 0.75$).

***Perceived Responsiveness.***

Participants also responded to a three-item measure of PR, the same one that was used in Studies 3-5. These items were also asked specifically in regards to the support discussion they had just completed ($\alpha = 0.86$).

***Support Effectiveness.***

Perceptions of support effectiveness were assessed with two items: *"How effective was the help you were offered by your partner?"* and *"How useful was the help you were offered by your partner?"* (1 = *Not at all*, 7 = *Extremely*; Spearman-Brown $\rho = 0.94$).

***Mood.***

Participants indicated how negative (two items; Spearman-Brown $\rho = 0.77$)[8] and positive (four items; $\alpha = 0.76$) they felt about their issue prior to the support discussions.

[8]Additional mood items were measured. Items were selected based on results of an exploratory factor analysis.

After each support interaction, they again rated how negative (Spearman-Brown $\rho = 0.82$) and positive ($\alpha = 0.81$) they felt using the same items (1 = *Not at all*, 7 = *Extremely*).

### *Inclusion of the Other in the Self.*

IOS was again measured on a scale ranging from 1 (*No overlap*) to 7 (*Near complete overlap*). Participants were asked to make their rating based on how they felt towards their partner during the support discussion.

### *Closeness.*

Closeness was also measured as a relational outcome. Although IOS is sometimes presented as a measure of closeness, it is also correlated with many other relationship constructs (A. Aron et al., 1992). In this sample, IOS and closeness were only moderately correlated, suggesting that they were not empirically synonymous. For this reason, we opted to examine closeness and IOS as separate outcomes. Both at the beginning of their participation and after the support discussion in which they received support, participants responded to the item *"How close do you feel to your partner"?* (1 = *Not at all*, 7 = *Extremely*).

### *Observational Coding.*

Following data collection, trained research assistants watched video footage of participants' support discussions and coded the degree of RES and PR observed during each discussion. There were four coders, and each coder watched and rated all available support videos. Out of 199 support discussions, 191 videos were available for analysis. The remaining eight videos were not coded due to corrupted video files or inadequate sound quality.

Coders rated the degree of RES and PR observed during each discussion using the scheme described below. All ratings were made on a scale ranging from 1 (*not at all evident*) to 7 (*extremely evident*). Coders were asked to take into account the frequency, duration,

and magnitude of each behavior across the whole discussion when making their ratings. Discrepancies were resolved through discussion. Coders also provided repeated-measures ratings of RES and PR in 30 second intervals. These ratings were collected to investigate a research question regarding support and temporal dynamics that is beyond the scope of this paper. As they were not analyzed for this paper, they will not be discussed further.

Inter-rater reliability for global ratings of RES and PR were assessed using an intraclass correlation. We used a two-way model to assess agreement (Shrout & Fleiss, 1979). This treats both rows of data and coders as random effects and assumes that coders are sampled from a population of possible coders. ICCs were computed using the mean composites for RES (truth and control) and PR (caring, validation, and understanding).

*Coder-Rated Regulatory Effectiveness of Support.*

Coder-rated RES was assessed using a coding scheme developed for the present research. Coders indicated the degree of truth and control observed during each discussion. For truth, coders indicated the degree to which the provider *"helped recipient better understand the true nature of their issue/situation. Recipient gains a different perspective or changes his/her way of seeing or thinking about the situation. Helps the recipient figure things out. Provides confirmation or verification of what is truly/actually going on."* For control, coders indicated the degree to which the provider *"enabled the recipient to better manage their issue. Provider helps the recipient come up with a plan of action, think about specific steps he/she needs to take, feel more confident or competent. Provider attempts to boost recipient's sense of efficacy regarding the problem."* There was adequate inter-rater reliability for the RES composite, ICC(A, 4) = 0.85.

*Coder-Rated Responsiveness.*

Coder-rated responsiveness was assessed using an adapted version of the global responsiveness coding scheme developed by Maisel and colleagues (2008). This coding

scheme assesses responsiveness by obtaining ratings for caring, validating, and understanding. Examples of dimensions from this coding scheme included: *"Provider listens attentively, gathers information about the event"* (understanding), *"Provider expresses that he or she values and respects the recipient... validates partner's emotion"* (validation), and *"Provider expresses care and affection... expresses sympathy, and expresses empathy"* (caring). For a complete description of this coding scheme, see work by Maisel and colleagues (2008). As with the self-reported items, although both RES and PR involve understanding, RES involves altering the *recipients'* understanding of the *situation*, whereas PR involves the *provider* conveying understanding of the *recipient* and his or her thoughts and feelings. There was adequate inter-rater reliability for the PR composite, ICC(A, 4) = 0.79.

## Results

**Analytic Approach.** Data were analyzed using Bayesian multilevel modeling with partners nested in dyads. We were unable to establish a clear pattern of gender differences. As such, we pooled across dyad members in the analyses. Similar to the prior studies, we examined the effects of PR and RES entered as simultaneous predictors and then tested whether the effects of PR and RES differed from each other. Results are displayed in Tables 22 and 23 and in Figure 9.

### Effects of Self-Reported RES and PR.

#### *Support Effectiveness.*

As a check on construct validity, we first examined effects of RES and PR on perceptions of support effectiveness. Both higher RES, $b = 0.68$, 95% CI [0.58, 0.79], and higher PR, $b = 0.25$, 95% CI [0.12, 0.38], predicted higher perceived support effectiveness. The effect of RES on perceptions of support effectiveness was stronger than the effect of PR, $b = 0.43$, 95% CI [0.23, 0.64].

### *Negative Mood.*

We then examined the effects of RES and PR on negative mood, controlling for baseline negative mood. There was a main effect of RES, such that as RES increased, negative mood decreased, $b$ = -0.30, 95% CI [-0.47, -0.13]. There was no main effect of PR, $b$ = 0.000, 95% CI [-0.20, 0.20]. The effect of RES on lower negative mood was stronger than the effect of PR at the 90% credibility level, $b$ = -0.30, 95% CI [-0.62, 0.03], 90% CI [-0.56, -0.03].

### *Positive Mood.*

We also examined the effects of RES and PR on positive mood, controlling for baseline positive mood. There was a main effect of RES, such that as RES increased, positive mood increased, $b$ = 0.32, 95% CI [0.19, 0.46]. There was an effect suggesting that higher PR was related to higher positive mood, but zero could not be excluded as a plausible value, $b$ = 0.11, 95% CI [-0.05, 0.27]. The effect of RES on higher positive mood was stronger than the effect of PR, $b$ = 0.21, 95% CI [-0.04, 0.47], 90% CI [0.003, 0.42].

### *IOS.*

Both higher RES, $b$ = 0.31, 95% CI [0.14, 0.47], and higher PR, $b$ = 0.48, 95% CI [0.28, 0.67], predicted higher IOS. Results suggested that the effect of PR on IOS was stronger than the effect of RES, but we were unable to exclude zero as a plausible value for this difference, $b$ = -0.17, 95% CI [-0.48, 0.14].

### *Closeness.*

We then examined closeness as an additional relational outcome, controlling for baseline closeness. We found effects of both higher RES, $b$ = 0.10, 95% CI [0.02, 0.19], and higher PR, $b$ = 0.37, 95% CI [0.27, 0.48], on feelings of closeness. Moreover, the effect of PR on closeness was stronger than the effect of RES, $b$ = -0.28, 95% CI [-0.44, -0.11].

**Effects of Coder-Rated RES and PR.** As a next step, we performed similar analyses using coder-rated RES and PR to predict recipients' self-reported outcomes. This provided an opportunity to test whether the effects of RES and PR could be predicted using objective, observer ratings of these variables. This also helped ensure that effects of RES and PR were not due to psychological overlap between these constructs and the support outcomes assessed. Results are summarized in Tables 24 and 25 and in Figure 10.

***Support Effectiveness.***

Coder-rated RES predicted higher recipient perceptions of support effectiveness, $b$ = 0.55, 95% CI [0.25, 0.85]. In contrast, coder-rated PR was only weakly associated with recipients' ratings of support effectiveness, and zero could not be excluded as a plausible value, $b$ = 0.08, 95% CI [-0.25, 0.42]. The effect of coder-rated RES on support effectiveness was stronger than the effect of coder-rater PR at the 90% credibility level, $b$ = 0.47, 95% CI [-0.03, 0.97], 90% CI [0.06, 0.88].

***Negative Mood.***

Higher coder-rated RES predicted lower negative mood, $b$ = -0.50, 95% CI [-0.81, -0.18]. However, coder-rated PR was only weakly related to recipients' negative mood, and zero could not be excluded as a plausible value, $b$ = -0.07, 95% CI [-0.44, 0.27]. The effect of coder-rated RES on negative mood was larger than the effect of coder-rated PR, but zero could not be excluded as a plausible value, $b$ = -0.42, 95% CI [-0.96, 0.12].

***Positive Mood.***

High coder-rated RES also predicted higher positive mood, $b$ = 0.26, 95% CI [0.004, 0.53]. Higher coder-rated PR was related to higher positive mood as well, but zero could not be excluded as a plausible value, $b$ = 0.20, 95% CI [-0.08, 0.49]. The effect of coder-rated RES on positive mood was larger than effect of coder-rated PR, but this difference was small

and zero could not be excluded as a plausible value, $b = 0.06$, 95% CI [-0.37, 0.48].

### *IOS.*

Higher coder-rated RES predicted was related to higher IOS, but zero could not be excluded as a plausible value, $b = 0.25$, 95% CI [-0.11, 0.60]. In contrast, higher coder-rated PR was related to higher IOS, $b = 0.40$, 95% CI [-0.01, 0.81]. There was a trend suggesting a stronger effect of coder-rated PR on IOS, but zero could not be excluded as a plausible value, $b = -0.15$, 95% CI [-0.77, 0.46].

### *Closeness.*

Coder-rated RES was not related to recipients' feelings of closeness to the support provider, $b = 0.03$, 95% CI [-0.17, 0.22]. In contrast, coder-rated PR was predicted greater closeness, $b = 0.29$, 95% CI [0.08, 0.50]. The effect of coder-rated PR on closeness was stronger than the effect of coder-rated RES, $b = -0.25$, 95% CI [-0.57, 0.05], 90% CI [-0.52, 0.01].

## Discussion

Study 6 allowed us to assess the effects of RES in actual support discussions in a controlled laboratory environment. The findings of Study 6 generally provided a clear pattern of main effects and a pattern of differences between the effects of RES and PR. In general, RES more strongly predicted support outcomes with implications for self-regulation, namely mood regulation, and support effectiveness, whereas PR more strongly predicted relational outcomes.

Study 6 also featured observational coding of support behaviors, which provided objective indicators of RES and PR. Results using coder-rated RES and PR generally yielded a pattern of results that was similar to the pattern of results obtained using

self-reported RES and PR. By using objective RES and PR, we were able to rule out the possibility that RES and PR effects might have been due to psychological overlap with our dependent measures. Interestingly, we also found that self-reported RES and coder-rated RES, and self-reported PR and coder-rated PR, were only moderately correlated. There may be elements involved in how recipients rate RES and PR that may not be captured by objective measures. Although beyond the aims of the present investigation, examining differences in self-reported and coder-rated support perceptions would be an interesting direction for future work.

Despite this clear pattern, there were a few unexpected findings in Study 6. We hypothesized that PR would more strongly predict relational outcomes than RES, and this hypothesis was supported for closeness. However, this difference was less pronounced for IOS. We were unsure why this was the case, but given theoretical developments regarding the interdependent nature of close relationship partners' self-regulatory pursuits (Fitzsimons, Finkel, & VanDellen, 2015), it is possible that IOS could have reflected partners' regulatory interdependence in the Study 6 context. For example, the support received might have involved the provider offering to come up with a plan to help the recipient manage the problem, which may have increased perceptions of self-other overlap if both partners planned to work on this together. Nevertheless, we addressed this and other inconsistencies in a meta-analysis pooling data across studies.

## Study 7

As the next step in this investigation, we sought to examine the effects of RES in the face of a laboratory stressor in order to directly test whether RES would be related to self-regulatory antecedents that would in turn benefit recipients' self-regulatory efforts. We recruited friend dyads and randomly assigned one dyad member to give a stressful speech. Dyads engaged in a support discussion in preparation for the speech, and we examined

participants' self-reported support outcomes, speech performance, and cardiovascular reactivity. This study therefore enabled us to give all participants a common goal (performing well on the speech) and assess their responses to the stressor and goal pursuit during the course of a laboratory session. The analysis plan for this study was preregistered via the Open Science Framework (https://osf.io/c4a5g/?view_only=54e56c255f124a61bce5e164c2f1b83a). All analyses were carried out in accordance with this analysis plan, unless otherwise noted.

## Method

**Participants.** Friend dyads ($N = 110$ dyads) were recruited to participate in a study together. Participants were recruited from an undergraduate psychology participant pool, a paid university participant pool, and campus flyers. Participants received two course credits or $15 as compensation.

Power calculations were performed prior to the start of the study to determine sample size. Effect size estimates were based on results from Study 6. Results indicated that a sample of 110 dyads would provide 80% to detect effects comparable in size or larger to those obtained in Study 6 (roughly equivalent to $f^2 = .08$, where $f^2 = .02$ is a small effect and $f^2 = .15$ is a medium effect; J. Cohen, 1992).

**Procedure.** Upon arrival, dyad members were escorted to separate testing rooms to provide informed consent. Participants then completed a questionnaire consisting of individual difference measures. As these measures were not included for the purpose of addressing the present research question and were not included in the preregistered analysis plan, they will not be discussed further.

Participants were then fitted with physiological sensors to measure heart rate. Three electrocardiogram sensors were placed on the torso: one on the upper right torso below the

collar bone, one below the lower left rib, and one below the lower right rib. Participants then rested quietly for 5 minutes as their baseline physiology was recorded.

Next, dyad members were reunited and introduced to the study task. They were informed that one dyad member (the "target") would be assigned to give an impromptu speech that would ostensibly be evaluated by an expert. They were told that it was important that they perform was well as possible on the speech. Participants were randomly assigned to role—target or partner—prior to arrival using a random order generator. Participants then completed a brief questionnaire assessing their mood and, for targets, their motivation to perform well on the speech. Then, participants were asked to engage in a five minute support discussion leading up to the speech. Targets were instructed to share their thoughts and feelings regarding the speech, and partners were instructed to simply respond or help in any way that seemed appropriate. After the discussion, participants completed a questionnaire assessing their mood, perceptions of the support discussion (including RES and PR), and motivation to perform well on the speech.

Partners were taken to a separate room for the remainder of the study. Targets were introduced to a research assistant posing as an evaluator. They then had three minutes to deliver their speech, which was video recorded. After a brief recovery period (three minutes), targets completed a final questionnaire regarding the speech. Lastly, dyad members were reunited and were then debriefed, thanked, and paid.

**Measures and Materials.** Measures and materials used in Study 7 are described below. Although measures were obtained from both targets and partners, we focus exclusively on targets' ratings given the goals of the present investigation. In addition, our analysis plan only proposded to examine targets' variables. Reliabilities and other statistics reported below refer to targets' ratings only. Correlations among variables are presented in Table 26. Unless otherwise noted, all self-reported variables were assessed between the end of the support discussion and the start of the speech.

***Regulatory Effectiveness of Support.***

After the support interaction, participants were asked to respond to the RES measure, with items asked specifically in regards to the support discussion they had just completed (truth: $\alpha = 0.87$; control: $\alpha = 0.86$; RES: Spearman-Brown $\rho = 0.73$).

***Perceived Responsiveness.***

Participants also responded to a three-item measure of the PR, the same one that was used in Studies 3-6. These items were also asked specifically in regards to the support discussion they had just completed ($\alpha = 0.86$).

***Support Effectiveness.***

Perceptions of support effectiveness were assessed with the same items that were used in Study 6: *"How effective was the help you were offered by your partner?"* and *"How useful was the help you were offered by your partner?"* (1 = *Not at all*, 7 = *Extremely*; Spearman-Brown $\rho = 0.93$).

***Mood.***

In this study, mood was assessed using the Profile of Mood States (POMS) (Terry, Lane, & Fogarty, 2003). We selected this measure because it has been used previously in studies of social support and laboratory stressors with similar paradigms (Bolger & Amarel, 2007) and is known to change reliably within-person (Cranford et al., 2006). There were eight items assessing negative mood (pre-support: $\alpha = 0.83$; post-support: $\alpha = 0.83$) and four items assessing positive mood (pre-support: $\alpha = 0.82$; post-support: $\alpha = 0.86$)[9].

[9]There were slightly fewer observations available for analysis for the negative mood items, positive mood items, and motivation item. This is because five participants mistakenly completed a questionnaire corresponding to another study. This other questionnaire was almost identical to the questionnaire for the present study, but it used different mood items and did not ask about motivation.

***Motivation for Speech.***

Participants' motivation to perform well on the speech was measured twice: before and after the support discussion. Motivation was assessed with one item: *"I am motivated to perform well on the speech"* (1 = *Not at all*, 7 = *Extremely*)

***Inclusion of the Other in the Self.***

IOS was again measured on a scale ranging from 1 (*No overlap*) to 7 (*Near complete overlap*). Participants were asked to make their rating based on how they felt towards their partner during the support discussion.

***Closeness.***

Closeness was again measured as a relational outcome. Participants indicated how close they felt to their partner both at the start of the study and then again after each support interaction. In this study, IOS and closeness were only moderately correlated (see Table 26). Both at the beginning of their participation and after the support discussion, participants responded to the item *"How close do you feel to your partner"?* (1 = *Not at all*, 7 = *Extremely*).

***Discussion Helpfulness for Speech.***

After the speech, participants were asked to indicate how much they thought their discussion with their partner had helped them with their speech (1-item): *"To what extent did the discussion with your partner help you with your speech?"* (1 = *Not a all*, 7 = *Extremely*).

**Observational Coding: Speech Performance.** Post-data collection, three independent coders viewed and rated videos of participants' speeches. Each coder watched and rated all available speech videos. Out of 110 participants, 106 speech videos were

available for analysis; the remaining four videos were not coded due to corrupted video files or inadequate sound quality.

Coders rated speech performance using the scheme described below. All ratings were made on a scale ranging from 1 (*not at all evident*) to 7 (*extremely evident*). Coders were asked to take into account the frequency, duration, and magnitude of each behavior across the whole discussion when making their ratings. Discrepancies were resolved through discussion. Coders also provided repeated-measures ratings of RES and PR in 60-sec intervals; these ratings were collected in order to investigate a research question about temporal dynamics that is beyond the scope of this paper. Therefore, they will not be discussed further.

Coder-rated speech performance was assessed using a coding scheme developed for the present research[10]. We focused on two dimensions of nonverbal speech performance. The first dimension was eye contact, indicating how much the participant looked at the evaluator while giving the speech. The second dimension was nervous movement, such as fidgeting, hair twirling, leg shaking, etc. The nervous movement dimension was reverse-scored, such that higher values corresponded to better nonverbal performance on both dimensions .

Inter-rater reliability for global ratings of speech performance were assessed using an intraclass correlation. As with the Study 6 observational coding data, we used as two-way

[10]This coding scheme also included measures to assess verbal indicators of speech performance, such as the fluidity and persuasiveness of the speech. We opted to focus on nonverbal speech performance because we reasoned that our verbal indicators of speech performance were likely related to factors, such as prior experience and comfort with public speaking, that might not be as easily influenced by a brief support discussion as nonverbal indicators. Our preregistered analysis plan also indicated that we would look at verbal speech performance. However, we did not find evidence for a reliable effect of RES or PR. In addition, the coding scheme also included measures of emotional expression during the speech. Our preregistration plan also indicated that we would examine effects of RES and PR on emotional expression during the speech, but we did not find evidence for reliable effects of this variable.

model to assess agreement (Shrout & Fleiss, 1979). This treats both rows of data and coders as random effects and assumes that coders are sampled from a population of possible coders. ICCs were computed using the mean composites for the indicators of speech performance. There was adequate inter-rater reliability for the RES composite, ICC(A, 4) = 0.85.

**Cardiovascular Reactivity.** Prior to participation, participants were instructed to refrain from caffeine consumption and strenuous exercise for at least two hours before their visit to help ensure the validity of cardiovascular measurements. During the study, participants' cardiovascular responses were measured continuously during key phases of the study: baseline (5 minutes), support discussion (5 minutes), speech (3 minutes), and recovery (a resting period immediately following the conclusion of the speech; 3 minutes). Heart rate waveforms were sampled at 1000 Hz using Biopac's MP150 and ECG module. Data were scored in 30 second intervals using Mindware software (HRV 3.0.25). We examined inter-beat interval (IBI) as our focal measure of cardiovascular reactivity. IBI is a time-based measure that refers to the average number of milliseconds occurring between each heart period during a specific period of time. It is strongly inversely related to heart rate (beats per minute). Leading psychophysiological guides recommend using IBI in lieu of heart rate because it has more desirable statistical properties (Blascovich, Mendes, Vanman, & Dickerson, 2011). Higher values indicate longer IBIs, and IBIs typically decrease during times of stress, reflecting an increase in heart rate.

## Results

**Manipulation Check.** As a first step, we wanted to verify that participants were motivated to perform well on the speech. If so, this would establish that our intent of giving participants a goal to pursue in the laboratory context was successful. Self-reported motivation to perform well on the speech, rated prior to the support discussion, was moderate to high and exceeded the midpoint of the scale (1 = *Not at all*, 7 = *Extremely*,

where 4 is the midpoint), $M = 4.49$, 95% CI [4.21, 4.77].

**Analytic Approach.** Analyses for Study 7 were carried out according to our preregistration, unless otherwise noted. We note that the preregistration also proposed several secondary analyses. As most of these analyses were directly necessary for addressing the aims of this paper and have yet not been performed (e.g., secondary analyses proposing to control for the gender composition of friend dyads), they will not be discussed further. Analyses were performed using Bayesian linear models with RES and PR entered as simultaneous predictors. We also tested whether the effects of PR and RES differed significantly from each other. Unstandardized coefficients, standard errors, 95% credibility intervals, and 90% credibility intervals are displayed in Tables 27 and 28. Results are displayed in Figure 11.

**Support Effectiveness.** To once again verify construct validity, we examined the effects of RES and PR on recipients' (targets') perceptions of support effectiveness. Consistent with the results from our earlier studies, RES predicted higher perceptions of support effectiveness, $b = 0.71$, 95% CI [0.53, 0.89], as did PR, $b = 0.24$, 95% CI [0.05, 0.42]. The effect of RES on support effectiveness was stronger than the effect of PR, $b = 0.47$, 95% CI [0.14, 0.81].

**Negative Mood.** We examined the effects of RES and PR on negative mood, adjusting for negative mood measured prior to the support discussion. There was an effect of higher RES on lower negative mood, but we could not exclude zero as a plausible value for this effect, $b = -0.08$, 95% CI [-0.19, 0.03], 90% CI [-0.17, 0.01]. PR did not predict lower negative mood, $b = -0.03$, 95% CI [-0.15, 0.09]. The effect of RES on negative mood did not differ from the effect of PR, but did point in the (negative) direction consistent with earlier findings, $b = -0.05$, 95% CI [-0.26, 0.15].

**Positive Mood.** We next examined the effects of RES and PR on positive mood, adjusting for positive mood measured prior to the support discussion. There was no reliable effect of RES, $b$ = -0.004, 95% CI [-0.17, 0.16], or PR $b$ = 0.04, 95% CI [-0.14, 0.22], on positive mood. The effect of RES on positive mood did not differ appreciably from the effect of PR, $b$ = -0.04, 95% CI [-0.36, 0.26].

**IOS.** There was an effect of higher RES on higher IOS, $b$ = 0.26, 95% CI [-0.004, 0.52], 90% CI [0.04, 0.47]. PR also positively predicted higher IOS, $b$ = 0.51, 95% CI [0.24, 0.79]. The effect of PR on IOS was larger than the effect of RES, but zero could not be excluded as a plausible value, $b$ = -0.26, 95% CI [-0.74, 0.22].

**Closeness.** Effects were similar for closeness. RES predicted greater closeness, adjusting for pre-support closeness, $b$ = 0.19, 95% CI [0.03, 0.36]. PR also predicted greater closeness, $b$ = 0.26, 95% CI [0.08, 0.44]. However, the difference in these effects was small and zero could not be excluded as a plausible value, $b$ = -0.06, 95% CI [-0.37, 0.25].

**Change in Motivation.** We next turned to participants' change in motivation to perform well on the speech following the support discussion, controlling for their motivation prior to the support discussion. Similar to results from Study 5, RES positively predicted increased motivation to perform well on the speech, $b$ = 0.37, 95% CI [0.11, 0.64]. PR was associated with reduced motivation to perform well on the speech, although zero could not be excluded as a plausible value, $b$ = -0.19, 95% CI [-0.47, 0.09]. The effect of RES on increased motivation was stronger than the effect of PR, $b$ = 0.56, 95% CI [0.08, 1.06].

**Discussion Helpfulness for Speech.** Our next analysis examined participants' perceptions of how much the discussion with their partner had helped them with their speech, as reported after the speech. RES strongly and positively predicted greater perceived helpfulness, $b$ = 0.69, 95% CI [0.42, 0.96]. However, PR was unrelated to helpfulness, $b$ = 0.004, 95% CI [-0.28, 0.29]. Moreover, the effect of RES on helpfulness was stronger than the

effect of PR, $b = 0.69$, 95% CI [0.19, 1.18].

**Speech Performance.** RES was weakly associated with better objective speech performance, but zero could not be excluded as a plausible value, $b = 0.05$, 95% CI [-0.11, 0.21]. There was a trend suggesting that PR was related to poorer speech performance, $b = -0.13$, 95% CI [-0.30, 0.04], 90% CI [-0.28, 0.01]. The effect of RES on speech performance was stronger than the effect of PR, but zero could not be excluded as a plausible value, $b = 0.18$, 95% CI [-0.11, 0.49].

**Mediation.** Although we did not find conclusive evidence for an effect of RES on speech performance, we reasoned that RES might be associated with better speech performance *indirectly*. We speculated that recipients who were more (*vs.* less) motivated to perform well on the speech would in turn actually perform better. This is in line with our theorizing that RES helps to engender support benefits that in turn matter for effective self-regulation. To explore this possibility, we conducted a mediation analysis to examine whether RES would predict speech performance via increased motivation. We note that although this analysis was theoretically driven, it was not included in our preregistered analysis plan.

We performed a Bayesian mediation analysis in which RES was the focal predictor, change in motivation was the mediator, and speech performance was the outcome. PR and pre-support motivation were included as covariates. Leading guidelines for mediation analysis specify that establishing a direct X to Y link is not a necessary prerequisite for testing for indirect effects (Shrout & Bolger, 2002).

As shown in Figure 12, RES predicted increased motivation to perform well on the speech, *a* path: $b = 0.31$, 95% CI [0.05, 0.59], and increased motivation, in turn, predicted better speech performance, *b* path: $b = 0.16$, 95% CI [0.05, 0.27]. There was also an indirect effect of RES on speech performance by way of increased motivation, $b = 0.05$, 95% CI

[0.004, 0.12] . This result suggests that RES had a small but reliable effect on objective speech performance via its effect on increased motivation.

**Cardiovascular Reactivity.** We next examined participants' cardiovascular responses[11]. Because cardiovascular (IBI) data were obtained as repeated-measures, this enabled us to examine within-person changes in IBI, as well as potential between-person differences in IBI changes as a function of RES and PR. This also allowed us to use all available cardiovascular data in the analysis to help increase the precision of our estimates.

We fit a multilevel mixed model to examine the effects of study phase, RES, and PR on IBI[12]. Study phase was represented by three pairs of dummy variables comparing the speech phase (reference group) to each of the other phases (Dummy 1: baseline *vs.* speech; Dummy 2: support *vs.* speech; Dummy 3: recovery *vs.* speech). Study phase, RES, PR, all two-way interactions between RES and each of the phase variables, and all two-way interactions between PR and each of the phase variables were entered as fixed effect predictors. The model also allowed for random intercepts and random slopes of study phase for each subject. Results are summarized in Table 29 (fixed effects) and Table 30 (random effects).

[11]This analysis drew on all available IBI observations. In this sample, there were 3 participants who reported having a diagnosed cardiovascular condition (e.g., heart murmur or arrhythmia). However,rerunning this analysis removing these participants did not change the pattern of results appreciably.

[12]When we began analyzing our cardiovascular data, we realized that our analysis plan was not specific enough about how this multilevel analysis should be implemented. Our analysis plan proposed to analyze the cardiovascular data using a multilevel model testing for interactions of RES and PR with time, but did not indicate how time would be represented in the model. Because our goal was to assess cardiovascular reactivity during the speech (i.e., how much participants' response changed in the speech compared to the other phases), we opted for the analysis presented above so that time would be represented by the different temporal phases of the study. Using this approach meant that each of the other phases could be compared directly to the speech. Examining contrasts in this way is recommended over using an omnibus test when there is a specific comparison group in mind (Rosenthal & Rosnow, 1985). In addition, this approach, in which we entered time as experimental phases represented by dummy variables, draws directly on approaches that two authors have used previously to analyze cardiovascular data for class demonstrations.

Results revealed within-person differences in IBI between the speech phase and each of the other study phases, such that the average participant exhibited lower IBI during the speech relative to the baseline period, $b$ = 134.35, 95% CI [113.70, 154.78], the support discussion, $b$ = 57.57, 95% CI [44.89, 70.10], and the recovery period, $b$ = 137.72, 95% CI [120.96, 154.31]. This is consistent with findings from the stress and psychophysiology literatures indicating that socio-evaluative stressors reliably elicit physiological stress responses (Dickerson & Kemeny, 2004), reflected by lower IBI during the speech in this case. There was substantial between-subject heterogeneity in these effects, however, with some participants showing much larger decreases in IBI across phases and others showing an increase.

In addition, we found that the change in IBI from the support discussion to the speech was moderated by RES, at the 89% credibility level, $b$ = -11.50, 95% CI [-26.42, 2.74], 89% CI [-23.33, -.007] (see Figure 13). This interaction suggested that while the typical participant's IBI was 57.57 ms lower (faster) during the speech compared to during the support discussion (indicating an increase in heart rate during the speech), the size of this decrease in IBI was smaller for participants who received support higher on RES—that is, there was lower stress reactivity for participants higher on RES. Specifically, for participants who received support +1 SD higher on RES than average, the decrease in IBI between the support discussion and speech was only 44.84 ms. RES did not reliably moderate the change in IBI between the speech and the other phases. The interaction effects involving PR were all small and positive, suggesting higher stress reactivity for participants who received support higher on PR, but zero could not be excluded as a plausible value for any of these effects.

## Discussion

Study 7 examined the effects of RES and PR as participants prepared for and underwent a controlled laboratory stressor, an impromptu speech. Results indicated that

RES predicted higher perceptions of support effectiveness, increased motivation to perform well on the speech, and greater perceptions of how much the discussion had helped recipients with their speech.

Contrary to results from the prior studies, however, we were unable to confidently conclude that RES was associated lower negative mood or higher positive mood in this study. The effects pointed in the expected directions, but did not enable us to conclude that the effects were non-zero. This was unexpected, but there are a few possible explanations as to why the mood results might not have perfectly replicated those obtained in the earlier studies. One possibility is that this discrepancy is due to our having used a different measure of mood in this study compared to the other studies. It is also possible that the study context of Study 7 played a role. Study 7 was the only study that was designed to examine social support for an impending laboratory stressor with a pronounced evaluative component. Prior work has found that explicit social support offerings can worsen recipients' distress when evaluation concerns are salient (Zee et al., 2018). Thus, it is possible that even good quality social support, such as support high on RES or PR, might be ineffective at reducing negative mood in this context for the average person. Although we nevertheless found some preliminary evidence that RES was related to less physiologically stress, we attempted to reconcile these inconsistent findings in a meta-analysis pooling across studies.

Study 7 also provided an opportunity to draw new inferences regarding RES. We found some evidence for a beneficial effect of RES on speech performance. We found that RES was associated with better speech performance (as rated by independent coders) by way of increased motivation to perform well on the speech. This result is in line with our theorizing that RES plays an important role in fostering psychological outcomes, such as increased motivation, that in turn contribute to effective self-regulation, such as performance on a demanding task.

We also found preliminary evidence that RES might be related to physiological

self-regulation. Although the average participant exhibited greater cardiovascular stress during the speech compared to during the support discussion (operationalized as decreases in IBI), we found an interaction effect whereby participants who received support higher (*vs.* lower) on RES showed less reactivity (i.e., smaller decreases in IBI). This result is promising and invites additional study into the physiological and health implications of RES. However, we note that the effect was small and we were only able to rule out 0 as a plausible value with about 90% certainty. Future work should aim to replicate this and other physiological stress effects of RES.

## Meta-Analysis

Overall, results across one retrospective study, three daily diary studies, and two dyadic laboratory studies suggested that RES predicted beneficial social support outcomes, even when accounting for another construct with known implications for the effectiveness of enacted support, namely PR. Results also provided some mixed evidence for differential effects of RES and PR: Whereas RES often more strongly predicted self-regulation relevant variables and PR more strongly predicted relationship relevant variables, we were generally unable to rule out that the possibility that there was no difference in their effects.

The final step in the present investigation was to meta-analyze results across studies. There were two main goals of this meta-analysis. First, as noted above, there were a few studies in which the pattern of results did not perfectly align with our hypotheses. For example, in Study 7, we did not find an association between RES and higher positive mood, despite generally finding such an association in the previous studies. Thus, meta-analyzing results across studies offered an opportunity to clarify the overall pattern of results. Second, the meta-analysis also enabled us to better gauge the size of our effects and to ascertain whether there was noteworthy effect size heterogeneity across studies and types of dependent variables. Finally, the meta-analysis provided a way to gauge the difference in effect sizes of

RES and PR across studies.

### Meta-Analytic Approach

Meta-analyses were performed using the *brms* package for R (Burkner, 2017). We conducted a Bayesian random effects meta-analysis that allowed effect sizes to differ across studies and across outcomes. We also included crossed random effects, which allowed the model to generate specific predicted effect sizes for a particular outcome in a particular study. This approach is an extension of other work on the utility of crossed random effects (Judd, Westfall, & Kenny, 2012). Another advantage of this meta-analysis approach was that it enabled us to include nearly all of the results obtained across studies in a single meta-analysis. In addition, such an analysis assumes that studies and outcomes were drawn from a larger "population" of studies and outcomes. Doing so enabled us to use the model to generate a distribution of possible values that can be expected within this population of studies (e.g., similar types of studies) and outcomes. This distribution can provide insight into the types of effect sizes that can be expected for different measures of outcomes used in this investigation or other similar types of outcomes that we did not examine. Following current recommendations for Bayesian meta-analysis (D. R. Williams, Rast, & Bürkner, 2018), we used a weakly informative prior distribution, which specified a mean of 0 and a standard deviation of 3 for all parameters; for context, standard errors for coefficients from the models in Studies 2-7 correspond to the standard deviation of the posterior distribution for that coefficient, and these values typically ranged from 0.04 to 0.14 across studies. These values are well under 3.

We conducted three meta-analyses: one analysis to assess the effects of RES across studies and outcomes, a second analysis to assess the effects of PR across studies and outcomes, and a third analysis to assess the difference between RES and PR (RES-PR) across studies and outcomes. We also included variable type (1 = relational variable, 0 =

non-relational variable) and level of analysis (1 = within-person effect, 0 = between-person effect) as moderators. We predicted that there would be a non-zero meta-analytic effects of RES. We also predicted that there would be a meta-analytic effect of RES-PR that would depend on the type of dependent variable. Specifically, we anticipated that the effects of RES would be stronger than the effects of PR for self-regulation relevant (non-relational) variables (e.g., mood), but that the effects of PR would be stronger than the effects of RES for relational variables (e.g., closeness). It also seemed plausible that the size of within-person effects might differ from the size of between-person effects for both RES and PR, hence our including level of analysis as an additional moderator.

We included all effects of self-reported RES, PR, and their difference in the meta-analysis.[13] Because coder-rated RES and PR were only examined in one study, they were not included in the meta-analysis. Similarly, effects on cardiovascular responses were only examined in Study 7 and used a different modeling strategy to account for the repeated-measures data structure, so they were not included in the meta-analysis. Measures of effect size and error were unstandardized coefficients and standard error, respectively, which was feasible given that predictor and outcome variables were measured on the same scale. Coefficients corresponding to effects on negative mood were multiplied by -1 before being entered into the meta-analysis, so that higher numbers would indicate more beneficial effects.

## Results

[13]The meta-analysis results presented in the main text included effects on perceptions of support effectiveness. We also reran our meta-analyses excluding this variable, as we had used it to help establish construct validity rather than as an outcome per se. This yielded some slightly smaller effect sizes, but did not change our conclusions. For details, please see the Supplemental Materials.

**Fixed Effects.** Based on our variable coding, intercept values correspond to the predicted between-person effect for a typical non-relational variable from a typical study. Figure 14 shows the posterior distributions of these meta-analytic effects for RES, PR, and their difference, and results are also displayed in Table 31. As hypothesized, there was a positive meta-analytic effect of RES for a typical non-relational variable from a typical study, $b = 0.29$, 95% CI [0.14, 0.46]. There was also a positive meta-analytic effect of PR a typical non-relational variable from a typical study, but we were unable to exclude 0 as a plausible value, $b = 0.09$, 95% CI [-0.04, 0.22]. Moreover, results indicated that this meta-analytic effect of RES was stronger than that of PR, $b = 0.16$, 95% CI [0.06, 0.27].

Next, we examined whether the effect of the RES-PR difference would depend on outcome type. Results suggested that effects of RES were somewhat weaker for relational variables, but we were unable to rule out zero as a plausible value, $b = -0.13$, 95% CI [-0.46, 0.15]. We also found an effect of variable type for the effect of PR, such that the effect of PR was stronger for relational variables, $b = 0.36$, 95% CI [0.10, 0.62]. The predicted difference in the effects of RES and PR also depended on variable type. Whereas we had found that RES was a stronger predictor of a typical non-relational outcomes than PR, this difference reversed for relational variables, indicating a stronger effect of PR for relational variables. To illustrate, Figure 15 is a strip plot showing all raw effects (open dots) and model predicted effects (solid dots) RES-PR obtained across studies and dependent variables. This figure shows how the model predicted effects for the RES-PR difference cluster by variable type, indicating a relatively clear pattern whereby RES more strongly predicts self-regulation relevant outcomes and PR more strongly predicts relational outcomes.

Regarding level of analysis, there were some differences suggesting that within-person effects tended to be smaller than between-person effects, but this difference was not found consistently across analyses.

**Random Effects.** As discussed above, this meta-analysis included random effects that allowed estimates to vary according to study and dependent variable. This provided an opportunity to assess the degree of heterogeneity due to study and heterogeneity due to outcome.

As shown in Table 32, random effects are presented as standard deviations, which can be used to generate a distribution of effects that can be expected from the population of studies and population of outcomes from which we sampled. Using criteria proposed by Bolger and colleagues (Bolger et al., 2019), indicating that heterogeneity is noteworthy if the size of the random effect (standard deviation) is at least 25% the size of the corresponding fixed effect, we found noteworthy heterogeneity due to study and noteworthy heterogeneity due to outcome. These findings suggest that there is heterogeneity in the predicted effects for RES, PR, and their difference across studies and across outcomes.

## General Discussion

Across eight studies and a meta-analysis, we presented evidence for the construct validity, predictive validity, and discriminant validity of a new construct: Regulatory Effectiveness of Support (RES). RES provides insight into the importance of enacted social support that addresses recipients' self-regulatory needs——in particular, the goal pursuit process needs of truth effectiveness and control effectiveness. We found that RES was not only a reliable predictor of perceptions of support effectiveness (thus helping to establish construct validity), but it also predicted important self-regulation relevant outcomes, such as mood regulation, coping, and increased motivation. We also obtained preliminary evidence that RES is related to important downstream implications: RES predicted increased motivation, which subsequently predicted better performance on a laboratory stressor. Furthermore, the effects of RES on these outcomes were distinct from the effects of perceived responsiveness, a construct that is important of relationship quality and that has been

implicated in effective enacted support (Maisel & Gable, 2009; Reis & Gable, 2015).

### Implications for Social Support and Close Relationships Literatures

Although much theoretical work and some empirical work has suggested the importance of support that addresses recipients' needs, most research on this topic has focused on matching support according to type or quantity. The present research advances the notion of support matching by demonstrating the importance of addressing recipients' *self-regulatory* needs. Our findings help to account for the heterogeneity of support's effects (Gleason et al., 2008; McClure et al., 2014; Rafaeli & Gleason, 2009) by revealing that individuals' support receipt outcomes might differ according to the levels of RES and PR characterizing the support. These findings also provide empirical support consistent with recent theoretical perspectives, which have emphasized the role of support in helping individuals to thrive in the face of adversity through processes involved in self-regulation, such as reframing, reconstruction, and persistence (Feeney & Collins, 2015).

Furthermore, our findings extend knowledge of perceived responsiveness by demonstrating its role in predicting relational outcomes. This is in line with results showing that experimentally manipulated responsive support (active-constructive capitalization responding) increased liking and trust of the provider (Reis et al., 2010). This also echoes work on the social sharing of emotion, which has shown that support behaviors emphasizing validation and care were associated with social outcomes more so than with adjustment outcomes (Rimé, 2009). Given that social support is one of the most important features of close relationships, PR in the context of enacted support interactions may play a critical role in fostering and sustaining relationship well-being.

Finally, RES provides a new tool for assessing enacted social support. Although several measures currently exist that assess the perceived availability of social support or assess the

frequency and quantity of enacted support, there are fewer measures that were designed to assess the *quality* of enacted support (Wills & Shinar, 2000).

### Implications for Self-Regulation Literature

Dyadic aspects of self-regulation have begun to receive increased attention (Fitzsimons & Finkel, 2010; Fitzsimons et al., 2015; Lakey & Orehek, 2011; Orehek & Forest, 2016; Reeck et al., 2016; Zaki & Williams, 2013), and further theoretical and empirical research on these topics seems promising. The present work contributes to the self-regulation literature by specifying that support is a key channel through which interpersonal regulation occurs and by providing empirical evidence for the proposed theoretical model of RES.

This work also advances the self-regulation literature by specifying what types of outcomes might stem from dyadic regulation processes. Although RES was developed to predict self-regulation relevant outcomes, we found that it also predicted relational outcomes. This builds on work that has identified links between self-regulation and relationship processes (Hofmann, Finkel, & Fitzsimons, 2015; Righetti & Finkenauer, 2011; Vohs, Finkenauer, & Baumeister, 2010). Together, these findings invite additional research on the intersection of the self-regulation and relationships literatures.

### Open Questions and Future Directions

There are limitations of the current state of this research program that need to be noted. One limitation is that all studies were correlational. Although intensive longitudinal studies, such as the daily diary studies presented in this paper, provide additional rigor by allowing examination of within-person effects (Bolger & Laurenceau, 2013), causal effects of RES have yet to be established. One challenge will be developing methods of manipulating RES without altering other features of the support process, such as PR, and vice versa.

Nevertheless, such manipulations could have important implications for developing social support interventions.

Although beyond the scope of the present paper, individual differences could moderate the effects of RES and PR. Indeed, we found evidence of noteworthy between-subject heterogeneity in the effects of RES and PR in the diary studies, suggesting that individuals differ in the extent to which they benefit from support higher on RES and higher on PR. To illustrate, we consider two examples. First, it seems plausible that attachment might moderate the effects of RES and PR. Individuals high on attachment anxiety worry about being abandoned by their partner, which augments their distress (Simpson & Rholes, 2017). Because PR conveys caring, understanding, and validation, it may be more effective at lessening the distress of highly anxious individuals. Because RES less strongly conveys care and acceptance than PR, it may fail to adequately address their need for reassurance. Second, developmental context could moderate these effects, such that the beneficial effects of RES might be even stronger among older adults compared to younger adults. Older adults become more reactive to stressors, which in turn threatens their health (Charles, 2010). Support high on RES could play a role in helping older adults regulate their stress responses and prevent health declines.

Another limitation is that we did not examine the effects of RES in the context of social support for positive events (i.e., capitalization support; Gable & Reis, 2010). It is likely that the effects of RES and PR differ in this context compared to stressful contexts. When dealing with stressors, self-regulation needs are arguably more pressing, because the recipient needs help returning to baseline. However, when a good event occurs, there is not a need to return to baseline. In fact, if the good event has enhanced positive mood, returning to baseline may even be undesirable. When responding to good events, it is plausible that PR would predict both relational outcomes (e.g., trust, liking; Reis et al., 2010) and up-regulation of positive mood (Gable & Reis, 2010; Gable et al., 2012) than RES. Although

possibly weaker in its effects in this context, RES might still matter. For example, RES could help recipients understand additional positive implications of their good event that they had not yet considered (e.g., *"Have you realized that for this new job you will get to travel more? You love traveling, so that's really great!"*).

Finally, we propose that both facets of RES—truth and control—are integral to successful support interactions, and this was demonstrated empirically in our studies. However, there may be contexts in which the relative importance of these facets shifts (Cavallo et al., 2016; Higgins, 2012). For example, the truth facet might be especially important if individuals are facing an uncontrollable stressor, as they might be less capable of changing their feelings of efficacy (control). Examining potential differences in the need for truth and control in support contexts could offer an interesting next step.

## Concluding Remarks

This work is among the first to develop a construct to capture and assess the effects of receiving social support that addresses recipients' self-regulatory needs to understand their situation (truth) and to feel capable of managing their situation (control). We found evidence in favor of the hypothesis that support that addresses these self-regulatory needs predicts feeling effective, as indicated by support outcomes such as better mood and increased motivation, and that this, in turn, can have implications for successful goal pursuit, such as task performance. These findings enhance the field's understanding of what it means for social support to be beneficial and suggest a novel strategy for tailoring support to address recipients' needs. Ultimately, these findings could help relationship partners more effectively address each other's self-regulatory needs when giving social support and foster better health and well-being over time.

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## References

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, *63*, 596–612.

Bar-Kalifa, E., & Rafaeli, E. (2013). Disappointment's sting is greater than help's balm: Quasi-signal detection of daily support matching. *Journal of Family Psychology*, *27*, 956–967.

Baumeister, R. F. (2003). Ego depletion and self-regulation failure: A resource model of self-control. *Alcoholism: Clinical and Experimental Research*, *27*, 281–284.

Blascovich, J., Mendes, W. B., Vanman, E., & Dickerson, S. S. (2011). *Social Psychophysiology for Social and Personality Psychology* (pp. 1–124).

Bolger, N., & Amarel, D. (2007). Effects of social support visibility on adjustment to stress: Experimental evidence. *Journal of Personality and Social Psychology*, *92*, 458–475.

Bolger, N., & Laurenceau, J. P. (2013). *Intensive Longitudinal Methods*. New York: The Guildford Press.

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: capturing life as it is lived. *Annu Rev Psychol*, *54*, 579–616.

Bolger, N., Zee, K. S., Rossignac-Milon, M., & Hassin, R. R. (2019). Causal processes in psychology are heterogeneous. *Journal of Experimental Psychology: General*, *148*, 601–618.

Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to

stress. *Journal of Personality and Social Psychology*, *79*, 953–961.

Burkner, P.-C. (2017). brms: An R package for Bayesian Multilevel Modeling using Stan. *Journal of Statistical Software*, *80*, 1–28.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 267–283.

Cavallo, J. V., Zee, K. S., & Higgins, E. T. (2016). Giving the help that is needed: How Regulatory Mode impacts tailoring social support provision. *Personality and Social Psychology Bulletin*, *42*, 1111–1128.

Charles, S. T. (2010). Strength and Vulnerability Integration: A Model of Emotional Well-Being Across Adulthood. *Psychological Bulletin*, *136*, 1068–1091.

Chernikova, M., Lo Destro, C., Mauro, R., Pierro, A., Kruglanski, A. W., & Tory Higgins, E. (2016). Different strokes for different folks: Effects of regulatory mode complementarity and task complexity on performance. *Personality and Individual Differences*, *89*, 134–142.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155–159.

Cohen, S., Sherrod, D. R., & Clark, M. S. (1986). Social skills and the stress-protective role of social support. *Journal of Personality and Social Psychology*, *50*, 963–973.

Cornwell, J. F., Franks, B., & Higgins, E. T. (2014). Truth, control, and value motivations: the "what," "how," and "why" of approach and avoidance. *Frontiers in Systems Neuroscience*, *8*, 1–15.

Cornwell, J. F., Franks, B., & Higgins, E. T. (2015). Distress from motivational dis-integration: When fundamental motives are too weak or too strong. In *Current*

*topics in behavioral neuroscience* (pp. 289–320). Springer International Publishing.

Cranford, J. A., Shrout, P. E., Iida, M., Rafaeli, E., Yip, T., & Bolger, N. (2006). A procedure for evaluating sensitivity to within-person change: can mood measures in diary studies detect change reliably? *Personality & Social Psychology Bulletin*, *32*, 917–29.

Crockett, E. E., Morrow, Q. J., & Muyshondt, A. C. (2016). Circumnavigating the cost of support: Variations in cortisol as a function of self-efficacy and support visibility. *Journal of Social and Personal Relationships*, *34*, 578–593.

Cutrona, C. E. (1990). Stress and social support: In search of optimal matching. *Journal of Social and Clinical Psychology*, *9*, 3–14.

Cutrona, C. E., & Cole, V. (2000). Optimizing support in the natural network. In S. Cohen, L. Underwood, & B. Gottlieb (Eds.), *Social support measurement and intervention: A guide for health and social scientists* (pp. 278–308). New York: Oxford University Press.

Cutrona, C. E., & Russell, D. W. (2017). Autonomy promotion, responsiveness, and emotion regulation promote effective social support in times of stress. *Current Opinion in Psychology*, *13*, 126–130.

Cutrona, C. E., Cohen, B. B., & Igram, S. (1990). Contextual determinants of the perceived supportiveness of helping behaviors. *Journal of Social and Personal Relationships*, *7*, 553–562.

Cutrona, C. E., Shaffer, P. A., Wesner, K. A., & Gardner, K. A. (2007). Optimally matching support and perceived spousal sensitivity. *Journal of Family Psychology*, *21*, 754–758.

Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: A

theoretical integration and synthesis of laboratory research. *Psychological Bulletin*, *130*, 355–391.

Feeney, B. C., & Collins, N. L. (2015). A new look at social support: A theoretical perspective on thriving through relationships. *Personality and Social Psychology Review*, *19*, 113–147.

Fisher, J. D., Nadler, A., & Whitcher-Alagna, S. (1982). Recipient reactions to aid. *Psychological Bulletin*, *91*, 27–54.

Fitzsimons, G. M., & Finkel, E. J. (2010). Interpersonal influences on self-regulation. *Current Directions in Psychological Science*, *19*, 101–105.

Fitzsimons, G. M., Finkel, E. J., & VanDellen, M. R. (2015). Transactive goal dynamics. *Psychological Review*, *122*, 648–673.

Folkman, S., Lazarus, R. S., Dunkel Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, *50*, 992–1003.

Fox, J. (2016). *Applied Regression Analysis and Generalized Linear Model*. Thousand Oaks, CA: SAGE Publications, Inc.

Gable, S. L., & Reis, H. T. (2010). Good news! Capitalizing on positive events in an interpersonal context. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Volume 42, pp. 195–257). Elsevier Inc.

Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology*, *91*, 904–17.

Gable, S. L., Gosnell, C. L., Maisel, N. C., & Strachman, A. (2012). Safely testing the alarm:

Close others' responses to personal positive events. *Journal of Personality and Social Psychology*, *103*, 963–981.

Gelman, A., & Stern, H. (2006). The difference between "significant" and "not significant" is not itself statistically significant. *The American Statistician*, *60*, 328–331.

Gleason, M. E. J., Iida, M., Shrout, P. E., & Bolger, N. (2008). Receiving support as a mixed blessing: Evidence for dual effects of support on psychological outcomes. *Journal of Personality and Social Psychology*, *94*, 824–838.

Grey, R. G. K. D., Uchino, B. N., Trettevik, R., Cronan, S., & Hogan, J. N. (2018). Social Support and Sleep : A Meta-Analysis. *Health Psychology*, *37*, 787–798.

Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, *39*, 281–291.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*, 348–362.

Hagger, M. S. (2010). Sleep, self-regulation, self-control and health. *Stress and Health*, *26*, 181–185.

Higgins, E. T. (2012). *Beyond pleasure and pain: How motivation works*. Oxford University Press.

Higgins, E. T. (2018). Going in the right direction: Locomotion control and assessment truth, working together. In C. Kopetz & A. Fishbach (Eds.), *The motivation-cognition interface: From the lab to the real world* (pp. 88–105). New York: Taylor & Francis.

Higgins, E. T., Cornwell, J. F., & Franks, B. (2014). "Happiness" and "The Good life" as motivations working together. In A. Elliot (Ed.), *Advances in motivation science* (Vol.

1, pp. 135–179). Elsevier Inc.

Hofmann, W., Finkel, E. J., & Fitzsimons, G. M. (2015). Close relationships and self-regulation: How relationship satisfaction facilitates momentary goal pursuit. *Journal of Personality and Social Psychology*, *109*, 434–452.

Howland, M., & Simpson, J. A. (2010). Getting in under the radar: A dyadic view of invisible support. *Psychological Science*, *21*, 1878–85.

Judd, C. M., Westfall, J., & Kenny, D. a. (2012). Treating stimuli as a random factor in social psychology: a new and comprehensive solution to a pervasive but largely ignored problem. *Journal of Personality and Social Psychology*, *103*, 54–69.

Lakey, B., & Orehek, E. (2011). Relational regulation theory: A new approach to explain the link between perceived social support and mental health. *Psychological Review*, *118*, 482–495.

Maisel, N. C., & Gable, S. L. (2009). The paradox of received social support: The importance of responsiveness. *Psychological Science*, *20*, 928–932.

Maisel, N. C., Gable, S. L., & Strachman, A. (2008). Responsive behaviors in good times and in bad. *Personal Relationships*, *15*, 317–338.

Marroquín, B. (2011). Interpersonal emotion regulation as a mechanism of social support in depression. *Clinical Psychology Review*, *31*, 1276–1290.

McClure, M. J., Xu, J. H., Craw, J. P., Lane, S. P., Bolger, N., & Shrout, P. E. (2014). Understanding the costs of support transactions in daily life. *Journal of Personality*, *82*, 563–574.

Neff, L. A., & Karney, B. R. (2005). Gender differences in social support: a question of skill

or responsiveness? *Journal of Personality and Social Psychology*, *88*, 79–90.

Newsom, J. T. (1999). Another Side to Caregiving. *Current Directions in Psychological Science*, *8*, 183–187.

Orehek, E., & Forest, A. L. (2016). When people serve as means to goals: Implications of a motivational account of close relationships. *Current Directions in Psychological Science*, *25*, 79–84.

Pauw, L. S., Sauter, D. A., Kleef, G. A. van, & Fischer, A. H. (2017). Sense or sensibility? Social sharers' evaluations of socio-affective vs. cognitive support in response to negative emotions. *Cognition and Emotion*, *0*, 1–18.

Pierro, A., Chernikova, M., Lo Destro, C., Higgins, E. T., & Kruglanski, A. W. (2018). *Assessment and Locomotion Conjunction: How Looking Complements Leaping . . . But Not Always* (1st ed., Vol. 58, pp. 243–299). Elsevier Inc.

Rafaeli, E., & Gleason, M. E. J. (2009). Skilled support within intimate relationships. *Journal of Family Theory and Review*, *1*, 20–37.

Reeck, C., Ames, D. R., & Ochsner, K. N. (2016). The social regulation of emotion: An integrative, cross-disciplinary model. *Trends in Cognitive Sciences*, *20*, 47–63.

Reis, H. T., & Gable, S. L. (2015). Responsiveness. *Current Opinion in Psychology*, *1*, 67–71.

Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 201–225). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Reis, H. T., Crasta, D., Rogge, R. D., Maniaci, M. R., & Carmichael, C. L. (2018). Profile 51: Perceived Partner Responsiveness Scale ( PPRS ). In D. L. Worthington & G. D.

Bodie (Eds.), *The sourcebook of listening research: Methodology and measures* (pp. 516–521). Hoboken, NJ: John Wiley & Sons, Inc.

Reis, H. T., Smith, S. M., Carmichael, C. L., Caprariello, P. A., Tsai, F. F., Rodrigues, A., & Maniaci, M. R. (2010). Are you happy for me? How sharing positive events with others provides personal and interpersonal benefits. *Journal of Personality and Social Psychology*, *99*, 311–329.

Righetti, F., & Finkenauer, C. (2011). If you are able to control yourself, I will trust you: the role of perceived self-control in interpersonal trust. *Journal of Personality and Social Psychology*, *100*, 874–886.

Rimé, B. (2009). Emotion elicits the social sharing of emotion: Theory and empirical review. *Emotion Review*, *1*, 60–85.

Rini, C., & Dunkel Schetter, C. (2010). The effectiveness of social support attempts in intimate relationships. In *Support processes in intimate relationships* (pp. 26–67). Oxford University Press.

Rini, C., Dunkel Schetter, C., Hobel, C. J., Glynn, L. M., & Sandman, C. A. (2006). Effective social support: Antecedents and consequences of partner support during pregnancy. *Personal Relationships*, *13*, 207–229.

Rosenthal, R., & Rosnow, R. L. (1985). *Contrast Analysis: Focused Comparisons in the Analysis of Variance*. New York, NY: Cambridge University Press.

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, *48*, 1–36.

Ryan, R. M., & Solky, J. A. (1996). What Is Supportive about Social Support? In G. R. Pierce, B. R. Sarason, & I. G. Sarason (Eds.), *Handbook of social support and the*

*family* (Vol. XII, pp. 249–267). New York: Springer Science; Business Media.

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, *7*, 422–445.

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, *86*, 420–428.

Shrout, P. E., & Yip-Bannicq, M. (2016). Inferences about competing measures based on patterns of binary significance tests are questionable. *Psychological Methods*, *21*, 84–93.

Shrout, P. E., Bolger, N., Iida, M., Burke, C. T., Gleason, M. E. J., & Lane, S. P. (2010). The effects of daily support transactions during acute stress: Results from a diary study of bar exam preparation. In K. T. Sullivan & J. Davila (Eds.), *Support processes in intimate relationships* (pp. 175–199). New York: Oxford University Press, Inc.

Simpson, J. A., & Rholes, W. S. (2017). Adult attachment, stress, and romantic relationships. *Current Opinion in Psychology*, *13*, 19–24.

Terry, P. C., Lane, A. M., & Fogarty, G. J. (2003). Construct validity of the Profile of Mood States - Adolescents for use with adults. *Psychology of Sport and Exercise*, *4*, 125–139.

Thoits, P. A. (1986). Social support as coping assistance. *Journal of Consulting and Clinical Psychology*, *54*, 416–423.

Tuskeviciute, R., Snyder, K. A., Stadler, G., & Shrout, P. E. (2018). Coping concordance in couples. *Personal Relationships*, *25*, 351–373.

Uchino, B. N. (2009). Understanding the links between social support and physical health.

*Perspectives on Psychological Science*, *4*, 236–255.

Uchino, B. N., Cacioppo, J. T., & Kiecolt-Glaser, J. K. (1996). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*, *119*, 488–531.

Vohs, K. D., Finkenauer, C., & Baumeister, R. F. (2010). The sum of friends' and lovers' self-control scores predicts relationship quality. *Social Psychological and Personality Science*, *2*, 138–145.

Weinstein, N., Legate, N., Kumashiro, M., & Ryan, R. M. (2015). Autonomy support and diastolic blood pressure: Long term effects and conflict navigation in romantic relationships. *Motivation and Emotion*, *40*, 212–225.

Williams, D. R., Rast, P., & Bürkner, P.-C. (2018). Bayesian meta-analysis with weakly informative prior distributions. *PsyArXiv*, 1–19.

Williams, W. C., Morelli, S. A., Ong, D. C., & Zaki, J. (2018). Interpersonal emotion regulation: Implications for affiliation, perceived support, relationships, and well-being. *Journal of Personality and Social Psychology*, *115*, 224–254.

Wills, T. A., & Shinar, O. (2000). Measuring Perceived and Received Social Support. In S. Cohen, L. Underwood, & B. Gottlieb (Eds.), *Social support measurement and intervention: A guide for health and social scientists* (pp. 86–135). New York: Oxford University Press.

Zaki, J., & Williams, W. C. (2013). Interpersonal emotion regulation. *Emotion*, *13*, 803–10.

Zee, K. S., & Bolger, N. (2019). Visible and Invisible Social Support: How, Why, and When. *Current Directions in Psychological Science*, *28*, 314–320.

Zee, K. S., Cavallo, J. V., Flores, A. J., Bolger, N., & Higgins, E. T. (2018). Motivation

moderates the effects of social support visibility. *Journal of Personality and Social Psychology*, *114*, 735–765.

**Table 1**

Regulatory Effectiveness of Support items

| Item No. | Item |
|---|---|
| | Please think about the extent to which the interaction affected your understanding of the situation. |
| | The help my partner tried to give me |
| T1 | ...left me with a better understanding of the situation. |
| T2 | ...enabled me to see the situation in a new light. |
| T3 | ...helped me get some perspective on the situation. |
| | Please think about the extent to which the interaction affected how in control of the situation you felt. |
| | The help my partner tried to give me |
| C1 | ...made me feel on top of the situation. |
| C2 | ...enabled me to get back on track. |
| C3 | ...made me feel more confident about the situation. |

*Note.* T = Truth, C = Control. The same items were used in all studies.

**Table 2**

Perceived Responsiveness items

| Study 1B | | Study 2 | | Studies 3-7 | |
|---|---|---|---|---|---|
| Item No. | Item | Item No. | Item | Item No. | Item |
| | My partner | | This interaction made me feel that my partner | | My partner |
| 1 | ...sees the real me. | 1 | ...saw the real me. | 1 | ...made me feel cared for. |
| 2 | ...gets the facts right about me. | 2 | ...got the facts right about me. | 2 | ...valued my abilities and opinions. |
| 3 | ...esteems me, shortcomings and all. | 3 | ...focused on the best side of me. | 3 | ...understood me. |
| 4 | ...knows me well. | 4 | ...was aware of what I was thinking and feeling. | | |
| 5 | ...values and respects the whole package that is the real me. | 5 | ...understood me. | | |
| 6 | ...understands me. | 6 | ...really listened to me. | | |
| 7 | ...really listens to me. | 7 | ...valued my abilities and opinions. | | |
| 8 | ...expresses liking and encouragement for me. | 8 | ...respected me. | | |
| 9 | ...seems interested in what I am thinking and feeling. | 9 | ...was responsive to my needs. | | |
| 10 | ...values my abilities and opinions. | 10 | ...was on the same wavelength as me. | | |
| 11 | ...is on the same wavelength with me. | 11 | ...expressed liking and encouragement for me. | | |
| 12 | ...is responsive to my needs. | 12 | ...was interested in what I was thinking and feeling. | | |
| | | 13 | ...was interested in doing things with me. | | |

*Note.* Items used in Studies 1-2 were drawn from variations on perceived responsiveness items developed by Reis and colleagues (2018). Items used in Studies 3-7 were drawn from Maisel & Gable (2009).

**Table 3**

Correlations among variables, Study 2

| Variables | Estimate | Lower | Upper |
|---|---|---|---|
| RES, PR | 0.65 | 0.56 | 0.73 |
| RES, Neg. Mood | -0.42 | -0.53 | -0.31 |
| RES, Pos. Mood | 0.55 | 0.45 | 0.64 |
| RES, IOS | 0.41 | 0.29 | 0.52 |
| PR, Neg. Mood | -0.34 | -0.46 | -0.22 |
| PR, Pos. Mood | 0.49 | 0.38 | 0.59 |
| PR, IOS | 0.52 | 0.41 | 0.62 |
| Neg. Mood, Pos. Mood | -0.29 | -0.41 | -0.15 |
| Neg. Mood, IOS | -0.34 | -0.47 | -0.21 |
| Pos. Mood, IOS | 0.43 | 0.31 | 0.54 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self.

**Table 4**

Summary of results from Study 2, with unstandardized coefficients

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Negative Mood | Intercept | 1.71 | 0.07 | 1.57 | 1.84 | 1.60 | 1.81 | 181 |
| Negative Mood | RES | -0.37 | 0.09 | -0.55 | -0.19 | -0.52 | -0.22 | 181 |
| Negative Mood | PR | -0.15 | 0.11 | -0.36 | 0.06 | -0.33 | 0.03 | 181 |
| Positive Mood | Intercept | 5.03 | 0.08 | 4.88 | 5.19 | 4.90 | 5.16 | 181 |
| Positive Mood | RES | 0.56 | 0.11 | 0.34 | 0.79 | 0.38 | 0.75 | 181 |
| Positive Mood | PR | 0.40 | 0.14 | 0.14 | 0.67 | 0.18 | 0.63 | 181 |
| IOS | Intercept | 5.99 | 0.07 | 5.87 | 6.12 | 5.89 | 6.10 | 181 |
| IOS | RES | 0.14 | 0.09 | -0.04 | 0.33 | -0.01 | 0.30 | 181 |
| IOS | PR | 0.60 | 0.11 | 0.38 | 0.82 | 0.41 | 0.78 | 181 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 5**

Summary of differences in effects of RES and PR, Study 2

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Negative Mood | -0.22 | 0.19 | -0.59 | 0.12 | -0.53 | 0.08 |
| Positive Mood | 0.16 | 0.23 | -0.28 | 0.60 | -0.22 | 0.53 |
| IOS | -0.46 | 0.19 | -0.82 | -0.08 | -0.77 | -0.15 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 6**

Within-person reliability, between-person reliability, and reliability of change, Studies 3-5

| Variable | Reliability | Study 3 | Study 4 | Study 5 |
|---|---|---|---|---|
| Truth | Within-person | 0.87 | 0.88 | 0.89 |
| Truth | Between-person | 0.72 | 0.79 | 0.77 |
| Truth | Reliability of change | 0.88 | 0.89 | 0.18 |
| Control | Within-person | 0.87 | 0.86 | 0.88 |
| Control | Between-person | 0.69 | 0.82 | 0.80 |
| Control | Reliability of change | 0.90 | 0.87 | 0.29 |
| RES | Within-person | 0.71 | 0.65 | 0.68 |
| RES | Between-person | 0.73 | 0.83 | 0.81 |
| RES | Reliability of change | 0.76 | 0.73 | 0.74 |
| PR | Within-person | 0.84 | 0.84 | 0.85 |
| PR | Between-person | 0.84 | 0.83 | 0.81 |
| PR | Reliability of change | 0.87 | 0.87 | 0.46 |
| Sup. Eff. | Within-person | 0.59 | 0.52 | 0.50 |
| Sup. Eff. | Between-person | 0.74 | 0.78 | 0.71 |
| Sup. Eff. | Reliability of change | 0.65 | 0.54 | 0.56 |
| Neg. Mood | Within-person | 0.56 | 0.65 | 0.56 |
| Neg. Mood | Between-person | 0.79 | 0.79 | 0.77 |
| Neg. Mood | Reliability of change | 0.72 | 0.77 | 0.71 |
| Pos. Mood | Within-person | 0.75 | 0.69 | 0.71 |
| Pos. Mood | Between-person | 0.73 | 0.71 | 0.65 |
| Pos. Mood | Reliability of change | 0.82 | 0.81 | 0.81 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. Sup. Eff. = Support Effectiveness.

**Table 7A**

Within-person correlations among variables, Studies 3-5

| | Study 3 | | | Study 4 | | | Study 5 | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | Estimate | Lower | Upper | Estimate | Lower | Upper | Estimate | Lower | Upper |
| RES, PR | 0.39 | 0.32 | 0.46 | 0.53 | 0.45 | 0.60 | 0.35 | 0.24 | 0.45 |
| RES, Sup. Eff. | 0.42 | 0.35 | 0.48 | 0.46 | 0.38 | 0.54 | 0.40 | 0.29 | 0.50 |
| RES, Neg. Mood | -0.20 | -0.28 | -0.12 | -0.21 | -0.31 | -0.11 | -0.16 | -0.27 | -0.03 |
| RES, Pos. Mood | 0.22 | 0.14 | 0.30 | 0.14 | 0.04 | 0.24 | 0.03 | -0.09 | 0.15 |
| RES, Coping | 0.17 | 0.09 | 0.25 | 0.12 | 0.02 | 0.22 | 0.19 | 0.07 | 0.30 |
| RES, IOS | 0.29 | 0.21 | 0.36 | 0.33 | 0.24 | 0.42 | 0.30 | 0.18 | 0.40 |
| RES, Sleep Quality | - | - | - | 0.05 | -0.05 | 0.16 | -0.06 | -0.18 | 0.06 |
| RES, Task Motivation | - | - | - | - | - | - | 0.15 | 0.03 | 0.27 |
| RES, Task Performance | - | - | - | - | - | - | 0.15 | 0.03 | 0.27 |
| PR, Sup. Eff. | 0.36 | 0.28 | 0.43 | 0.46 | 0.37 | 0.54 | 0.32 | 0.20 | 0.42 |
| PR, Neg. Mood | -0.15 | -0.23 | -0.06 | -0.12 | -0.22 | -0.01 | -0.09 | -0.20 | 0.03 |
| PR, Pos. Mood | 0.19 | 0.11 | 0.27 | 0.11 | 0.01 | 0.20 | 0.06 | -0.06 | 0.18 |
| PR, Coping | 0.10 | 0.02 | 0.18 | 0.12 | 0.02 | 0.23 | 0.24 | 0.12 | 0.35 |
| PR, IOS | 0.42 | 0.35 | 0.49 | 0.42 | 0.33 | 0.50 | 0.33 | 0.21 | 0.43 |
| PR, Sleep Quality | - | - | - | 0.05 | -0.05 | 0.16 | 0.05 | -0.07 | 0.17 |
| PR, Task Motivation | - | - | - | - | - | - | 0.06 | -0.06 | 0.18 |
| PR, Task Performance | - | - | - | - | - | - | 0.13 | 0.01 | 0.25 |
| Sup. Eff., Neg. Mood | -0.13 | -0.21 | -0.05 | -0.11 | -0.21 | 0.00 | -0.09 | -0.21 | 0.03 |
| Sup. Eff., Pos. Mood | 0.19 | 0.11 | 0.26 | 0.05 | -0.05 | 0.15 | -0.03 | -0.16 | 0.09 |
| Sup. Eff., Coping | 0.17 | 0.08 | 0.25 | 0.14 | 0.04 | 0.24 | 0.11 | -0.01 | 0.23 |
| Sup. Eff., IOS | 0.23 | 0.14 | 0.31 | 0.36 | 0.27 | 0.45 | 0.21 | 0.09 | 0.32 |
| Sup. Eff., Sleep Quality | - | - | - | 0.02 | -0.08 | 0.13 | -0.01 | -0.13 | 0.12 |
| Sup. Eff., Task Motivation | - | - | - | - | - | - | -0.02 | -0.14 | 0.11 |
| Sup. Eff., Task Performance | - | - | - | - | - | - | -0.02 | -0.14 | 0.11 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Sup. Eff. = Support Effectiveness.

**Table 7B**

Within-person correlations among variables, Studies 3-5, continued

| | Study 3 | | | Study 4 | | | Study 5 | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | Estimate | Lower | Upper | Estimate | Lower | Upper | Estimate | Lower | Upper |
| Neg. Mood, Pos. Mood | -0.47 | -0.54 | -0.41 | -0.48 | -0.55 | -0.39 | -0.42 | -0.52 | -0.32 |
| Neg. Mood, Coping | 0.00 | -0.09 | 0.08 | 0.05 | -0.05 | 0.15 | 0.01 | -0.12 | 0.13 |
| Neg. Mood, IOS | -0.21 | -0.29 | -0.13 | -0.10 | -0.20 | 0.01 | -0.14 | -0.26 | -0.02 |
| Neg. Mood, Sleep Quality | - | - | - | -0.12 | -0.23 | -0.02 | -0.07 | -0.19 | 0.05 |
| Neg. Mood, Task Motivation | - | - | - | - | - | - | -0.16 | -0.28 | -0.04 |
| Neg. Mood, Task Performance | - | - | - | - | - | - | -0.18 | -0.29 | -0.06 |
| Pos. Mood, Coping | 0.10 | 0.02 | 0.19 | 0.04 | -0.06 | 0.15 | 0.10 | -0.03 | 0.21 |
| Pos. Mood, IOS | 0.18 | 0.09 | 0.25 | 0.15 | 0.05 | 0.25 | 0.15 | 0.03 | 0.27 |
| Pos. Mood, Sleep Quality | - | - | - | 0.11 | 0.01 | 0.21 | 0.11 | -0.01 | 0.23 |
| Pos. Mood, Task Motivation | - | - | - | - | - | - | 0.16 | 0.03 | 0.28 |
| Pos. Mood, Task Performance | - | - | - | - | - | - | 0.19 | 0.07 | 0.31 |
| Coping, IOS | 0.10 | 0.01 | 0.18 | 0.29 | 0.19 | 0.38 | 0.18 | 0.07 | 0.30 |
| Coping, Sleep Quality | - | - | - | 0.03 | -0.07 | 0.14 | 0.08 | -0.05 | 0.20 |
| Coping, Task Motivation | - | - | - | - | - | - | -0.04 | -0.16 | 0.08 |
| Coping, Task Performance | - | - | - | - | - | - | 0.15 | 0.03 | 0.26 |
| IOS, Sleep Quality | - | - | - | 0.12 | 0.02 | 0.22 | -0.03 | -0.16 | 0.09 |
| IOS, Task Motivation | - | - | - | - | - | - | 0.02 | -0.10 | 0.14 |
| IOS, Task Performance | - | - | - | - | - | - | 0.08 | -0.04 | 0.21 |
| Sleep Quality, Task Motivation | - | - | - | - | - | - | -0.03 | -0.15 | 0.10 |
| Sleep Quality, Task Performance | - | - | - | - | - | - | 0.02 | -0.10 | 0.14 |
| Task Motivation, Task Performance | - | - | - | - | - | - | 0.34 | 0.23 | 0.44 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Sup. Eff. = Support Effectiveness.

**Table 8A**

Between-person correlations among variables, Studies 3-5

| | Study 3 | | | Study 4 | | | Study 5 | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | Estimate | Lower | Upper | Estimate | Lower | Upper | Estimate | Lower | Upper |
| RES, PR | 0.64 | 0.55 | 0.73 | 0.66 | 0.56 | 0.74 | 0.54 | 0.43 | 0.63 |
| RES, Sup. Eff. | 0.48 | 0.36 | 0.58 | 0.63 | 0.53 | 0.73 | 0.48 | 0.36 | 0.59 |
| RES, Neg. Mood | -0.15 | -0.29 | -0.01 | -0.31 | -0.45 | -0.15 | -0.15 | -0.28 | -0.01 |
| RES, Pos. Mood | 0.26 | 0.13 | 0.39 | 0.38 | 0.25 | 0.51 | 0.36 | 0.23 | 0.48 |
| RES, Coping | 0.17 | 0.02 | 0.31 | 0.21 | 0.06 | 0.37 | 0.05 | -0.09 | 0.19 |
| RES, IOS | 0.31 | 0.17 | 0.43 | 0.51 | 0.38 | 0.62 | 0.28 | 0.14 | 0.41 |
| RES, Sleep Quality | - | - | - | 0.19 | 0.03 | 0.34 | 0.10 | -0.04 | 0.24 |
| RES, Task Motivation | - | - | - | - | - | - | 0.20 | 0.05 | 0.33 |
| RES, Task Performance | - | - | - | - | - | - | 0.20 | 0.06 | 0.33 |
| PR, Sup. Eff. | 0.52 | 0.40 | 0.61 | 0.61 | 0.50 | 0.70 | 0.50 | 0.39 | 0.61 |
| PR, Neg. Mood | -0.13 | -0.27 | 0.01 | -0.22 | -0.36 | -0.06 | -0.18 | -0.31 | -0.04 |
| PR, Pos. Mood | 0.10 | -0.04 | 0.24 | 0.17 | 0.02 | 0.32 | 0.21 | 0.07 | 0.34 |
| PR, Coping | 0.20 | 0.07 | 0.34 | 0.21 | 0.05 | 0.36 | 0.03 | -0.12 | 0.17 |
| PR, IOS | 0.50 | 0.38 | 0.61 | 0.59 | 0.48 | 0.69 | 0.48 | 0.36 | 0.59 |
| PR, Sleep Quality | - | - | - | 0.10 | -0.06 | 0.25 | 0.24 | 0.10 | 0.37 |
| PR, Task Motivation | - | - | - | - | - | - | 0.09 | -0.06 | 0.23 |
| PR, Task Performance | - | - | - | - | - | - | 0.14 | 0.00 | 0.27 |
| Sup. Eff., Neg. Mood | -0.13 | -0.28 | 0.01 | -0.19 | -0.34 | -0.03 | -0.21 | -0.34 | -0.07 |
| Sup. Eff., Pos. Mood | 0.11 | -0.04 | 0.25 | 0.24 | 0.09 | 0.39 | 0.21 | 0.07 | 0.34 |
| Sup. Eff., Coping | 0.15 | 0.00 | 0.29 | 0.18 | 0.02 | 0.33 | 0.02 | -0.12 | 0.16 |
| Sup. Eff., IOS | 0.29 | 0.15 | 0.43 | 0.52 | 0.39 | 0.62 | 0.24 | 0.09 | 0.38 |
| Sup. Eff., Sleep Quality | - | - | - | 0.16 | 0.00 | 0.31 | 0.14 | 0.00 | 0.27 |
| Sup. Eff., Task Motivation | - | - | - | - | - | - | 0.16 | 0.02 | 0.30 |
| Sup. Eff., Task Performance | - | - | - | - | - | - | 0.20 | 0.06 | 0.34 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Sup. Eff. = Support Effectiveness.

**Table 8B**

Between-person correlations among variables, Studies 3-5, continued

| | Study 3 | | | Study 4 | | | Study 5 | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | Estimate | Lower | Upper | Estimate | Lower | Upper | Estimate | Lower | Upper |
| Neg. Mood, Pos. Mood | -0.30 | -0.43 | -0.16 | -0.41 | -0.54 | -0.27 | -0.16 | -0.30 | -0.02 |
| Neg. Mood, Coping | -0.06 | -0.21 | 0.08 | 0.04 | -0.12 | 0.21 | 0.10 | -0.06 | 0.24 |
| Neg. Mood, IOS | -0.16 | -0.30 | -0.01 | -0.22 | -0.36 | -0.06 | -0.14 | -0.28 | 0.00 |
| Neg. Mood, Sleep Quality | - | - | - | -0.15 | -0.31 | 0.01 | -0.33 | -0.46 | -0.20 |
| Neg. Mood, Task Motivation | - | - | - | - | - | - | -0.02 | -0.17 | 0.13 |
| Neg. Mood, Task Performance | - | - | - | - | - | - | -0.09 | -0.24 | 0.06 |
| Pos. Mood, Coping | 0.13 | -0.01 | 0.28 | -0.10 | -0.26 | 0.07 | 0.10 | -0.04 | 0.25 |
| Pos. Mood, IOS | 0.20 | 0.06 | 0.34 | 0.28 | 0.13 | 0.42 | 0.15 | 0.00 | 0.29 |
| Pos. Mood, Sleep Quality | - | - | - | 0.28 | 0.12 | 0.42 | 0.30 | 0.16 | 0.43 |
| Pos. Mood, Task Motivation | - | - | - | - | - | - | 0.08 | -0.07 | 0.21 |
| Pos. Mood, Task Performance | - | - | - | - | - | - | 0.11 | -0.04 | 0.25 |
| Coping, IOS | 0.11 | -0.03 | 0.25 | 0.15 | -0.01 | 0.31 | -0.05 | -0.19 | 0.09 |
| Coping, Sleep Quality | - | - | - | -0.03 | -0.19 | 0.14 | 0.04 | -0.11 | 0.17 |
| Coping, Task Motivation | - | - | - | - | - | - | 0.04 | -0.11 | 0.19 |
| Coping, Task Performance | - | - | - | - | - | - | -0.11 | -0.25 | 0.04 |
| IOS, Sleep Quality | - | - | - | 0.23 | 0.07 | 0.37 | 0.07 | -0.07 | 0.22 |
| IOS, Task Motivation | - | - | - | - | - | - | 0.01 | -0.14 | 0.16 |
| IOS, Task Performance | - | - | - | - | - | - | 0.06 | -0.09 | 0.20 |
| Sleep Quality, Task Motivation | - | - | - | - | - | - | 0.13 | -0.01 | 0.26 |
| Sleep Quality, Task Performance | - | - | - | - | - | - | 0.11 | -0.04 | 0.25 |
| Task Motivation, Task Performance | - | - | - | - | - | - | 0.49 | 0.37 | 0.59 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Sup. Eff. = Support Effectiveness.

**Table 9**

Summary of results from Study 3, with unstandardized coefficients

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.31 | 0.06 | 4.19 | 4.43 | 4.22 | 4.41 | 222 | 710 |
| Support Effectiveness | RES-within | 0.45 | 0.05 | 0.35 | 0.55 | 0.37 | 0.53 | 222 | 710 |
| Support Effectiveness | PR-within | 0.28 | 0.06 | 0.16 | 0.39 | 0.18 | 0.38 | 222 | 710 |
| Support Effectiveness | RES-between | 0.48 | 0.07 | 0.34 | 0.61 | 0.36 | 0.59 | 222 | 710 |
| Support Effectiveness | PR-between | 0.35 | 0.06 | 0.23 | 0.47 | 0.25 | 0.45 | 222 | 710 |
| Support Effectiveness | Day | -0.04 | 0.03 | -0.11 | 0.03 | -0.10 | 0.01 | 222 | 710 |
| Negative Mood | Intercept | 2.96 | 0.08 | 2.81 | 3.11 | 2.83 | 3.08 | 222 | 717 |
| Negative Mood | RES-within | -0.23 | 0.05 | -0.33 | -0.14 | -0.31 | -0.15 | 222 | 717 |
| Negative Mood | PR-within | -0.02 | 0.05 | -0.13 | 0.09 | -0.11 | 0.07 | 222 | 717 |
| Negative Mood | RES-between | -0.16 | 0.09 | -0.34 | 0.01 | -0.31 | -0.01 | 222 | 717 |
| Negative Mood | PR-between | -0.07 | 0.08 | -0.23 | 0.08 | -0.20 | 0.05 | 222 | 717 |
| Negative Mood | Day | -0.14 | 0.03 | -0.20 | -0.09 | -0.19 | -0.09 | 222 | 717 |
| Positive Mood | Intercept | 3.68 | 0.07 | 3.55 | 3.81 | 3.57 | 3.79 | 222 | 717 |
| Positive Mood | RES-within | 0.17 | 0.05 | 0.08 | 0.27 | 0.09 | 0.26 | 222 | 717 |
| Positive Mood | PR-within | 0.12 | 0.06 | 0.003 | 0.23 | 0.02 | 0.21 | 222 | 717 |
| Positive Mood | RES-between | 0.32 | 0.08 | 0.15 | 0.48 | 0.18 | 0.45 | 222 | 717 |
| Positive Mood | PR-between | -0.09 | 0.07 | -0.23 | 0.05 | -0.21 | 0.03 | 222 | 717 |
| Positive Mood | Day | 0.01 | 0.03 | -0.05 | 0.08 | -0.04 | 0.07 | 222 | 717 |
| Coping | Intercept | 4.43 | 0.05 | 4.32 | 4.53 | 4.34 | 4.51 | 222 | 717 |
| Coping | RES-within | 0.11 | 0.04 | 0.04 | 0.18 | 0.05 | 0.17 | 222 | 717 |
| Coping | PR-within | 0.04 | 0.04 | -0.03 | 0.11 | -0.02 | 0.10 | 222 | 717 |
| Coping | RES-between | 0.07 | 0.07 | -0.06 | 0.20 | -0.03 | 0.18 | 222 | 717 |
| Coping | PR-between | 0.06 | 0.06 | -0.05 | 0.17 | -0.03 | 0.15 | 222 | 717 |
| Coping | Day | -0.12 | 0.02 | -0.17 | -0.08 | -0.16 | -0.08 | 222 | 717 |
| IOS | Intercept | 4.26 | 0.09 | 4.09 | 4.43 | 4.11 | 4.40 | 222 | 717 |
| IOS | RES-within | 0.11 | 0.04 | 0.03 | 0.20 | 0.04 | 0.19 | 222 | 717 |
| IOS | PR-within | 0.46 | 0.05 | 0.36 | 0.54 | 0.38 | 0.53 | 222 | 717 |
| IOS | RES-between | 0.10 | 0.10 | -0.10 | 0.31 | -0.06 | 0.27 | 222 | 717 |
| IOS | PR-between | 0.62 | 0.09 | 0.45 | 0.80 | 0.48 | 0.77 | 222 | 717 |
| IOS | Day | 0.02 | 0.03 | -0.03 | 0.07 | -0.02 | 0.07 | 222 | 717 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects in analysis. N_Obs = Number of observations used in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 10**

Summary of differences in within-person effects of RES and PR, Study 3

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.17 | 0.09 | -0.02 | 0.35 | 0.02 | 0.32 |
| Negative Mood | -0.21 | 0.09 | -0.38 | -0.04 | -0.36 | -0.07 |
| Positive Mood | 0.05 | 0.09 | -0.12 | 0.23 | -0.10 | 0.21 |
| Coping | 0.07 | 0.06 | -0.05 | 0.19 | -0.03 | 0.18 |
| IOS | -0.34 | 0.08 | -0.49 | -0.19 | -0.46 | -0.22 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 11**

Summary of differences in between-person effects of RES and PR, Study 3

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.13 | 0.12 | -0.10 | 0.36 | -0.07 | 0.32 |
| Negative Mood | -0.09 | 0.15 | -0.39 | 0.22 | -0.34 | 0.17 |
| Positive Mood | 0.41 | 0.15 | 0.12 | 0.69 | 0.17 | 0.64 |
| Coping | 0.01 | 0.11 | -0.21 | 0.22 | -0.17 | 0.19 |
| IOS | -0.52 | 0.17 | -0.86 | -0.18 | -0.81 | -0.25 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 12A**

Summary of random effects, Study 3

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.36 | 0.17 | 0.02 | 0.63 | 0.05 | 0.60 |
| Support Effectiveness | RES SD | 0.15 | 0.10 | 0.01 | 0.35 | 0.02 | 0.33 |
| Support Effectiveness | PR SD | 0.17 | 0.10 | 0.01 | 0.38 | 0.02 | 0.35 |
| Support Effectiveness | Intercept-RES Cor | -0.07 | 0.44 | -0.85 | 0.79 | -0.77 | 0.68 |
| Support Effectiveness | Intercept-PR Cor | -0.20 | 0.44 | -0.90 | 0.76 | -0.83 | 0.63 |
| Support Effectiveness | RES-PR Cor | -0.13 | 0.47 | -0.87 | 0.83 | -0.81 | 0.73 |
| Support Effectiveness | Residual | 1.17 | 0.05 | 1.08 | 1.26 | 1.10 | 1.25 |
| Support Effectiveness | AR(1) | 0.21 | 0.08 | 0.04 | 0.36 | 0.07 | 0.34 |
| Negative Mood | Intercept SD | 0.90 | 0.07 | 0.75 | 1.04 | 0.77 | 1.02 |
| Negative Mood | RES SD | 0.18 | 0.07 | 0.03 | 0.32 | 0.05 | 0.30 |
| Negative Mood | PR SD | 0.19 | 0.10 | 0.01 | 0.40 | 0.03 | 0.36 |
| Negative Mood | Intercept-RES Cor | -0.52 | 0.26 | -0.93 | 0.07 | -0.89 | -0.06 |
| Negative Mood | Intercept-PR Cor | 0.29 | 0.33 | -0.42 | 0.87 | -0.29 | 0.81 |
| Negative Mood | RES-PR Cor | -0.28 | 0.42 | -0.91 | 0.65 | -0.87 | 0.52 |
| Negative Mood | Residual | 1.03 | 0.04 | 0.95 | 1.12 | 0.96 | 1.10 |
| Negative Mood | AR(1) | 0.13 | 0.08 | -0.01 | 0.28 | 0.01 | 0.26 |
| Positive Mood | Intercept SD | 0.64 | 0.16 | 0.19 | 0.86 | 0.32 | 0.83 |
| Positive Mood | RES SD | 0.10 | 0.07 | 0.004 | 0.26 | 0.008 | 0.24 |
| Positive Mood | PR SD | 0.16 | 0.10 | 0.009 | 0.36 | 0.02 | 0.33 |
| Positive Mood | Intercept-RES Cor | -0.23 | 0.43 | -0.91 | 0.74 | -0.85 | 0.58 |
| Positive Mood | Intercept-PR Cor | -0.13 | 0.41 | -0.86 | 0.75 | -0.77 | 0.61 |
| Positive Mood | RES-PR Cor | -0.04 | 0.49 | -0.88 | 0.85 | -0.80 | 0.77 |
| Positive Mood | Residual | 1.18 | 0.06 | 1.07 | 1.30 | 1.09 | 1.28 |
| Positive Mood | AR(1) | 0.19 | 0.10 | 0.000 | 0.40 | 0.03 | 0.37 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of the other in the self. SD = standard deviation. Cor = correlation.

**Table 12B**

Summary of random effects, Study 3, continued

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Coping | Intercept SD | 0.50 | 0.16 | 0.09 | 0.72 | 0.16 | 0.69 |
| Coping | RES SD | 0.12 | 0.06 | 0.007 | 0.23 | 0.01 | 0.21 |
| Coping | PR SD | 0.07 | 0.05 | 0.003 | 0.18 | 0.006 | 0.16 |
| Coping | Intercept-RES Cor | -0.09 | 0.37 | -0.77 | 0.68 | -0.68 | 0.54 |
| Coping | Intercept-PR Cor | 0.04 | 0.45 | -0.82 | 0.84 | -0.72 | 0.76 |
| Coping | RES-PR Cor | -0.03 | 0.50 | -0.90 | 0.87 | -0.82 | 0.78 |
| Coping | Residual | 0.83 | 0.05 | 0.75 | 0.92 | 0.76 | 0.91 |
| Coping | AR(1) | 0.37 | 0.14 | 0.09 | 0.61 | 0.13 | 0.58 |
| IOS | Intercept SD | 1.15 | 0.07 | 1.02 | 1.30 | 1.04 | 1.27 |
| IOS | RES SD | 0.18 | 0.07 | 0.03 | 0.31 | 0.04 | 0.29 |
| IOS | PR SD | 0.14 | 0.08 | 0.007 | 0.29 | 0.02 | 0.27 |
| IOS | Intercept-RES Cor | -0.10 | 0.27 | -0.66 | 0.46 | -0.54 | 0.34 |
| IOS | Intercept-PR Cor | -0.07 | 0.34 | -0.74 | 0.65 | -0.63 | 0.53 |
| IOS | RES-PR Cor | 0.27 | 0.45 | -0.71 | 0.93 | -0.57 | 0.88 |
| IOS | Residual | 0.89 | 0.04 | 0.82 | 0.97 | 0.83 | 0.95 |
| IOS | AR(1) | 0.07 | 0.08 | -0.08 | 0.22 | -0.05 | 0.19 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of the other in the self. SD = standard deviation. Cor = correlation.

**Table 13A**

Summary of results from Study 4, with unstandardized coefficients

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.31 | 0.07 | 4.17 | 4.44 | 4.19 | 4.41 | 176 | 533 |
| Support Effectiveness | RES-within | 0.45 | 0.08 | 0.30 | 0.60 | 0.33 | 0.58 | 176 | 533 |
| Support Effectiveness | PR-within | 0.34 | 0.08 | 0.19 | 0.49 | 0.21 | 0.47 | 176 | 533 |
| Support Effectiveness | RES-between | 0.44 | 0.07 | 0.30 | 0.58 | 0.32 | 0.56 | 176 | 533 |
| Support Effectiveness | PR-between | 0.41 | 0.07 | 0.26 | 0.55 | 0.28 | 0.53 | 176 | 533 |
| Support Effectiveness | Day | 0.007 | 0.04 | -0.06 | 0.08 | -0.05 | 0.07 | 176 | 533 |
| Negative Mood | Intercept | 3.04 | 0.09 | 2.88 | 3.22 | 2.90 | 3.19 | 176 | 540 |
| Negative Mood | RES-within | -0.12 | 0.07 | -0.25 | 0.01 | -0.23 | -0.008 | 176 | 540 |
| Negative Mood | PR-within | -0.16 | 0.07 | -0.30 | -0.03 | -0.28 | -0.05 | 176 | 540 |
| Negative Mood | RES-between | -0.31 | 0.10 | -0.50 | -0.12 | -0.47 | -0.15 | 176 | 540 |
| Negative Mood | PR-between | -0.03 | 0.10 | -0.22 | 0.16 | -0.19 | 0.13 | 176 | 540 |
| Negative Mood | Day | -0.14 | 0.03 | -0.21 | -0.08 | -0.20 | -0.09 | 176 | 540 |
| Positive Mood | Intercept | 3.79 | 0.07 | 3.65 | 3.94 | 3.67 | 3.92 | 176 | 540 |
| Positive Mood | RES-within | 0.06 | 0.07 | -0.08 | 0.20 | -0.05 | 0.18 | 176 | 540 |
| Positive Mood | PR-within | 0.19 | 0.07 | 0.05 | 0.34 | 0.07 | 0.31 | 176 | 540 |
| Positive Mood | RES-between | 0.41 | 0.08 | 0.25 | 0.56 | 0.28 | 0.54 | 176 | 540 |
| Positive Mood | PR-between | -0.06 | 0.08 | -0.23 | 0.10 | -0.20 | 0.07 | 176 | 540 |
| Positive Mood | Day | 0.05 | 0.03 | -0.02 | 0.11 | -0.009 | 0.10 | 176 | 540 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects in analysis. N_Obs = Number of observations used in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 13B**

Summary of results from Study 4, with unstandardized coefficients, continued

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Coping | Intercept | 4.39 | 0.07 | 4.25 | 4.53 | 4.28 | 4.50 | 176 | 541 |
| Coping | RES-within | 0.15 | 0.05 | 0.05 | 0.24 | 0.07 | 0.23 | 176 | 541 |
| Coping | PR-within | 0.05 | 0.05 | -0.06 | 0.15 | -0.04 | 0.13 | 176 | 541 |
| Coping | RES-between | 0.11 | 0.07 | -0.02 | 0.25 | 0.000 | 0.23 | 176 | 541 |
| Coping | PR-between | 0.07 | 0.07 | -0.07 | 0.20 | -0.05 | 0.18 | 176 | 541 |
| Coping | Day | -0.17 | 0.03 | -0.22 | -0.12 | -0.21 | -0.13 | 176 | 541 |
| IOS | Intercept | 4.14 | 0.09 | 3.97 | 4.32 | 3.99 | 4.29 | 176 | 541 |
| IOS | RES-within | 0.14 | 0.06 | 0.03 | 0.26 | 0.05 | 0.24 | 176 | 541 |
| IOS | PR-within | 0.31 | 0.06 | 0.20 | 0.43 | 0.21 | 0.41 | 176 | 541 |
| IOS | RES-between | 0.25 | 0.10 | 0.05 | 0.44 | 0.09 | 0.41 | 176 | 541 |
| IOS | PR-between | 0.70 | 0.10 | 0.51 | 0.89 | 0.54 | 0.86 | 176 | 541 |
| IOS | Day | -0.04 | 0.03 | -0.10 | 0.02 | -0.09 | 0.01 | 176 | 541 |
| Sleep Quality | Intercept | 4.97 | 0.11 | 4.76 | 5.19 | 4.79 | 5.16 | 129 | 276 |
| Sleep Quality | RES-within (lagged) | 0.11 | 0.10 | -0.09 | 0.31 | -0.06 | 0.28 | 129 | 276 |
| Sleep Quality | PR-within (lagged) | -0.07 | 0.11 | -0.29 | 0.14 | -0.25 | 0.10 | 129 | 276 |
| Sleep Quality | RES-between | 0.24 | 0.12 | 0.01 | 0.47 | 0.05 | 0.43 | 129 | 276 |
| Sleep Quality | PR-between | -0.04 | 0.12 | -0.28 | 0.20 | -0.24 | 0.16 | 129 | 276 |
| Sleep Quality | Day | 0.005 | 0.06 | -0.12 | 0.13 | -0.10 | 0.11 | 129 | 276 |
| Sleep Quality | Sleep Duration | 0.25 | 0.06 | 0.13 | 0.36 | 0.15 | 0.34 | 129 | 276 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects in analysis. N_Obs = Number of observations used in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 14**

Summary of differences in within-person effects of RES and PR, Study 4

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.11 | 0.14 | -0.16 | 0.39 | -0.11 | 0.34 |
| Negative Mood | 0.05 | 0.12 | -0.19 | 0.28 | -0.15 | 0.24 |
| Positive Mood | -0.13 | 0.13 | -0.38 | 0.13 | -0.34 | 0.09 |
| Coping | 0.10 | 0.09 | -0.07 | 0.27 | -0.04 | 0.24 |
| IOS | -0.17 | 0.11 | -0.38 | 0.04 | -0.34 | 0.01 |
| Sleep Quality | 0.18 | 0.19 | -0.18 | 0.55 | -0.12 | 0.49 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 15**

Summary of differences in between-person effects of RES and PR, Study 4

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.03 | 0.13 | -0.23 | 0.30 | -0.19 | 0.25 |
| Negative Mood | -0.28 | 0.18 | -0.63 | 0.08 | -0.57 | 0.02 |
| Positive Mood | 0.47 | 0.15 | 0.18 | 0.77 | 0.23 | 0.72 |
| Coping | 0.05 | 0.13 | -0.20 | 0.30 | -0.16 | 0.26 |
| IOS | -0.45 | 0.18 | -0.81 | -0.10 | -0.74 | -0.16 |
| Sleep Quality | 0.28 | 0.22 | -0.15 | 0.71 | -0.08 | 0.64 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 16A**

Summary of random effects, Study 4

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.54 | 0.13 | 0.23 | 0.75 | 0.30 | 0.72 |
| Support Effectiveness | RES SD | 0.27 | 0.12 | 0.03 | 0.49 | 0.06 | 0.45 |
| Support Effectiveness | PR SD | 0.16 | 0.11 | 0.006 | 0.41 | 0.01 | 0.36 |
| Support Effectiveness | Intercept-RES Cor | -0.51 | 0.31 | -0.94 | 0.28 | -0.91 | 0.09 |
| Support Effectiveness | Intercept-PR Cor | 0.07 | 0.45 | -0.80 | 0.87 | -0.69 | 0.79 |
| Support Effectiveness | RES-PR Cor | -0.26 | 0.47 | -0.92 | 0.75 | -0.87 | 0.62 |
| Support Effectiveness | Residual | 1.10 | 0.06 | 1.00 | 1.22 | 1.01 | 1.20 |
| Support Effectiveness | AR(1) | 0.04 | 0.10 | -0.15 | 0.24 | -0.13 | 0.21 |
| Negative Mood | Intercept SD | 0.99 | 0.08 | 0.82 | 1.15 | 0.85 | 1.12 |
| Negative Mood | RES SD | 0.18 | 0.08 | 0.03 | 0.34 | 0.05 | 0.31 |
| Negative Mood | PR SD | 0.13 | 0.09 | 0.005 | 0.34 | 0.01 | 0.30 |
| Negative Mood | Intercept-RES Cor | -0.64 | 0.28 | -0.97 | 0.06 | -0.95 | -0.14 |
| Negative Mood | Intercept-PR Cor | 0.02 | 0.43 | -0.81 | 0.83 | -0.69 | 0.73 |
| Negative Mood | RES-PR Cor | -0.15 | 0.48 | -0.89 | 0.81 | -0.83 | 0.72 |
| Negative Mood | Residual | 1.01 | 0.05 | 0.92 | 1.11 | 0.93 | 1.09 |
| Negative Mood | AR(1) | -0.04 | 0.09 | -0.21 | 0.15 | -0.18 | 0.11 |
| Positive Mood | Intercept SD | 0.78 | 0.07 | 0.64 | 0.92 | 0.66 | 0.89 |
| Positive Mood | RES SD | 0.10 | 0.07 | 0.005 | 0.27 | 0.009 | 0.25 |
| Positive Mood | PR SD | 0.14 | 0.09 | 0.006 | 0.35 | 0.01 | 0.32 |
| Positive Mood | Intercept-RES Cor | -0.07 | 0.44 | -0.84 | 0.79 | -0.77 | 0.68 |
| Positive Mood | Intercept-PR Cor | 0.22 | 0.39 | -0.62 | 0.88 | -0.49 | 0.80 |
| Positive Mood | RES-PR Cor | -0.13 | 0.51 | -0.91 | 0.85 | -0.87 | 0.76 |
| Positive Mood | Residual | 1.09 | 0.05 | 1.00 | 1.18 | 1.01 | 1.17 |
| Positive Mood | AR(1) | -0.25 | 0.08 | -0.40 | -0.09 | -0.38 | -0.12 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of the other in the self. SD = standard deviation. Cor = correlation.

**Table 16B**

Summary of random effects, Study 4, continued

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Coping | Intercept SD | 0.76 | 0.07 | 0.63 | 0.89 | 0.65 | 0.87 |
| Coping | RES SD | 0.13 | 0.08 | 0.007 | 0.30 | 0.01 | 0.28 |
| Coping | PR SD | 0.15 | 0.08 | 0.008 | 0.30 | 0.02 | 0.28 |
| Coping | Intercept-RES Cor | -0.18 | 0.36 | -0.83 | 0.61 | -0.75 | 0.47 |
| Coping | Intercept-PR Cor | -0.29 | 0.34 | -0.86 | 0.51 | -0.78 | 0.34 |
| Coping | RES-PR Cor | 0.13 | 0.47 | -0.77 | 0.90 | -0.66 | 0.84 |
| Coping | Residual | 0.74 | 0.04 | 0.67 | 0.82 | 0.68 | 0.80 |
| Coping | AR(1) | 0.06 | 0.10 | -0.12 | 0.28 | -0.10 | 0.23 |
| IOS | Intercept SD | 1.08 | 0.08 | 0.93 | 1.24 | 0.95 | 1.21 |
| IOS | RES SD | 0.24 | 0.09 | 0.03 | 0.40 | 0.07 | 0.38 |
| IOS | PR SD | 0.11 | 0.08 | 0.004 | 0.29 | 0.009 | 0.25 |
| IOS | Intercept-RES Cor | 0.07 | 0.26 | -0.48 | 0.58 | -0.35 | 0.48 |
| IOS | Intercept-PR Cor | 0.14 | 0.41 | -0.73 | 0.86 | -0.60 | 0.77 |
| IOS | RES-PR Cor | 0.05 | 0.48 | -0.85 | 0.88 | -0.75 | 0.82 |
| IOS | Residual | 0.85 | 0.04 | 0.77 | 0.94 | 0.78 | 0.92 |
| IOS | AR(1) | 0.07 | 0.10 | -0.11 | 0.28 | -0.08 | 0.24 |
| Sleep Quality | Intercept SD | 0.96 | 0.11 | 0.74 | 1.17 | 0.79 | 1.14 |
| Sleep Quality | RES SD | 0.15 | 0.11 | 0.006 | 0.39 | 0.01 | 0.34 |
| Sleep Quality | PR SD | 0.17 | 0.12 | 0.006 | 0.44 | 0.01 | 0.39 |
| Sleep Quality | Intercept-RES Cor | 0.08 | 0.44 | -0.80 | 0.85 | -0.68 | 0.78 |
| Sleep Quality | Intercept-PR Cor | 0.37 | 0.41 | -0.63 | 0.93 | -0.47 | 0.89 |
| Sleep Quality | RES-PR Cor | -0.11 | 0.49 | -0.90 | 0.84 | -0.84 | 0.76 |
| Sleep Quality | Residual | 1.02 | 0.08 | 0.88 | 1.20 | 0.90 | 1.16 |
| Sleep Quality | AR(1) | -0.20 | 0.15 | -0.46 | 0.10 | -0.43 | 0.05 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of the other in the self. SD = standard deviation. Cor = correlation.

**Table 17A**

Summary of results from Study 5, with unstandardized coefficients

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.55 | 0.06 | 4.43 | 4.67 | 4.45 | 4.65 | 228 | 616 |
| Support Effectiveness | RES-within | 0.39 | 0.07 | 0.26 | 0.52 | 0.28 | 0.50 | 228 | 616 |
| Support Effectiveness | PR-within | 0.38 | 0.07 | 0.24 | 0.52 | 0.26 | 0.50 | 228 | 616 |
| Support Effectiveness | RES-between | 0.38 | 0.05 | 0.27 | 0.48 | 0.29 | 0.47 | 228 | 616 |
| Support Effectiveness | PR-between | 0.47 | 0.06 | 0.35 | 0.59 | 0.37 | 0.57 | 228 | 616 |
| Support Effectiveness | Day | 0.02 | 0.03 | -0.05 | 0.09 | -0.04 | 0.08 | 228 | 616 |
| Negative Mood | Intercept | 2.96 | 0.08 | 2.81 | 3.11 | 2.83 | 3.09 | 227 | 623 |
| Negative Mood | RES-within | -0.14 | 0.06 | -0.25 | -0.03 | -0.23 | -0.05 | 227 | 623 |
| Negative Mood | PR-within | -0.03 | 0.06 | -0.15 | 0.09 | -0.13 | 0.07 | 227 | 623 |
| Negative Mood | RES-between | -0.10 | 0.07 | -0.23 | 0.04 | -0.21 | 0.01 | 227 | 623 |
| Negative Mood | PR-between | -0.09 | 0.07 | -0.23 | 0.05 | -0.21 | 0.04 | 227 | 623 |
| Negative Mood | Day | -0.20 | 0.03 | -0.27 | -0.14 | -0.25 | -0.15 | 227 | 623 |
| Positive Mood | Intercept | 3.79 | 0.07 | 3.66 | 3.93 | 3.68 | 3.91 | 228 | 626 |
| Positive Mood | RES-within | 0.11 | 0.06 | -0.02 | 0.24 | 0.001 | 0.22 | 228 | 626 |
| Positive Mood | PR-within | 0.03 | 0.07 | -0.11 | 0.17 | -0.09 | 0.15 | 228 | 626 |
| Positive Mood | RES-between | 0.25 | 0.06 | 0.12 | 0.37 | 0.15 | 0.35 | 228 | 626 |
| Positive Mood | PR-between | 0.08 | 0.07 | -0.06 | 0.22 | -0.04 | 0.19 | 228 | 626 |
| Positive Mood | Day | 0.05 | 0.04 | -0.02 | 0.12 | -0.01 | 0.11 | 228 | 626 |
| Coping | Intercept | 4.46 | 0.07 | 4.33 | 4.60 | 4.36 | 4.58 | 228 | 630 |
| Coping | RES-within | 0.06 | 0.04 | -0.01 | 0.14 | 0.000 | 0.13 | 228 | 630 |
| Coping | PR-within | 0.11 | 0.04 | 0.03 | 0.19 | 0.04 | 0.18 | 228 | 630 |
| Coping | RES-between | 0.14 | 0.06 | 0.01 | 0.26 | 0.03 | 0.24 | 228 | 630 |
| Coping | PR-between | -0.002 | 0.07 | -0.13 | 0.13 | -0.11 | 0.11 | 228 | 630 |
| Coping | Day | -0.11 | 0.02 | -0.16 | -0.07 | -0.15 | -0.07 | 228 | 630 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects in analysis. N_Obs = Number of observations used in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 17B**

Summary of results from Study 5, with unstandardized coefficients, continued

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| IOS | Intercept | 4.32 | 0.09 | 4.14 | 4.50 | 4.17 | 4.47 | 228 | 630 |
| IOS | RES-within | 0.13 | 0.05 | 0.03 | 0.22 | 0.05 | 0.21 | 228 | 630 |
| IOS | PR-within | 0.37 | 0.07 | 0.24 | 0.49 | 0.26 | 0.48 | 228 | 630 |
| IOS | RES-between | 0.07 | 0.08 | -0.09 | 0.22 | -0.06 | 0.20 | 228 | 630 |
| IOS | PR-between | 0.73 | 0.09 | 0.56 | 0.91 | 0.59 | 0.88 | 228 | 630 |
| IOS | Day | 0.03 | 0.03 | -0.03 | 0.08 | -0.02 | 0.07 | 228 | 630 |
| Sleep Quality | Intercept | 4.88 | 0.12 | 4.64 | 5.11 | 4.68 | 5.07 | 142 | 299 |
| Sleep Quality | RES-within (lagged) | 0.04 | 0.08 | -0.11 | 0.20 | -0.09 | 0.17 | 142 | 299 |
| Sleep Quality | PR-within (lagged) | 0.08 | 0.09 | -0.10 | 0.26 | -0.06 | 0.23 | 142 | 299 |
| Sleep Quality | RES-between | 0.10 | 0.11 | -0.12 | 0.31 | -0.08 | 0.28 | 142 | 299 |
| Sleep Quality | PR-between | 0.14 | 0.12 | -0.09 | 0.37 | -0.05 | 0.34 | 142 | 299 |
| Sleep Quality | Day | -0.02 | 0.06 | -0.13 | 0.09 | -0.11 | 0.07 | 142 | 299 |
| Sleep Quality | Sleep Duration | 0.32 | 0.05 | 0.21 | 0.42 | 0.23 | 0.40 | 142 | 299 |
| Task Motivation | Intercept | 5.46 | 0.10 | 5.26 | 5.65 | 5.29 | 5.63 | 228 | 594 |
| Task Motivation | RES-within | 0.11 | 0.05 | 0.009 | 0.22 | 0.03 | 0.20 | 228 | 594 |
| Task Motivation | PR-within | 0.02 | 0.06 | -0.10 | 0.14 | -0.07 | 0.11 | 228 | 594 |
| Task Motivation | RES-between | 0.20 | 0.09 | 0.03 | 0.37 | 0.06 | 0.34 | 228 | 594 |
| Task Motivation | PR-between | -0.01 | 0.09 | -0.19 | 0.18 | -0.17 | 0.14 | 228 | 594 |
| Task Motivation | Day | -0.05 | 0.03 | -0.12 | 0.02 | -0.11 | 0.009 | 228 | 594 |
| Task Performance | Intercept | 5.06 | 0.08 | 4.90 | 5.22 | 4.93 | 5.19 | 228 | 594 |
| Task Performance | RES-within | 0.04 | 0.04 | -0.05 | 0.13 | -0.04 | 0.11 | 228 | 594 |
| Task Performance | PR-within | 0.001 | 0.05 | -0.10 | 0.10 | -0.08 | 0.08 | 228 | 594 |
| Task Performance | RES-between | 0.21 | 0.07 | 0.07 | 0.34 | 0.10 | 0.32 | 228 | 594 |
| Task Performance | PR-between | -0.001 | 0.08 | -0.15 | 0.15 | -0.12 | 0.13 | 228 | 594 |
| Task Performance | Day | -0.04 | 0.03 | -0.10 | 0.01 | -0.09 | 0.004 | 228 | 594 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects in analysis. N_Obs = Number of observations used in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 18**

Summary of differences in within-person effects of RES and PR, Study 5

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.01 | 0.12 | -0.22 | 0.24 | -0.18 | 0.21 |
| Negative Mood | -0.11 | 0.10 | -0.30 | 0.09 | -0.27 | 0.06 |
| Positive Mood | 0.08 | 0.12 | -0.15 | 0.31 | -0.12 | 0.27 |
| Coping | -0.05 | 0.07 | -0.18 | 0.09 | -0.16 | 0.07 |
| IOS | -0.24 | 0.10 | -0.43 | -0.05 | -0.40 | -0.09 |
| Sleep Quality | -0.04 | 0.14 | -0.32 | 0.25 | -0.27 | 0.20 |
| Task Motivation | 0.09 | 0.09 | -0.10 | 0.28 | -0.06 | 0.24 |
| Task Performance | 0.04 | 0.08 | -0.12 | 0.20 | -0.09 | 0.17 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 19**

Summary of differences in between-person effects of RES and PR, Study 5

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | -0.09 | 0.10 | -0.29 | 0.10 | -0.26 | 0.07 |
| Negative Mood | -0.008 | 0.13 | -0.25 | 0.24 | -0.21 | 0.20 |
| Positive Mood | 0.17 | 0.12 | -0.06 | 0.40 | -0.02 | 0.36 |
| Coping | 0.14 | 0.11 | -0.08 | 0.35 | -0.05 | 0.32 |
| IOS | -0.66 | 0.15 | -0.96 | -0.38 | -0.92 | -0.42 |
| Sleep Quality | -0.04 | 0.20 | -0.43 | 0.34 | -0.37 | 0.28 |
| Task Motivation | 0.21 | 0.16 | -0.10 | 0.52 | -0.05 | 0.47 |
| Task Performance | 0.21 | 0.13 | -0.04 | 0.46 | 0.000 | 0.42 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 20A**

Summary of random effects, Study 5

| dv | term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.41 | 0.17 | 0.05 | 0.67 | 0.09 | 0.64 |
| Support Effectiveness | RES SD | 0.31 | 0.10 | 0.09 | 0.51 | 0.13 | 0.48 |
| Support Effectiveness | PR SD | 0.29 | 0.12 | 0.05 | 0.51 | 0.08 | 0.48 |
| Support Effectiveness | Intercept-RES Cor | -0.17 | 0.37 | -0.85 | 0.62 | -0.77 | 0.47 |
| Support Effectiveness | Intercept-PR Cor | -0.08 | 0.40 | -0.81 | 0.74 | -0.71 | 0.63 |
| Support Effectiveness | RES-PR Cor | -0.49 | 0.37 | -0.95 | 0.51 | -0.92 | 0.24 |
| Support Effectiveness | Residual | 1.14 | 0.06 | 1.03 | 1.25 | 1.05 | 1.24 |
| Support Effectiveness | AR(1) | 0.11 | 0.10 | -0.08 | 0.29 | -0.06 | 0.26 |
| Negative Mood | Intercept SD | 0.90 | 0.08 | 0.74 | 1.05 | 0.77 | 1.03 |
| Negative Mood | RES SD | 0.20 | 0.10 | 0.01 | 0.40 | 0.03 | 0.36 |
| Negative Mood | PR SD | 0.23 | 0.11 | 0.02 | 0.43 | 0.03 | 0.40 |
| Negative Mood | Intercept-RES Cor | -0.25 | 0.31 | -0.81 | 0.43 | -0.73 | 0.28 |
| Negative Mood | Intercept-PR Cor | -0.01 | 0.33 | -0.66 | 0.66 | -0.55 | 0.55 |
| Negative Mood | RES-PR Cor | -0.12 | 0.46 | -0.85 | 0.83 | -0.79 | 0.71 |
| Negative Mood | Residual | 0.99 | 0.05 | 0.90 | 1.10 | 0.91 | 1.08 |
| Negative Mood | AR(1) | 0.06 | 0.09 | -0.12 | 0.26 | -0.09 | 0.22 |
| Positive Mood | Intercept SD | 0.55 | 0.17 | 0.11 | 0.80 | 0.17 | 0.77 |
| Positive Mood | RES SD | 0.15 | 0.10 | 0.007 | 0.36 | 0.01 | 0.32 |
| Positive Mood | PR SD | 0.16 | 0.11 | 0.008 | 0.39 | 0.02 | 0.35 |
| Positive Mood | Intercept-RES Cor | -0.19 | 0.44 | -0.90 | 0.74 | -0.84 | 0.61 |
| Positive Mood | Intercept-PR Cor | 0.18 | 0.44 | -0.74 | 0.90 | -0.61 | 0.83 |
| Positive Mood | RES-PR Cor | -0.21 | 0.48 | -0.93 | 0.81 | -0.89 | 0.69 |
| Positive Mood | Residual | 1.24 | 0.06 | 1.13 | 1.36 | 1.15 | 1.34 |
| Positive Mood | AR(1) | 0.15 | 0.10 | -0.05 | 0.35 | -0.01 | 0.33 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of the other in the self. SD = standard deviation. Cor = correlation.

**Table 20B**

Summary of random effects, Study 5, continued

| dv | term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Coping | Intercept SD | 0.83 | 0.06 | 0.70 | 0.96 | 0.72 | 0.93 |
| Coping | RES SD | 0.08 | 0.05 | 0.004 | 0.20 | 0.007 | 0.18 |
| Coping | PR SD | 0.08 | 0.06 | 0.004 | 0.21 | 0.008 | 0.19 |
| Coping | Intercept-RES Cor | 0.16 | 0.43 | -0.74 | 0.86 | -0.62 | 0.80 |
| Coping | Intercept-PR Cor | -0.30 | 0.41 | -0.92 | 0.68 | -0.87 | 0.49 |
| Coping | RES-PR Cor | -0.18 | 0.50 | -0.93 | 0.82 | -0.89 | 0.72 |
| Coping | Residual | 0.79 | 0.04 | 0.72 | 0.86 | 0.73 | 0.85 |
| Coping | AR(1) | 0.12 | 0.09 | -0.05 | 0.31 | -0.02 | 0.28 |
| IOS | Intercept SD | 1.16 | 0.08 | 1.00 | 1.32 | 1.02 | 1.29 |
| IOS | RES SD | 0.11 | 0.08 | 0.005 | 0.28 | 0.01 | 0.25 |
| IOS | PR SD | 0.39 | 0.08 | 0.24 | 0.54 | 0.26 | 0.51 |
| IOS | Intercept-RES Cor | -0.03 | 0.40 | -0.78 | 0.78 | -0.68 | 0.66 |
| IOS | Intercept-PR Cor | -0.06 | 0.18 | -0.40 | 0.29 | -0.35 | 0.24 |
| IOS | RES-PR Cor | -0.10 | 0.44 | -0.84 | 0.80 | -0.77 | 0.69 |
| IOS | Residual | 0.88 | 0.05 | 0.79 | 0.98 | 0.80 | 0.97 |
| IOS | AR(1) | 0.13 | 0.11 | -0.07 | 0.35 | -0.03 | 0.32 |
| Sleep Quality | Intercept SD | 1.08 | 0.16 | 0.76 | 1.35 | 0.83 | 1.30 |
| Sleep Quality | RES SD | 0.16 | 0.10 | 0.007 | 0.38 | 0.01 | 0.34 |
| Sleep Quality | PR SD | 0.19 | 0.13 | 0.007 | 0.48 | 0.02 | 0.44 |
| Sleep Quality | Intercept-RES Cor | 0.12 | 0.42 | -0.74 | 0.86 | -0.61 | 0.79 |
| Sleep Quality | Intercept-PR Cor | -0.16 | 0.41 | -0.86 | 0.72 | -0.79 | 0.59 |
| Sleep Quality | RES-PR Cor | -0.30 | 0.49 | -0.95 | 0.78 | -0.92 | 0.67 |
| Sleep Quality | Residual | 1.01 | 0.09 | 0.84 | 1.22 | 0.87 | 1.17 |
| Sleep Quality | AR(1) | 0.21 | 0.17 | -0.12 | 0.54 | -0.07 | 0.49 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of the other in the self. SD = standard deviation. Cor = correlation.

**Table 20C**

Summary of random effects, Study 5, continued

| dv | term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Task Motivation | Intercept SD | 1.25 | 0.10 | 1.06 | 1.44 | 1.10 | 1.41 |
| Task Motivation | RES SD | 0.27 | 0.08 | 0.10 | 0.41 | 0.13 | 0.39 |
| Task Motivation | PR SD | 0.13 | 0.08 | 0.006 | 0.30 | 0.01 | 0.27 |
| Task Motivation | Intercept-RES Cor | -0.48 | 0.22 | -0.88 | -0.006 | -0.83 | -0.10 |
| Task Motivation | Intercept-PR Cor | -0.24 | 0.39 | -0.88 | 0.65 | -0.82 | 0.49 |
| Task Motivation | RES-PR Cor | 0.35 | 0.42 | -0.64 | 0.93 | -0.46 | 0.90 |
| Task Motivation | Residual | 0.98 | 0.05 | 0.89 | 1.09 | 0.90 | 1.07 |
| Task Motivation | AR(1) | 0.28 | 0.11 | 0.07 | 0.50 | 0.11 | 0.47 |
| Task Performance | Intercept SD | 0.88 | 0.11 | 0.63 | 1.08 | 0.68 | 1.06 |
| Task Performance | RES SD | 0.12 | 0.08 | 0.006 | 0.29 | 0.01 | 0.26 |
| Task Performance | PR SD | 0.07 | 0.05 | 0.003 | 0.20 | 0.006 | 0.17 |
| Task Performance | Intercept-RES Cor | -0.13 | 0.40 | -0.87 | 0.70 | -0.80 | 0.56 |
| Task Performance | Intercept-PR Cor | -0.02 | 0.44 | -0.86 | 0.82 | -0.76 | 0.72 |
| Task Performance | RES-PR Cor | -0.21 | 0.49 | -0.94 | 0.80 | -0.89 | 0.70 |
| Task Performance | Residual | 0.92 | 0.06 | 0.81 | 1.03 | 0.82 | 1.02 |
| Task Performance | AR(1) | 0.37 | 0.14 | 0.10 | 0.61 | 0.14 | 0.59 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of the other in the self. SD = standard deviation. Cor = correlation.

**Table 21A**

Correlations among variables, Study 6

| Variables | Estimate | Lower | Upper |
|---|---|---|---|
| RES, PR | 0.50 | 0.39 | 0.60 |
| RES, Sup. Eff. | 0.73 | 0.66 | 0.79 |
| RES, Neg. Mood | -0.26 | -0.39 | -0.13 |
| RES, Pos. Mood | 0.43 | 0.31 | 0.54 |
| RES, IOS | 0.41 | 0.29 | 0.52 |
| RES, Closeness | 0.40 | 0.27 | 0.51 |
| RES, Coder-Rated RES | 0.24 | 0.11 | 0.37 |
| RES, Coder-Rated PR | 0.11 | -0.02 | 0.24 |
| PR, Sup. Eff. | 0.52 | 0.41 | 0.62 |
| PR, Neg. Mood | -0.15 | -0.28 | -0.02 |
| PR, Pos. Mood | 0.31 | 0.19 | 0.43 |
| PR, IOS | 0.46 | 0.34 | 0.56 |
| PR, Closeness | 0.56 | 0.45 | 0.65 |
| PR, Coder-Rated RES | 0.18 | 0.04 | 0.31 |
| PR, Coder-Rated PR | 0.30 | 0.17 | 0.42 |
| Sup. Eff., Neg. Mood | -0.23 | -0.36 | -0.10 |
| Sup. Eff., Pos. Mood | 0.34 | 0.21 | 0.46 |
| Sup. Eff., IOS | 0.50 | 0.39 | 0.60 |
| Sup. Eff., Closeness | 0.38 | 0.26 | 0.50 |
| Sup. Eff., Coder-Rated RES | 0.27 | 0.14 | 0.39 |
| Sup. Eff., Coder-Rated PR | 0.10 | -0.03 | 0.24 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self.

**Table 21B**

Correlations among variables, Study 6, continued

| Variables | Estimate | Lower | Upper |
|---|---|---|---|
| Neg. Mood, Pos. Mood | -0.49 | -0.59 | -0.38 |
| Neg. Mood, IOS | -0.25 | -0.38 | -0.12 |
| Neg. Mood, Closeness | -0.19 | -0.32 | -0.06 |
| Neg. Mood, Coder-Rated RES | -0.25 | -0.38 | -0.12 |
| Neg. Mood, Coder-Rated PR | -0.11 | -0.24 | 0.03 |
| Pos. Mood, IOS | 0.31 | 0.18 | 0.43 |
| Pos. Mood, Closeness | 0.23 | 0.09 | 0.35 |
| Pos. Mood, Coder-Rated RES | 0.11 | -0.03 | 0.24 |
| Pos. Mood, Coder-Rated PR | 0.09 | -0.05 | 0.23 |
| IOS, Closeness | 0.40 | 0.27 | 0.51 |
| IOS, Coder-Rated RES | 0.13 | -0.01 | 0.26 |
| IOS, Coder-Rated PR | 0.16 | 0.03 | 0.29 |
| Closeness, Coder-Rated RES | 0.10 | -0.04 | 0.24 |
| Closeness, Coder-Rated PR | 0.18 | 0.05 | 0.32 |
| Coder-Rated RES, Coder-Rated PR | 0.27 | 0.14 | 0.40 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self.

**Table 22**

Summary of results from Study 6, with unstandardized coefficients

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 5.21 | 0.06 | 5.08 | 5.33 | 5.10 | 5.31 | 101 | 200 |
| Support Effectiveness | RES | 0.68 | 0.06 | 0.58 | 0.79 | 0.59 | 0.78 | 101 | 200 |
| Support Effectiveness | PR | 0.25 | 0.06 | 0.12 | 0.38 | 0.14 | 0.36 | 101 | 200 |
| Negative Mood | Intercept | 2.64 | 0.10 | 2.43 | 2.83 | 2.47 | 2.80 | 101 | 199 |
| Negative Mood | RES | -0.30 | 0.09 | -0.47 | -0.13 | -0.44 | -0.16 | 101 | 199 |
| Negative Mood | PR | 0.000 | 0.10 | -0.20 | 0.20 | -0.17 | 0.16 | 101 | 199 |
| Negative Mood | Pre Neg. Mood | 0.47 | 0.06 | 0.36 | 0.58 | 0.38 | 0.56 | 101 | 199 |
| Positive Mood | Intercept | 3.88 | 0.08 | 3.73 | 4.04 | 3.76 | 4.01 | 101 | 199 |
| Positive Mood | RES | 0.32 | 0.07 | 0.19 | 0.46 | 0.21 | 0.43 | 101 | 199 |
| Positive Mood | PR | 0.11 | 0.08 | -0.05 | 0.27 | -0.02 | 0.24 | 101 | 199 |
| Positive Mood | Pre Pos. Mood | 0.56 | 0.06 | 0.44 | 0.67 | 0.46 | 0.66 | 101 | 199 |
| IOS | Intercept | 4.96 | 0.10 | 4.77 | 5.16 | 4.79 | 5.13 | 101 | 200 |
| IOS | RES | 0.31 | 0.08 | 0.14 | 0.47 | 0.17 | 0.44 | 101 | 200 |
| IOS | PR | 0.48 | 0.10 | 0.28 | 0.67 | 0.32 | 0.64 | 101 | 200 |
| Closeness | Intercept | 6.41 | 0.06 | 6.29 | 6.52 | 6.31 | 6.50 | 101 | 200 |
| Closeness | RES | 0.10 | 0.04 | 0.02 | 0.19 | 0.03 | 0.17 | 101 | 200 |
| Closeness | PR | 0.37 | 0.05 | 0.27 | 0.48 | 0.28 | 0.46 | 101 | 200 |
| Closeness | Pre Closeness | 0.27 | 0.07 | 0.13 | 0.41 | 0.15 | 0.39 | 101 | 200 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects (dyads) in analysis. N_Obs = Number of observations in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 23**

Summary of differences in effects of RES and PR, Study 6

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.43 | 0.11 | 0.23 | 0.64 | 0.26 | 0.61 |
| Negative Mood | -0.30 | 0.16 | -0.62 | 0.03 | -0.56 | -0.03 |
| Positive Mood | 0.21 | 0.13 | -0.04 | 0.47 | 0.003 | 0.42 |
| IOS | -0.17 | 0.16 | -0.48 | 0.14 | -0.43 | 0.09 |
| Closeness | -0.28 | 0.09 | -0.44 | -0.11 | -0.41 | -0.13 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 24**

Summary of results using coder-rated RES and PR, Study 6, with unstandardized coefficients

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 5.18 | 0.11 | 4.97 | 5.41 | 5.00 | 5.37 | 100 | 191 |
| Support Effectiveness | Coder-Rated RES | 0.55 | 0.15 | 0.25 | 0.85 | 0.30 | 0.80 | 100 | 191 |
| Support Effectiveness | Coder-Rated PR | 0.08 | 0.17 | -0.25 | 0.42 | -0.19 | 0.37 | 100 | 191 |
| Negative Mood | Intercept | 2.63 | 0.10 | 2.43 | 2.83 | 2.46 | 2.80 | 100 | 190 |
| Negative Mood | Coder-Rated RES | -0.50 | 0.16 | -0.81 | -0.18 | -0.76 | -0.23 | 100 | 190 |
| Negative Mood | Coder-Rated PR | -0.07 | 0.18 | -0.44 | 0.27 | -0.37 | 0.22 | 100 | 190 |
| Negative Mood | Pre Neg. Mood | 0.46 | 0.06 | 0.34 | 0.57 | 0.36 | 0.55 | 100 | 190 |
| Positive Mood | Intercept | 3.88 | 0.08 | 3.71 | 4.04 | 3.74 | 4.02 | 100 | 190 |
| Positive Mood | Coder-Rated RES | 0.26 | 0.13 | 0.004 | 0.53 | 0.05 | 0.48 | 100 | 190 |
| Positive Mood | Coder-Rated PR | 0.20 | 0.14 | -0.08 | 0.49 | -0.04 | 0.44 | 100 | 190 |
| Positive Mood | Pre Pos. Mood | 0.65 | 0.06 | 0.52 | 0.77 | 0.54 | 0.75 | 100 | 190 |
| IOS | Intercept | 4.95 | 0.12 | 4.73 | 5.19 | 4.76 | 5.15 | 100 | 191 |
| IOS | Coder-Rated RES | 0.25 | 0.18 | -0.11 | 0.60 | -0.05 | 0.54 | 100 | 191 |
| IOS | Coder-Rated PR | 0.40 | 0.21 | -0.01 | 0.81 | 0.06 | 0.75 | 100 | 191 |
| Closeness | Intercept | 6.42 | 0.08 | 6.27 | 6.57 | 6.29 | 6.54 | 100 | 191 |
| Closeness | Coder-Rated RES | 0.03 | 0.10 | -0.17 | 0.22 | -0.14 | 0.19 | 100 | 191 |
| Closeness | Coder-Rated PR | 0.29 | 0.10 | 0.08 | 0.50 | 0.12 | 0.46 | 100 | 191 |
| Closeness | Pre Closeness | 0.40 | 0.09 | 0.23 | 0.57 | 0.26 | 0.54 | 100 | 191 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects (dyads) in analysis. N_Obs = Number of observations in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 25**

Summary of differences in effects of coder-rated RES and coder-rated PR, Study 6

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.47 | 0.25 | -0.03 | 0.97 | 0.06 | 0.88 |
| Negative Mood | -0.42 | 0.27 | -0.96 | 0.12 | -0.87 | 0.03 |
| Positive Mood | 0.06 | 0.22 | -0.37 | 0.48 | -0.30 | 0.42 |
| IOS | -0.15 | 0.31 | -0.77 | 0.46 | -0.66 | 0.36 |
| Closeness | -0.25 | 0.16 | -0.57 | 0.05 | -0.52 | 0.01 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 26A**

Correlations among variables, Study 7

| Variables | Estimate | Lower | Upper |
|---|---|---|---|
| RES, PR | 0.51 | 0.37 | 0.63 |
| RES, Sup. Eff. | 0.69 | 0.59 | 0.78 |
| RES, Neg. Mood | -0.10 | -0.28 | 0.08 |
| RES, Pos. Mood | 0.04 | -0.15 | 0.22 |
| RES, IOS | 0.34 | 0.18 | 0.50 |
| RES, Closeness | 0.33 | 0.15 | 0.49 |
| RES, Change Motive | 0.10 | -0.08 | 0.28 |
| RES, Help with Speech | 0.51 | 0.36 | 0.64 |
| RES, Performance | -0.08 | -0.26 | 0.10 |
| PR, Sup. Eff. | 0.47 | 0.31 | 0.60 |
| PR, Neg. Mood | -0.24 | -0.41 | -0.07 |
| PR, Pos. Mood | 0.04 | -0.15 | 0.23 |
| PR, IOS | 0.40 | 0.23 | 0.55 |
| PR, Closeness | 0.40 | 0.23 | 0.55 |
| PR, Change Motive | 0.00 | -0.18 | 0.19 |
| PR, Help with Speech | 0.27 | 0.09 | 0.43 |
| PR, Performance | -0.20 | -0.37 | -0.02 |
| Sup. Eff., Neg. Mood | -0.13 | -0.30 | 0.04 |
| Sup. Eff., Pos. Mood | 0.12 | -0.07 | 0.29 |
| Sup. Eff., IOS | 0.31 | 0.13 | 0.48 |
| Sup. Eff., Closeness | 0.34 | 0.16 | 0.49 |
| Sup. Eff., Change Motive | 0.10 | -0.07 | 0.27 |
| Sup. Eff., Help with Speech | 0.54 | 0.40 | 0.66 |
| Sup. Eff., Performance | -0.04 | -0.22 | 0.14 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self.

**Table 26B**

Correlations among variables, Study 7, continued

| Variables | Estimate | Lower | Upper |
|---|---|---|---|
| Neg. Mood, Pos. Mood | -0.10 | -0.29 | 0.09 |
| Neg. Mood, IOS | -0.11 | -0.29 | 0.08 |
| Neg. Mood, Closeness | -0.07 | -0.25 | 0.13 |
| Neg. Mood, Change Motive | -0.03 | -0.21 | 0.17 |
| Neg. Mood, Help with Speech | -0.12 | -0.30 | 0.06 |
| Neg. Mood, Performance | 0.01 | -0.18 | 0.20 |
| Pos. Mood, IOS | -0.07 | -0.27 | 0.11 |
| Pos. Mood, Closeness | 0.09 | -0.10 | 0.27 |
| Pos. Mood, Change Motive | -0.08 | -0.27 | 0.11 |
| Pos. Mood, Help with Speech | 0.16 | -0.02 | 0.34 |
| Pos. Mood, Performance | 0.05 | -0.13 | 0.25 |
| IOS, Closeness | 0.29 | 0.11 | 0.45 |
| IOS, Change Motive | 0.00 | -0.18 | 0.19 |
| IOS, Help with Speech | 0.13 | -0.06 | 0.30 |
| IOS, Performance | -0.05 | -0.23 | 0.13 |
| Closeness, Change Motive | -0.07 | -0.25 | 0.12 |
| Closeness, Help with Speech | 0.36 | 0.19 | 0.51 |
| Change Motive, Help with Speech | 0.12 | -0.06 | 0.30 |
| Closeness, Performance | -0.14 | -0.32 | 0.05 |
| Change Motive, Performance | 0.14 | -0.05 | 0.33 |
| Help with Speech, Performance | 0.10 | -0.09 | 0.28 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self.

**Table 27**

Summary of results from Study 7, with unstandardized coefficients

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 5.34 | 0.08 | 5.18 | 5.50 | 5.21 | 5.47 | 110 |
| Support Effectiveness | RES | 0.71 | 0.09 | 0.53 | 0.89 | 0.56 | 0.86 | 110 |
| Support Effectiveness | PR | 0.24 | 0.10 | 0.05 | 0.42 | 0.08 | 0.40 | 110 |
| Negative Mood | Intercept | 2.32 | 0.05 | 2.22 | 2.42 | 2.24 | 2.40 | 105 |
| Negative Mood | RES | -0.08 | 0.06 | -0.19 | 0.03 | -0.17 | 0.01 | 105 |
| Negative Mood | PR | -0.03 | 0.06 | -0.15 | 0.09 | -0.13 | 0.07 | 105 |
| Negative Mood | Pre Neg. Mood | 0.69 | 0.05 | 0.59 | 0.78 | 0.60 | 0.77 | 105 |
| Positive Mood | Intercept | 4.17 | 0.07 | 4.03 | 4.32 | 4.05 | 4.29 | 105 |
| Positive Mood | RES | -0.004 | 0.09 | -0.17 | 0.16 | -0.14 | 0.14 | 105 |
| Positive Mood | PR | 0.04 | 0.09 | -0.14 | 0.22 | -0.11 | 0.19 | 105 |
| Positive Mood | Pre Pos. Mood | 0.93 | 0.07 | 0.80 | 1.05 | 0.82 | 1.04 | 105 |
| IOS | Intercept | 5.04 | 0.11 | 4.82 | 5.26 | 4.85 | 5.23 | 107 |
| IOS | RES | 0.26 | 0.13 | -0.004 | 0.52 | 0.04 | 0.47 | 107 |
| IOS | PR | 0.51 | 0.14 | 0.24 | 0.79 | 0.28 | 0.75 | 107 |
| Closeness | Intercept | 5.72 | 0.07 | 5.58 | 5.86 | 5.60 | 5.83 | 110 |
| Closeness | RES | 0.19 | 0.08 | 0.03 | 0.36 | 0.06 | 0.33 | 110 |
| Closeness | PR | 0.26 | 0.09 | 0.08 | 0.44 | 0.11 | 0.41 | 110 |
| Closeness | Pre Closeness | 0.51 | 0.06 | 0.40 | 0.63 | 0.42 | 0.61 | 110 |
| Change in Motivation | Intercept | 0.36 | 0.12 | 0.13 | 0.58 | 0.17 | 0.55 | 105 |
| Change in Motivation | RES | 0.37 | 0.13 | 0.11 | 0.64 | 0.15 | 0.60 | 105 |
| Change in Motivation | PR | -0.19 | 0.14 | -0.47 | 0.09 | -0.42 | 0.05 | 105 |
| Change in Motivation | Pre Motivation | -0.43 | 0.08 | -0.60 | -0.26 | -0.57 | -0.29 | 105 |
| Help with Speech | Intercept | 4.52 | 0.12 | 4.29 | 4.76 | 4.33 | 4.71 | 110 |
| Help with Speech | RES | 0.69 | 0.14 | 0.42 | 0.96 | 0.46 | 0.91 | 110 |
| Help with Speech | PR | 0.004 | 0.15 | -0.28 | 0.29 | -0.24 | 0.25 | 110 |
| Speech Performance | Intercept | 3.87 | 0.07 | 3.73 | 4.01 | 3.75 | 3.98 | 106 |
| Speech Performance | RES | 0.05 | 0.08 | -0.11 | 0.21 | -0.09 | 0.18 | 106 |
| Speech Performance | PR | -0.13 | 0.09 | -0.30 | 0.04 | -0.28 | 0.01 | 106 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. N_Subj = Number of subjects (dyads) in analysis. N_Obs = Number of observations in analysis. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 28**

Summary of differences in effects of RES and PR, Study 7

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.47 | 0.17 | 0.14 | 0.81 | 0.20 | 0.75 |
| Negative Mood | -0.05 | 0.10 | -0.26 | 0.15 | -0.22 | 0.12 |
| Positive Mood | -0.04 | 0.16 | -0.36 | 0.26 | -0.30 | 0.21 |
| IOS | -0.26 | 0.25 | -0.74 | 0.22 | -0.66 | 0.15 |
| Closeness | -0.06 | 0.16 | -0.37 | 0.25 | -0.32 | 0.20 |
| Change in Motivation | 0.56 | 0.25 | 0.08 | 1.06 | 0.15 | 0.98 |
| Help with Speech | 0.69 | 0.26 | 0.19 | 1.18 | 0.27 | 1.11 |
| Speech Performance | 0.18 | 0.15 | -0.11 | 0.49 | -0.07 | 0.44 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. IOS = Inclusion of Other in the Self. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals.

**Table 29**

Summary of results for cardiovascular data, Study 7

| Coefficient | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|
| Intercept | 669.58 | 10.88 | 648.10 | 691.30 | 651.51 | 687.55 | 106 | 3226 |
| RES | 11.00 | 13.65 | -16.21 | 37.59 | -12.11 | 33.14 | 106 | 3226 |
| PR | -19.44 | 14.61 | -47.95 | 9.33 | -43.56 | 4.62 | 106 | 3226 |
| Baseline vs. Speech | 134.35 | 10.18 | 113.70 | 154.78 | 117.01 | 151.30 | 106 | 3226 |
| Support vs. Speech | 57.57 | 6.38 | 44.89 | 70.10 | 46.84 | 68.03 | 106 | 3226 |
| Recovery vs. Speech | 137.72 | 8.42 | 120.96 | 154.31 | 123.87 | 151.53 | 106 | 3226 |
| RES x Baseline vs. Speech | -6.38 | 12.46 | -32.42 | 17.31 | -27.33 | 13.19 | 106 | 3226 |
| **RES x Support vs. Speech** | **-11.50** | **7.40** | **-26.42** | **2.74** | **-23.73** | **0.32** | **106** | **3226** |
| RES x Recovery vs. Speech | -10.32 | 10.43 | -32.19 | 9.20 | -28.27 | 6.00 | 106 | 3226 |
| PR x Baseline vs. Speech | 0.79 | 13.23 | -24.46 | 27.18 | -20.61 | 22.61 | 106 | 3226 |
| PR x Support vs. Speech | 8.11 | 8.03 | -7.62 | 23.57 | -5.07 | 21.15 | 106 | 3226 |
| PR x Recovery vs. Speech | 5.08 | 10.81 | -16.02 | 26.75 | -12.30 | 22.77 | 106 | 3226 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. For contrasts, Speech is coded as 0, otherwise 1.

**Table 30**

Summary of random effects for cardiovascular data, Study 7

| Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Intercept SD | 112.02 | 8.51 | 96.81 | 130.35 | 98.99 | 126.93 |
| Baseline vs. Speech SD | 101.34 | 7.91 | 87.37 | 118.55 | 89.18 | 115.43 |
| Support vs. Speech SD | 57.32 | 5.03 | 48.31 | 67.84 | 49.46 | 66.10 |
| Recovery vs. Speech SD | 80.05 | 6.81 | 67.66 | 94.23 | 69.45 | 91.83 |
| Intercept-Baseline vs. Speech Cor | -0.28 | 0.10 | -0.46 | -0.09 | -0.43 | -0.12 |
| Intercept-Support vs, Speech Cor | -0.22 | 0.10 | -0.41 | -0.007 | -0.38 | -0.04 |
| Intercept-Recovery vs. Speech Cor | -0.20 | 0.10 | -0.40 | 0.01 | -0.37 | -0.02 |
| Support vs. Speech-Baseline vs. Speech Cor | 0.68 | 0.06 | 0.54 | 0.79 | 0.56 | 0.77 |
| Support vs. Speech-Recovery vs. Speech Cor | 0.62 | 0.08 | 0.45 | 0.76 | 0.48 | 0.74 |
| Recovery vs. Speech-Baseline vs. Speech Cor | 0.81 | 0.04 | 0.71 | 0.88 | 0.73 | 0.87 |
| Residual | 39.68 | 0.55 | 38.60 | 40.79 | 38.79 | 40.60 |
| AR(1) | 0.37 | 0.03 | 0.32 | 0.43 | 0.33 | 0.42 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. For contrasts, Speech is coded as 0, and the comparison phase is coded as 1.

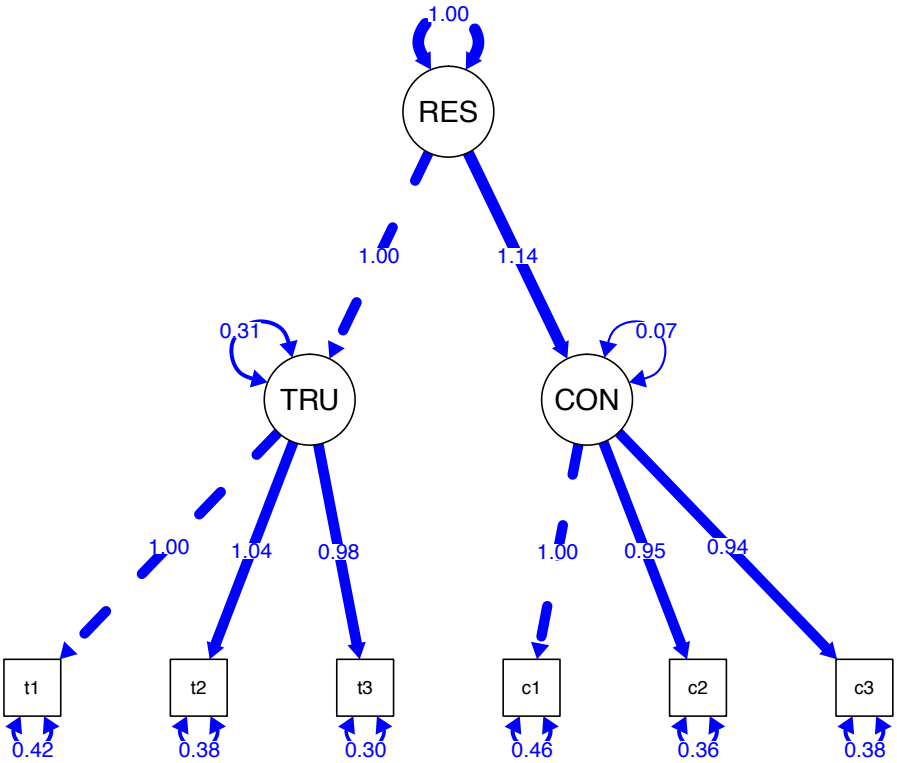


*Figure 1.* Results from Confirmatory Factor Analysis showing 1-factor hierarchical structure of Regulatory Effectiveness of Support (RES), Study 1A. TRU = Truth facet, and CON = control facet.

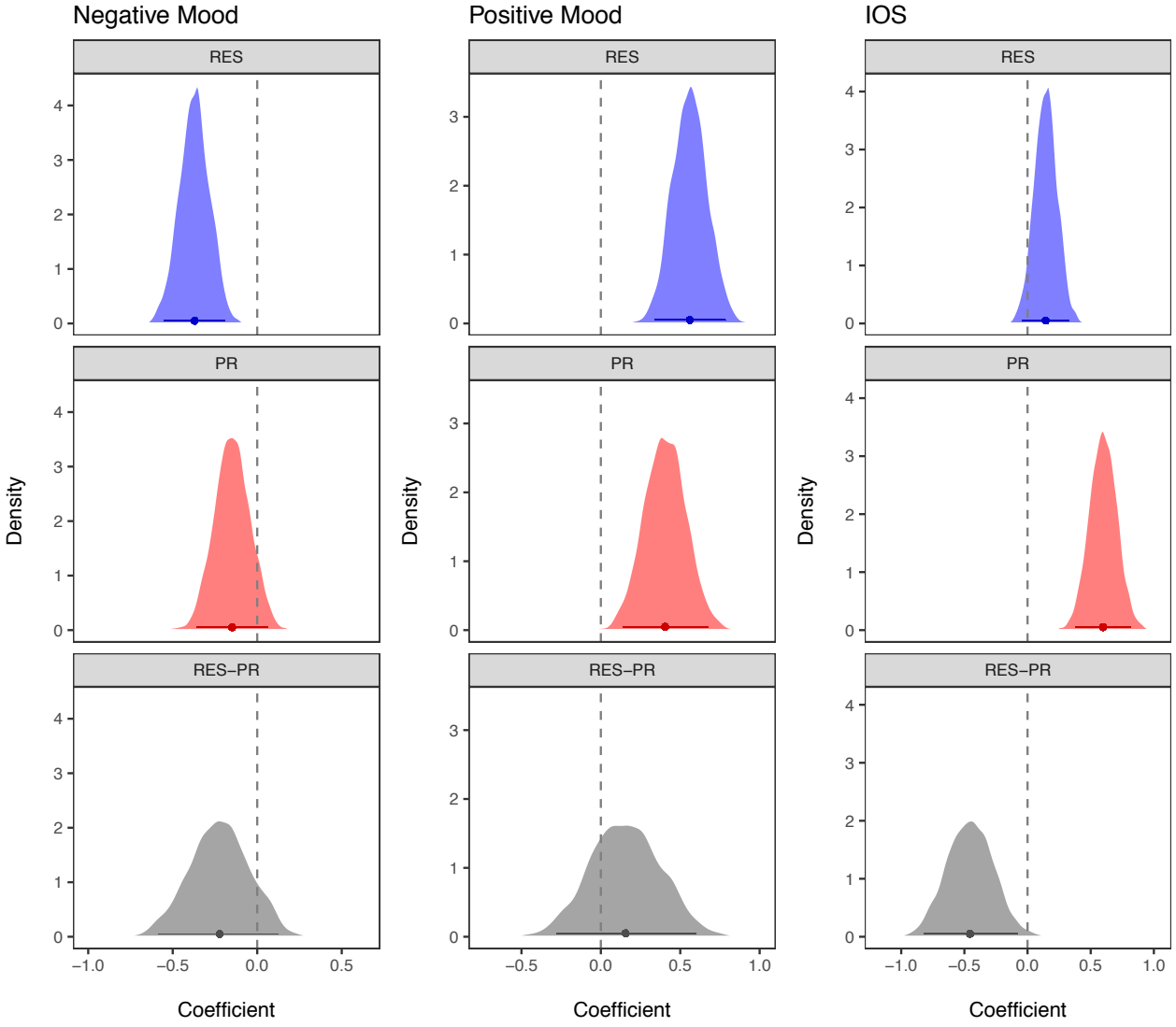


*Figure 2.* Posterior distributions of within-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 2. IOS = Inclusion of Other in the Self.

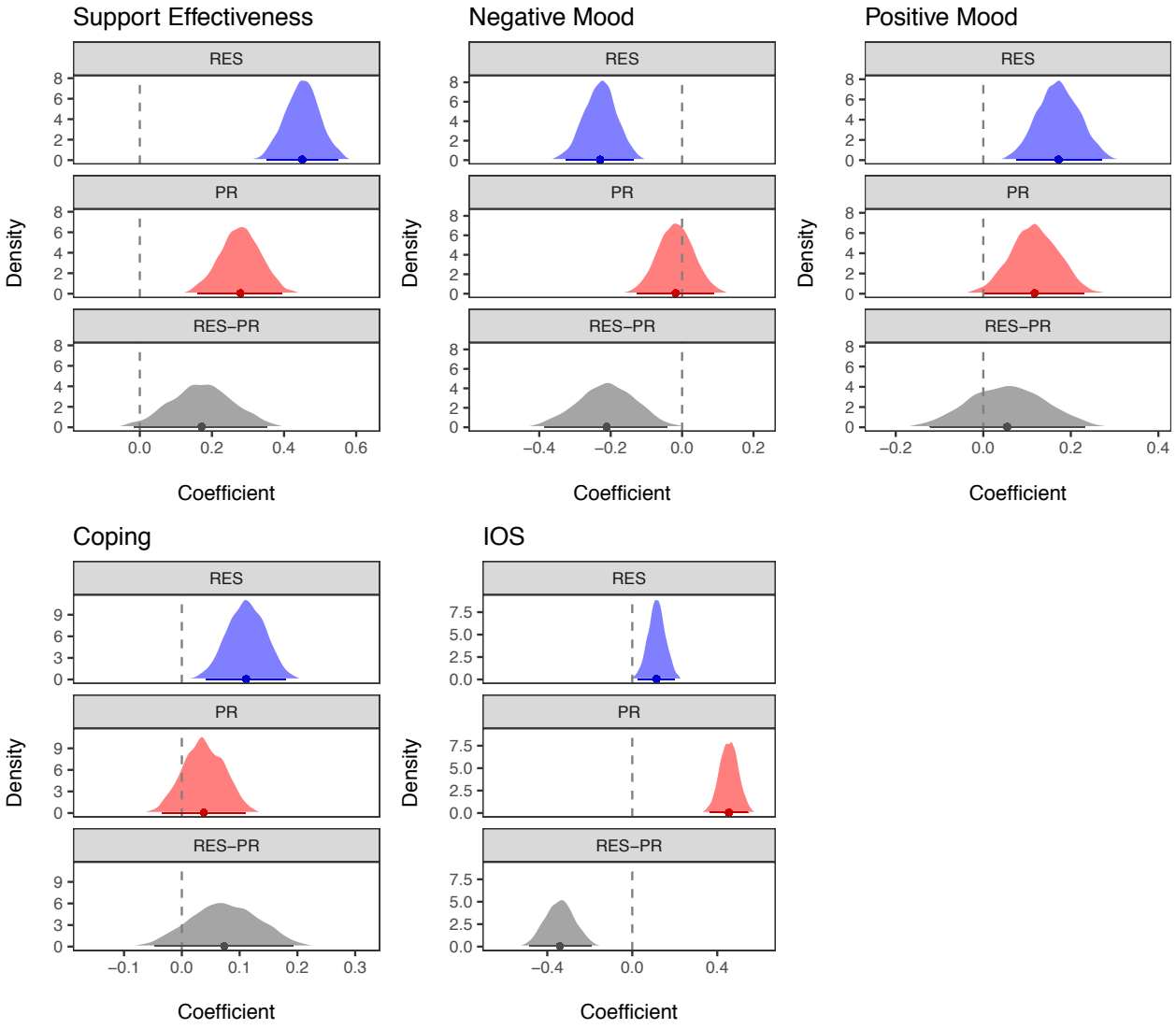


*Figure 3.* Posterior distributions of within-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 3. IOS = Inclusion of Other in the Self.

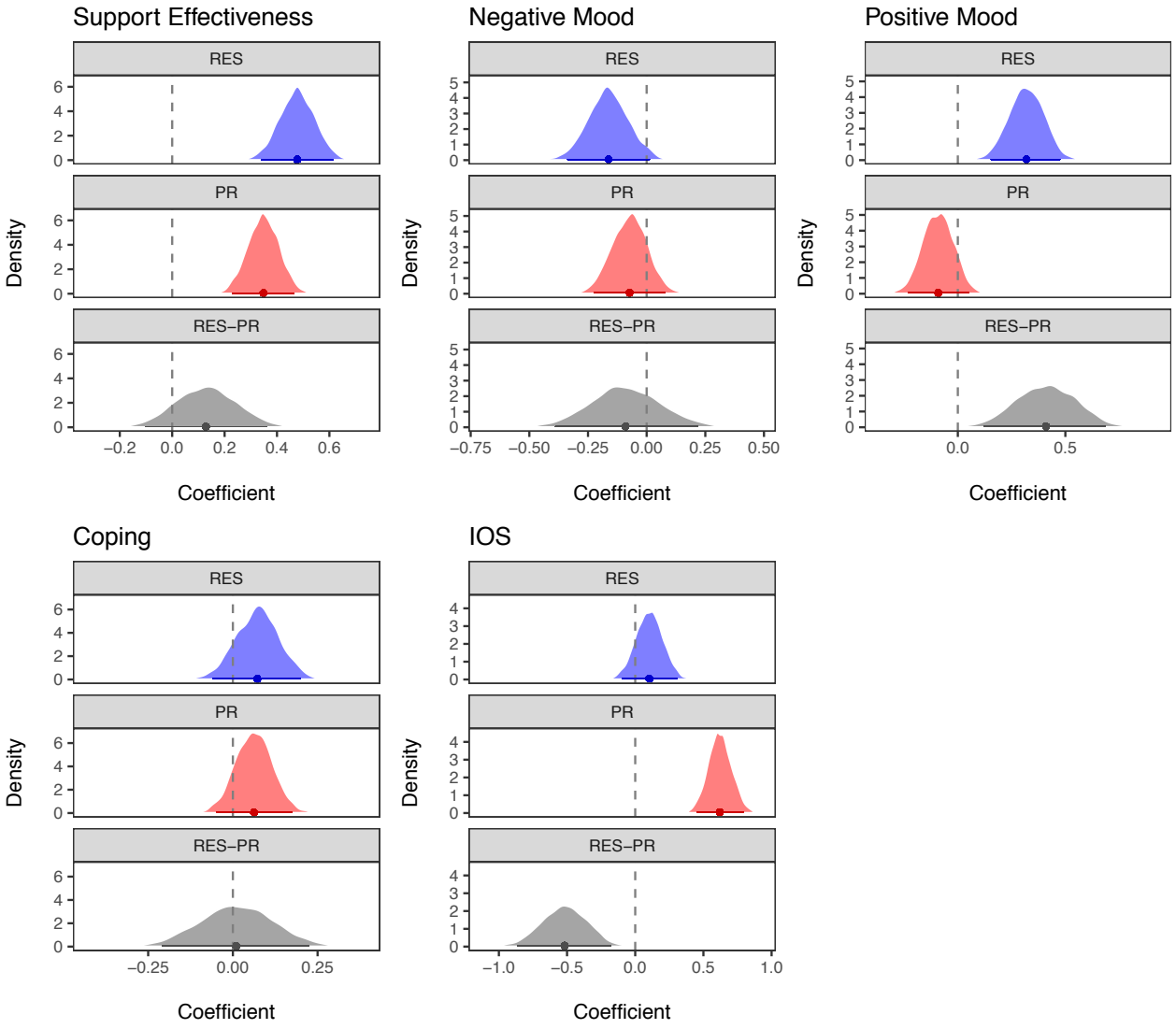


*Figure 4.* Posterior distributions of between-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 3. IOS = Inclusion of Other in the Self.

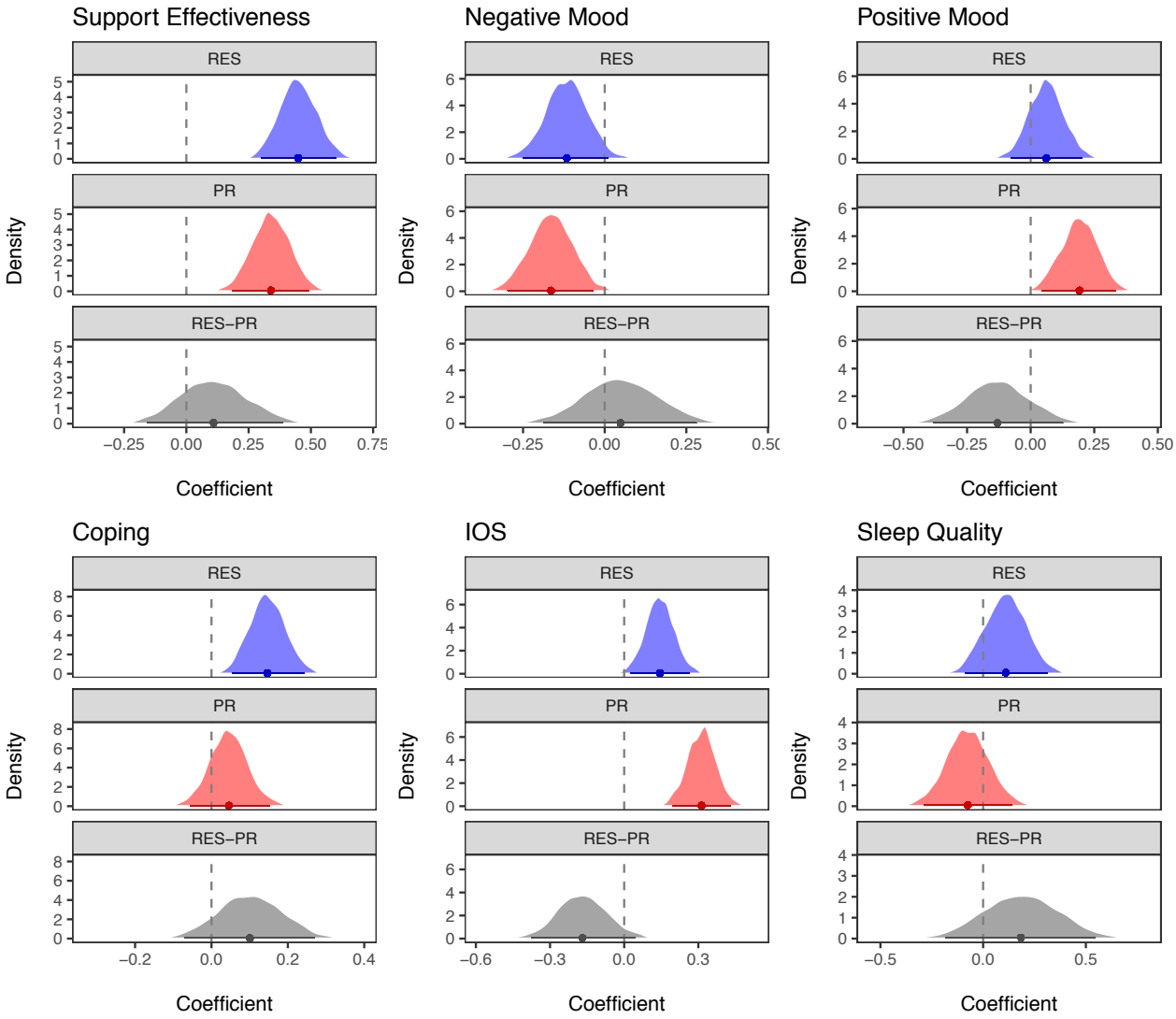


*Figure 5.* Posterior distributions of within-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 4. IOS = Inclusion of Other in the Self.

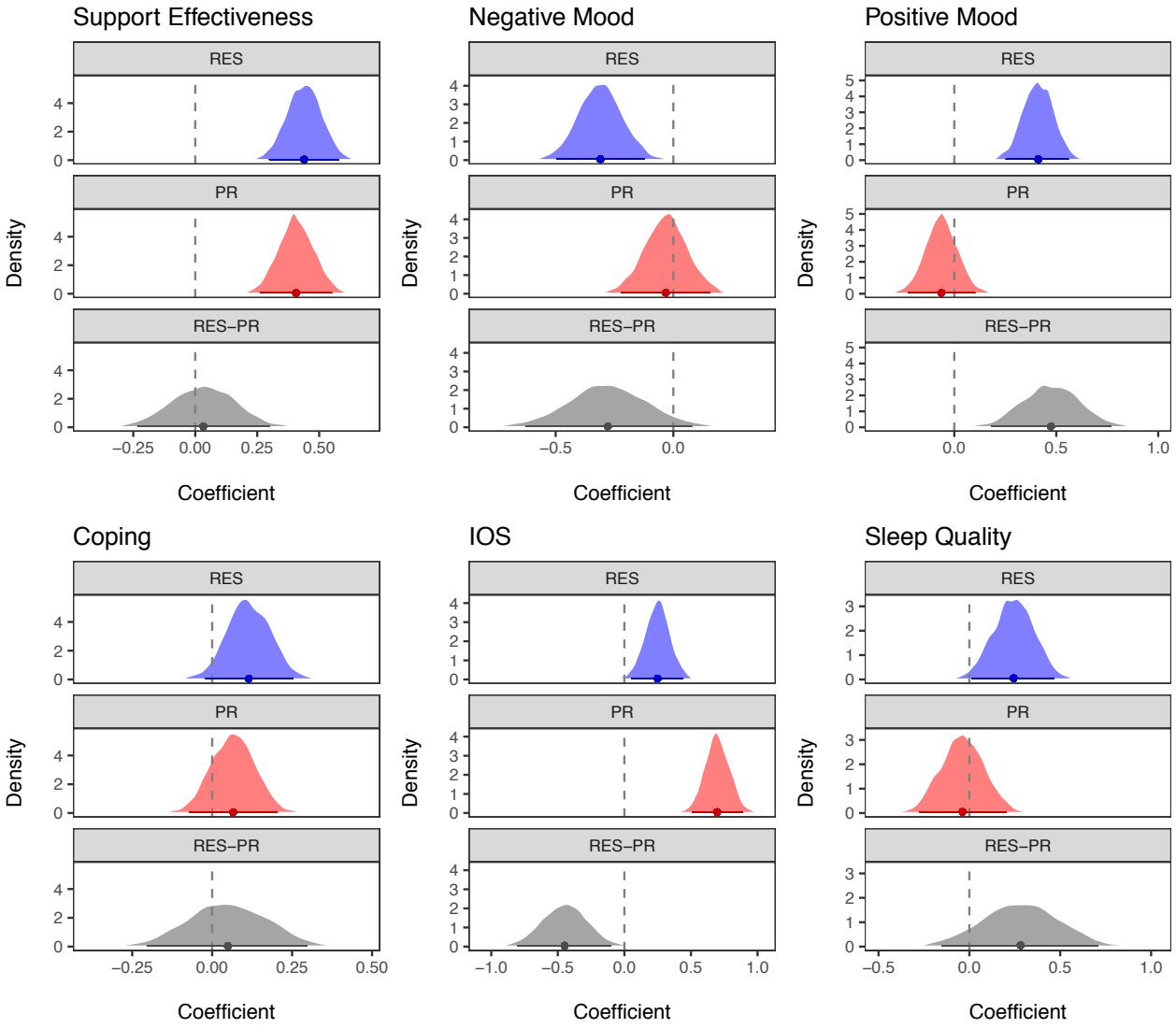


*Figure 6.* Posterior distributions of between-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 4. IOS = Inclusion of Other in the Self.

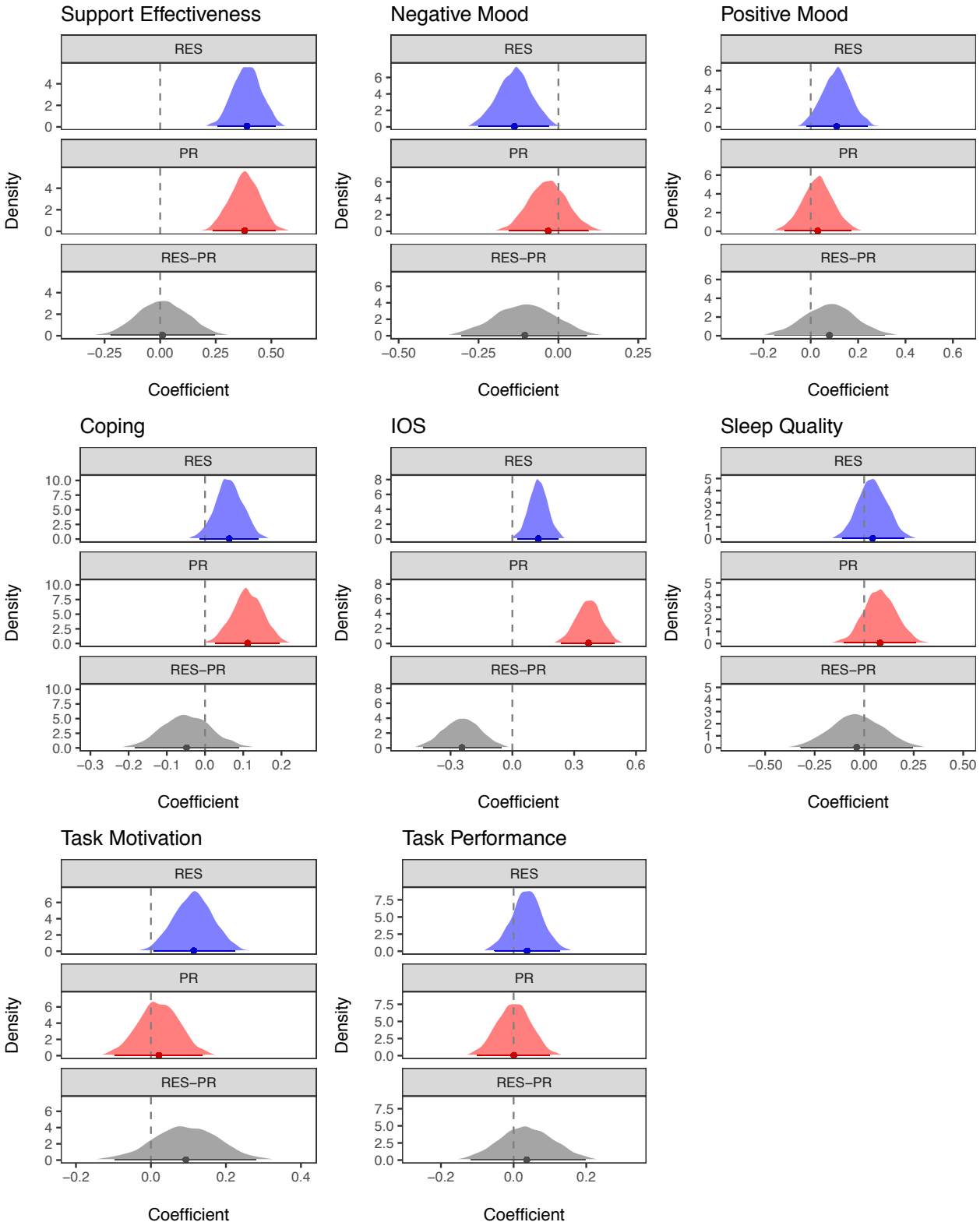


*Figure 7.* Posterior distributions of within-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 5. IOS = Inclusion of Other in the Self.

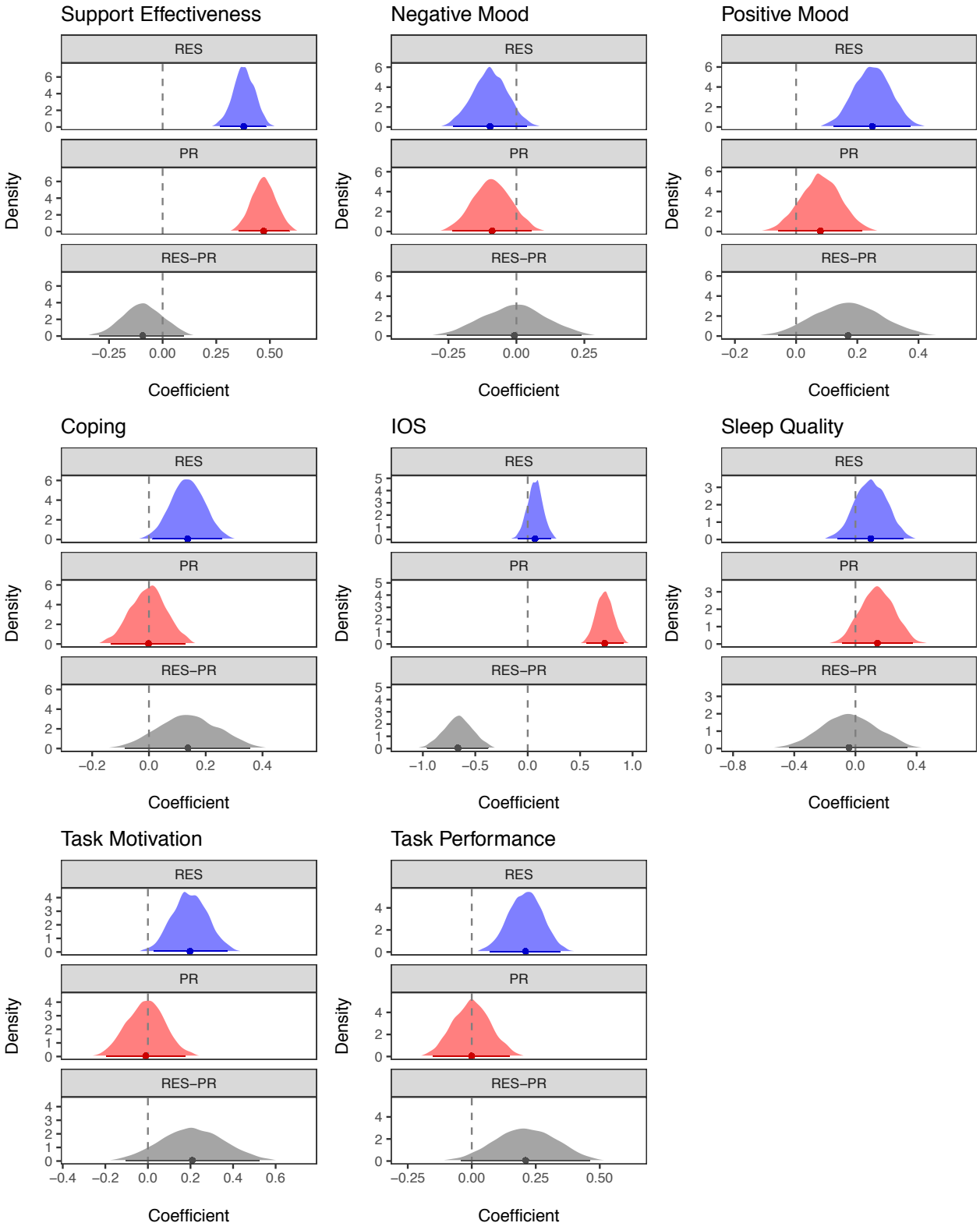


*Figure 8.* Posterior distributions of between-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 5. IOS = Inclusion of Other in the Self.

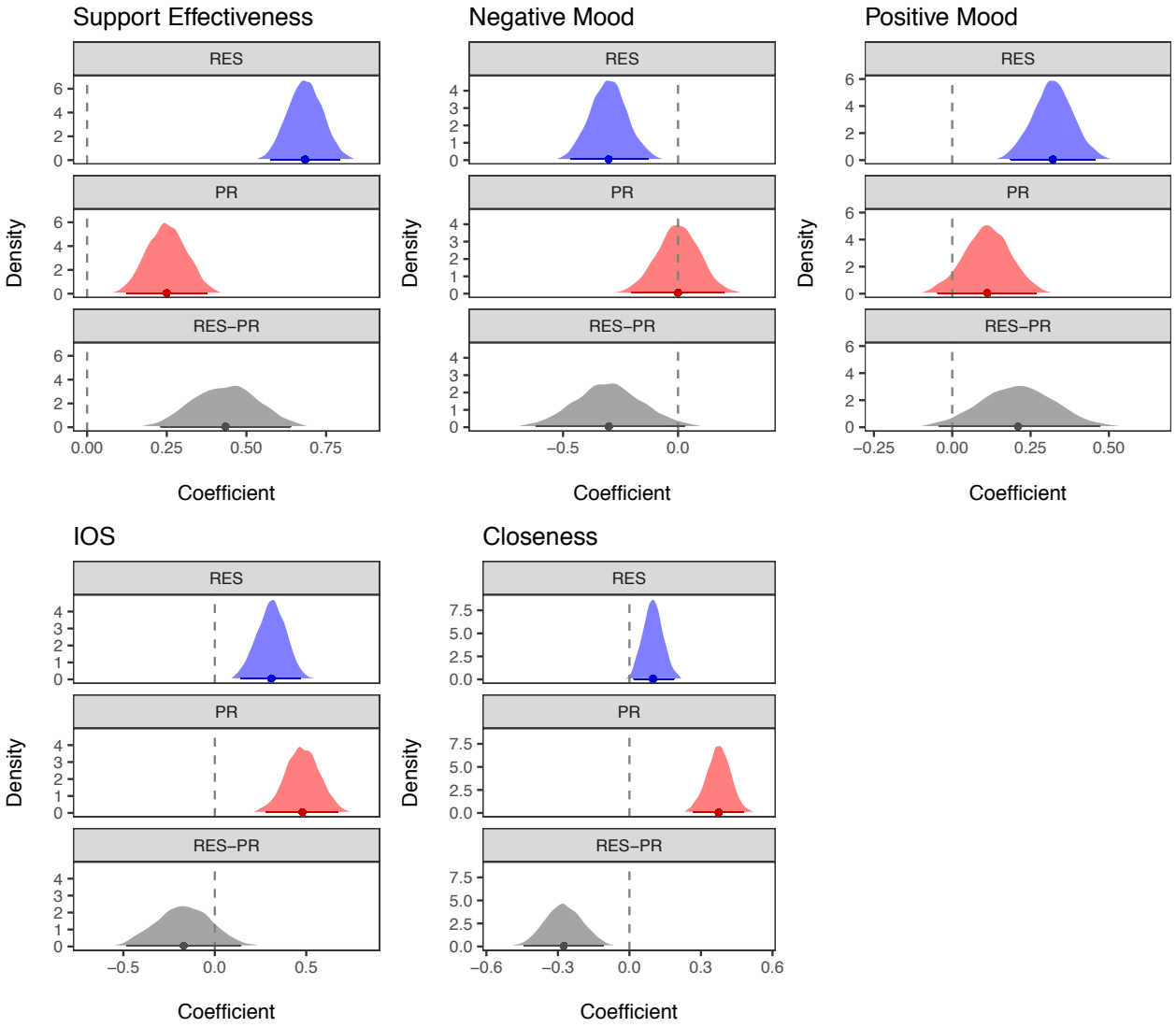


*Figure 9.* Posterior distributions of effects of self-reported regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 6. IOS = Inclusion of Other in the Self.

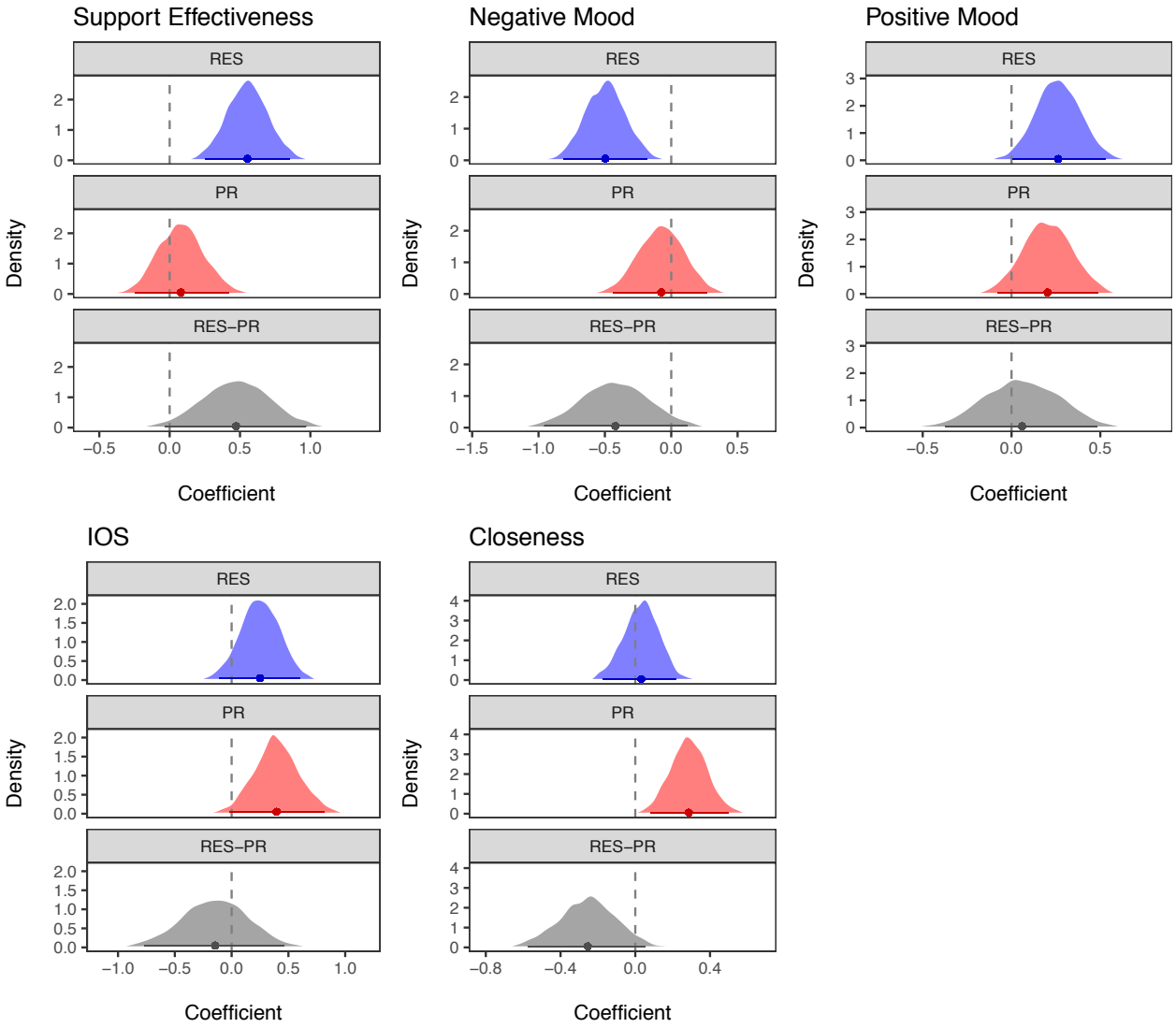


*Figure 10.* Posterior distributions of effects of coder-rated regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 6. IOS = Inclusion of Other in the Self.

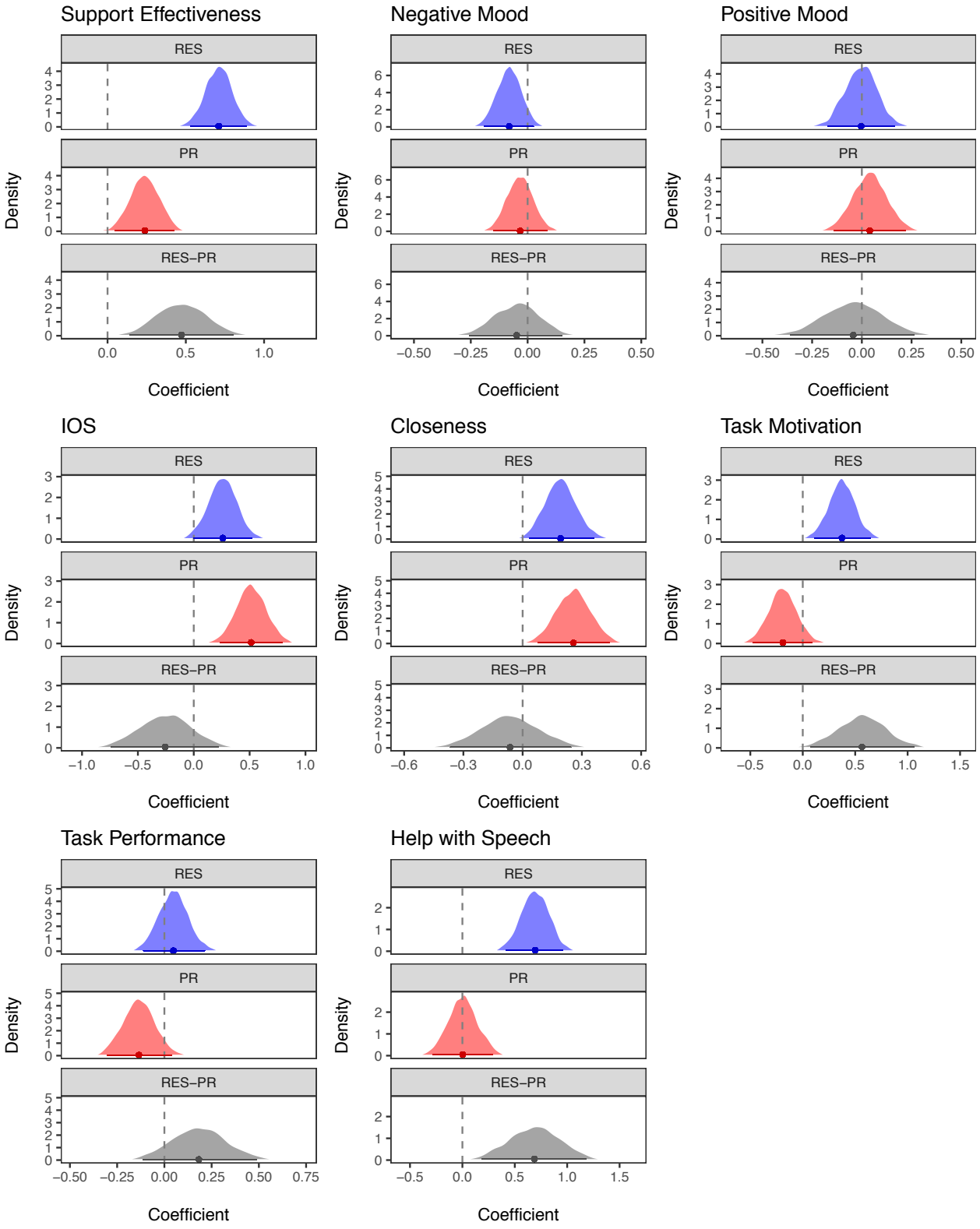


*Figure 11.* Posterior distributions of effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), Study 7. IOS = Inclusion of Other in the Self.

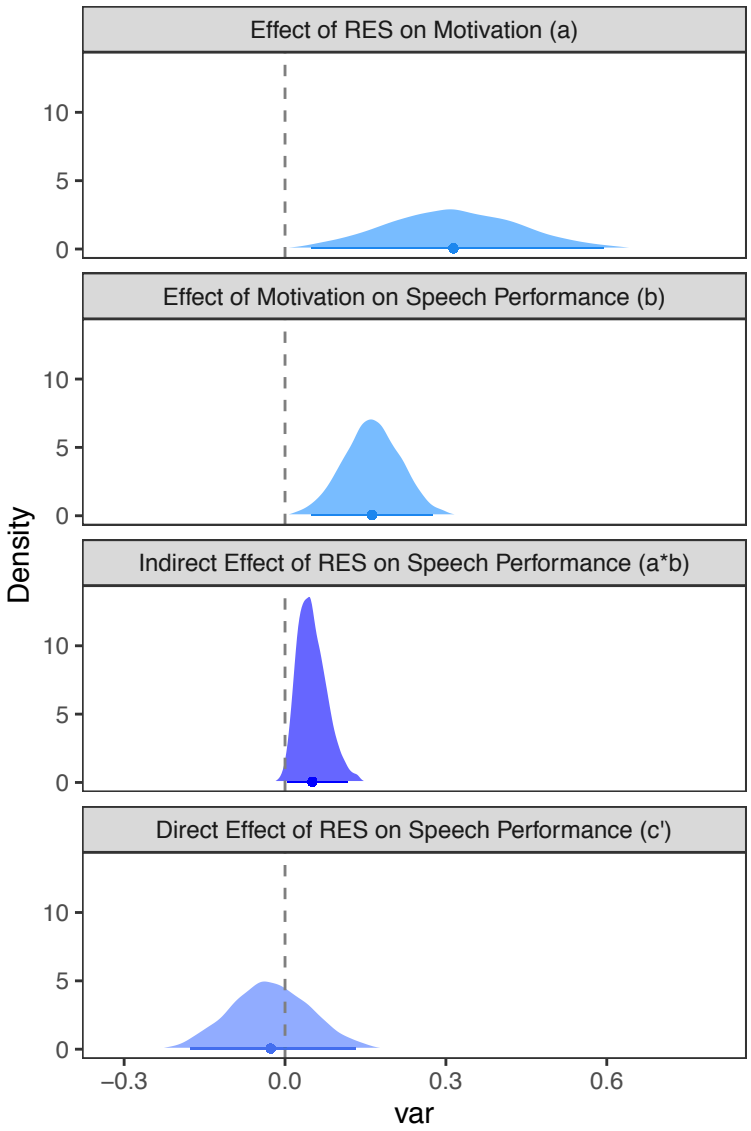


*Figure 12*. Posterior distributions showing the effect of regulatory effectiveness of support (RES) on coder-rated speech performance via increased motivation to perform well on speech, Study 7. The two upper panels show (a) the effect of RES on increased motivation and (b) the effect of increased motivation on speech performance. The two lower panels show the indirect effect (a*b) of RES on speech performance by way of increased motivation and the direct effect (c') of RES on speech performance adjusting for increased motivation.

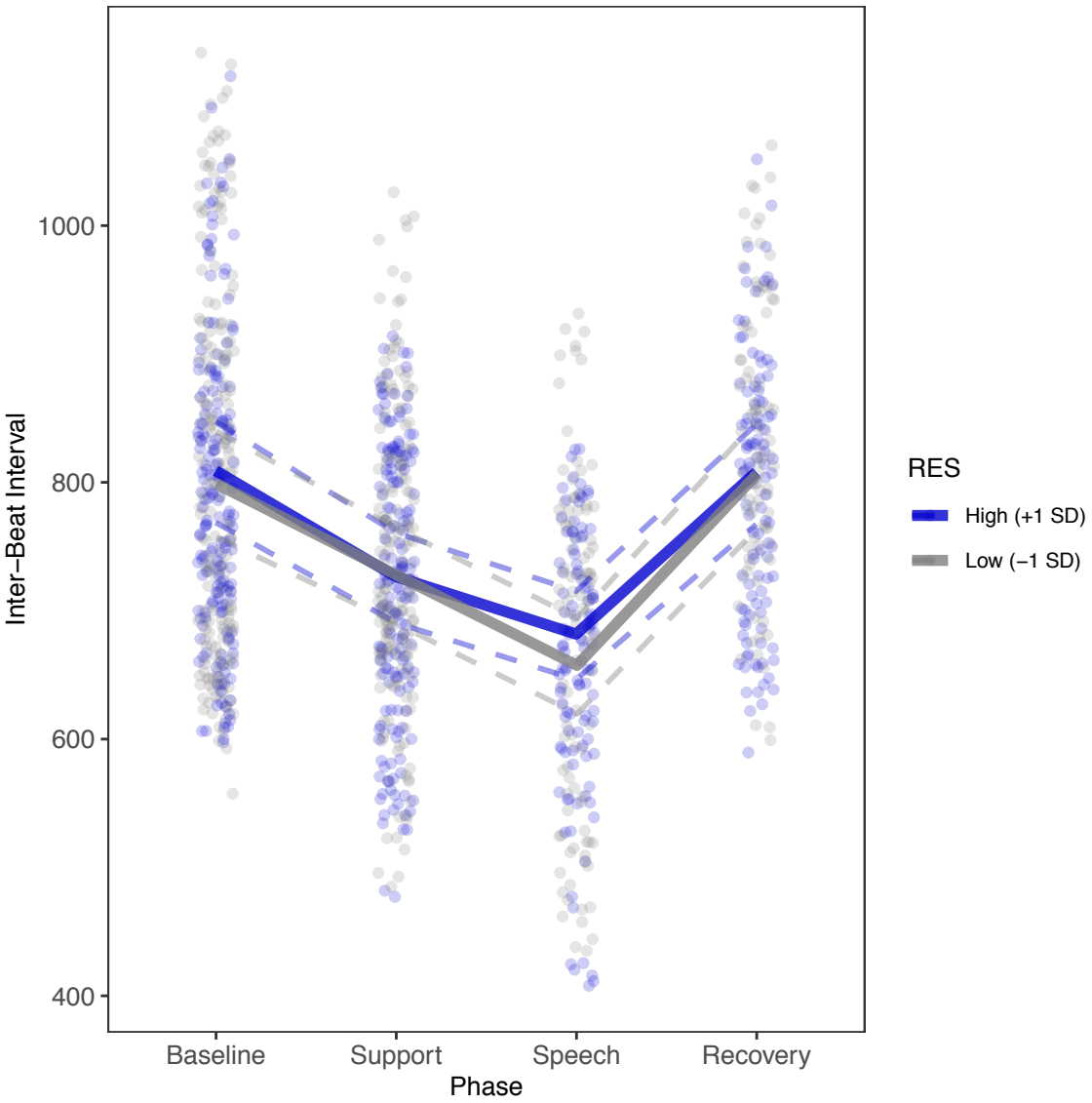


*Figure 13.* Predicted effects of high (+1 SD) and low (-1 SD) RES on cardiovascular reactivity across study phases, Study 7. Dark lines and points show high RES, and light lines and points show low RES. Raw data points are jittered, and points falling within +/- 1 SD from the mean are not shown for clarity of presentation. Dashed lines show 95% credibility intervals for predicted lines.

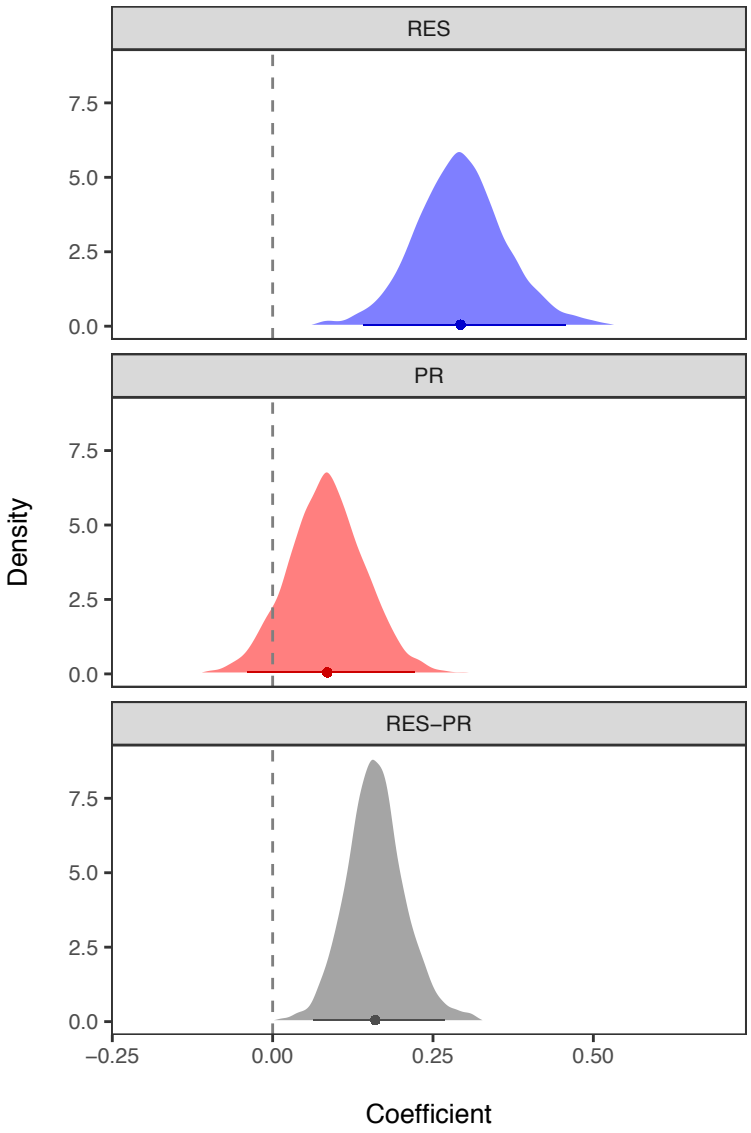


*Figure 14.* Posterior distributions of meta-analytic predicted effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR). Effects shown are predictions for a between-person effect for a typical non-relational variable in a typical study.

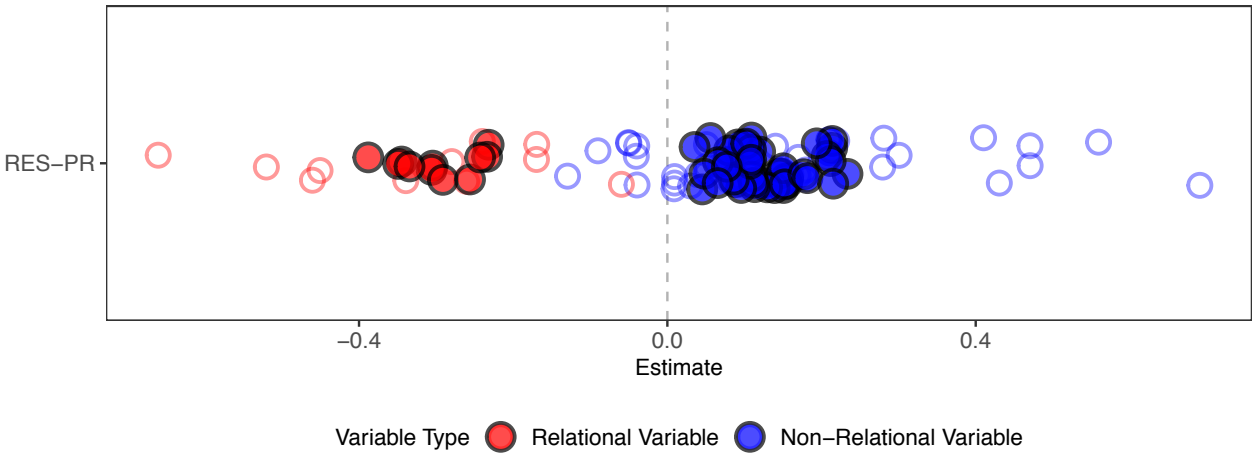


*Figure 15.* Strip plot displaying observed effects (open dots) and predicted effects (solid dots) for the difference between Regulatory Effectiveness of Support (RES) and Perceived Responsiveness (PR). Positive values indicate a stronger effect of RES, and negative values indicate a stronger effect of PR.

# Supplemental Material for *Regulatory Effectiveness of Social Support*

## Daily Diary Pilot Study

One hundred and six participants participated in a five-night daily diary study. Participants were students enrolled in eligible psychology courses at [**masked for review**] who received course credit in exchange for their participation. The conclusion of the academic year served as our data collection stopping rule. Participants were 21 years old on average ($SD$ = 4.7). There were 68 female participants, 36 male participants, and 2 participants who did not report their gender. The majority of participants completed all five ($n$ = 77) or four ($n$ = 16) diary questionnaires on time.

The methods and procedure used in this study were largely the same as those presented for the diary studies in main text. The main difference was that in this pilot study, participants did not nominate a target relationship partner. Instead, they were asked to take into account any support received that day in their ratings of RES and PR. Participants made daily ratings of RES, PR, negative mood, positive mood, and perceptions of support effectiveness using the measures described in the main text; no relational outcomes were measured in this study.

The analysis approach was the same as the approach described in the main text. Fixed effects are displayed in Table S1, differences in effects of RES and PR are displayed in Tables S2 and S3, and random effects are displayed in Table S4. Within-person and between-person effects of RES and PR and their difference are also shown in Figures S1 and S2, respectively.

Truth facet reliability: Between-person (time nested within-person) reliability = 0.72, Within-person reliability = 0.86and Reliability of change = 0.87.

Control facet reliability: Between-person (time nested within-person) reliability = 0.71, Within-person reliability = 0.87, and Reliability of change = 0.9.

RES composite reliability: Between-person (time nested within-person) reliability = 0.75, Within-person reliability = 0.7, Reliability of change = 0.74.

**Table S1**

Summary of results from pilot daily diary study, with unstandardized coefficients

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.75 | 0.09 | 4.57 | 4.93 | 4.60 | 4.90 | 100 | 298 |
| Support Effectiveness | RES-within | 0.49 | 0.09 | 0.32 | 0.65 | 0.35 | 0.63 | 100 | 298 |
| Support Effectiveness | PR-within | 0.22 | 0.08 | 0.07 | 0.37 | 0.09 | 0.34 | 100 | 298 |
| Support Effectiveness | RES-between | 0.62 | 0.09 | 0.43 | 0.80 | 0.46 | 0.77 | 100 | 298 |
| Support Effectiveness | PR-between | 0.25 | 0.10 | 0.04 | 0.44 | 0.08 | 0.41 | 100 | 298 |
| Support Effectiveness | Day | 0.03 | 0.04 | -0.06 | 0.10 | -0.04 | 0.09 | 100 | 298 |
| Negative Mood | Intercept | 2.97 | 0.12 | 2.74 | 3.21 | 2.77 | 3.17 | 100 | 302 |
| Negative Mood | RES-within | -0.12 | 0.07 | -0.27 | 0.01 | -0.24 | -0.009 | 100 | 302 |
| Negative Mood | PR-within | 0.02 | 0.07 | -0.12 | 0.15 | -0.09 | 0.13 | 100 | 302 |
| Negative Mood | RES-between | -0.11 | 0.12 | -0.34 | 0.13 | -0.30 | 0.09 | 100 | 302 |
| Negative Mood | PR-between | -0.14 | 0.13 | -0.39 | 0.11 | -0.35 | 0.07 | 100 | 302 |
| Negative Mood | Day | -0.16 | 0.05 | -0.26 | -0.07 | -0.24 | -0.09 | 100 | 302 |
| Positive Mood | Intercept | 3.71 | 0.11 | 3.49 | 3.93 | 3.53 | 3.89 | 100 | 302 |
| Positive Mood | RES-within | 0.19 | 0.09 | 0.006 | 0.37 | 0.03 | 0.34 | 100 | 302 |
| Positive Mood | PR-within | 0.04 | 0.07 | -0.10 | 0.19 | -0.08 | 0.16 | 100 | 302 |
| Positive Mood | RES-between | 0.19 | 0.11 | -0.02 | 0.41 | 0.02 | 0.37 | 100 | 302 |
| Positive Mood | PR-between | -0.02 | 0.12 | -0.25 | 0.21 | -0.21 | 0.17 | 100 | 302 |
| Positive Mood | Day | 0.13 | 0.06 | 0.02 | 0.25 | 0.04 | 0.23 | 100 | 302 |

**Table S2**

Summary of differences in within-person effects of RES and PR, pilot daily diary study

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.27 | 0.13 | 0.01 | 0.53 | 0.05 | 0.49 |
| Negative Mood | -0.14 | 0.12 | -0.37 | 0.08 | -0.33 | 0.05 |
| Positive Mood | 0.14 | 0.14 | -0.12 | 0.42 | -0.08 | 0.38 |

**Table S3**

Summary of differences in between-person effects of RES and PR, pilot daily diary study

| DV | RES-PR | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Support Effectiveness | 0.37 | 0.17 | 0.03 | 0.72 | 0.09 | 0.66 |
| Negative Mood | 0.03 | 0.22 | -0.40 | 0.46 | -0.33 | 0.38 |
| Positive Mood | 0.21 | 0.20 | -0.18 | 0.60 | -0.11 | 0.54 |

**Table S4**

Summary of random effects, pilot daily diary study

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.77 | 0.09 | 0.59 | 0.96 | 0.62 | 0.92 |
| Support Effectiveness | RES SD | 0.34 | 0.10 | 0.11 | 0.54 | 0.16 | 0.50 |
| Support Effectiveness | PR SD | 0.21 | 0.12 | 0.02 | 0.44 | 0.03 | 0.41 |
| Support Effectiveness | Intercept-RES Cor | 0.15 | 0.28 | -0.40 | 0.67 | -0.32 | 0.60 |
| Support Effectiveness | Intercept-PR Cor | -0.007 | 0.38 | -0.77 | 0.72 | -0.67 | 0.60 |
| Support Effectiveness | RES-PR Cor | -0.02 | 0.45 | -0.80 | 0.83 | -0.73 | 0.74 |
| Support Effectiveness | Residual | 0.87 | 0.07 | 0.75 | 1.01 | 0.77 | 0.99 |
| Support Effectiveness | AR(1) | -0.28 | 0.12 | -0.49 | -0.03 | -0.46 | -0.08 |
| Negative Mood | Intercept SD | 0.98 | 0.12 | 0.75 | 1.23 | 0.79 | 1.18 |
| Negative Mood | RES SD | 0.15 | 0.10 | 0.008 | 0.37 | 0.01 | 0.34 |
| Negative Mood | PR SD | 0.09 | 0.07 | 0.003 | 0.25 | 0.006 | 0.22 |
| Negative Mood | Intercept-RES Cor | 0.18 | 0.41 | -0.70 | 0.87 | -0.57 | 0.81 |
| Negative Mood | Intercept-PR Cor | 0.11 | 0.48 | -0.83 | 0.89 | -0.74 | 0.83 |
| Negative Mood | RES-PR Cor | -0.03 | 0.50 | -0.89 | 0.87 | -0.82 | 0.79 |
| Negative Mood | Residual | 1.04 | 0.07 | 0.92 | 1.19 | 0.94 | 1.16 |
| Negative Mood | AR(1) | 0.06 | 0.12 | -0.17 | 0.29 | -0.13 | 0.25 |
| Positive Mood | Intercept SD | 0.61 | 0.22 | 0.09 | 0.97 | 0.16 | 0.92 |
| Positive Mood | RES SD | 0.40 | 0.13 | 0.12 | 0.66 | 0.18 | 0.61 |
| Positive Mood | PR SD | 0.11 | 0.08 | 0.005 | 0.29 | 0.01 | 0.25 |
| Positive Mood | Intercept-RES Cor | 0.09 | 0.35 | -0.64 | 0.73 | -0.51 | 0.65 |
| Positive Mood | Intercept-PR Cor | -0.24 | 0.48 | -0.94 | 0.77 | -0.89 | 0.66 |
| Positive Mood | RES-PR Cor | -0.15 | 0.49 | -0.91 | 0.83 | -0.86 | 0.73 |
| Positive Mood | Residual | 1.17 | 0.09 | 1.00 | 1.34 | 1.02 | 1.32 |
| Positive Mood | AR(1) | 0.24 | 0.15 | -0.07 | 0.51 | -0.02 | 0.48 |

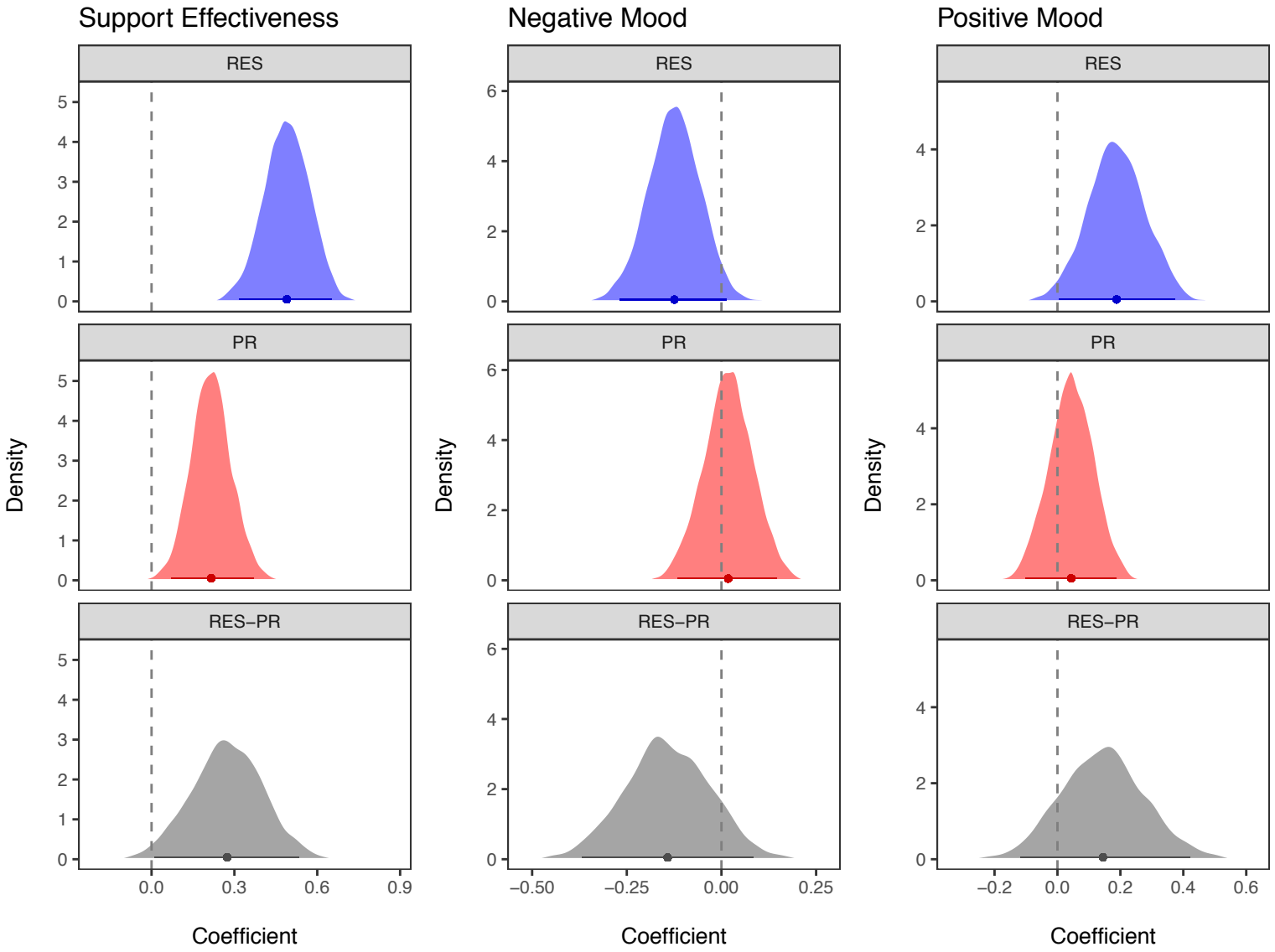


*Figure S1.* Posterior distributions of within-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), pilot diary study.

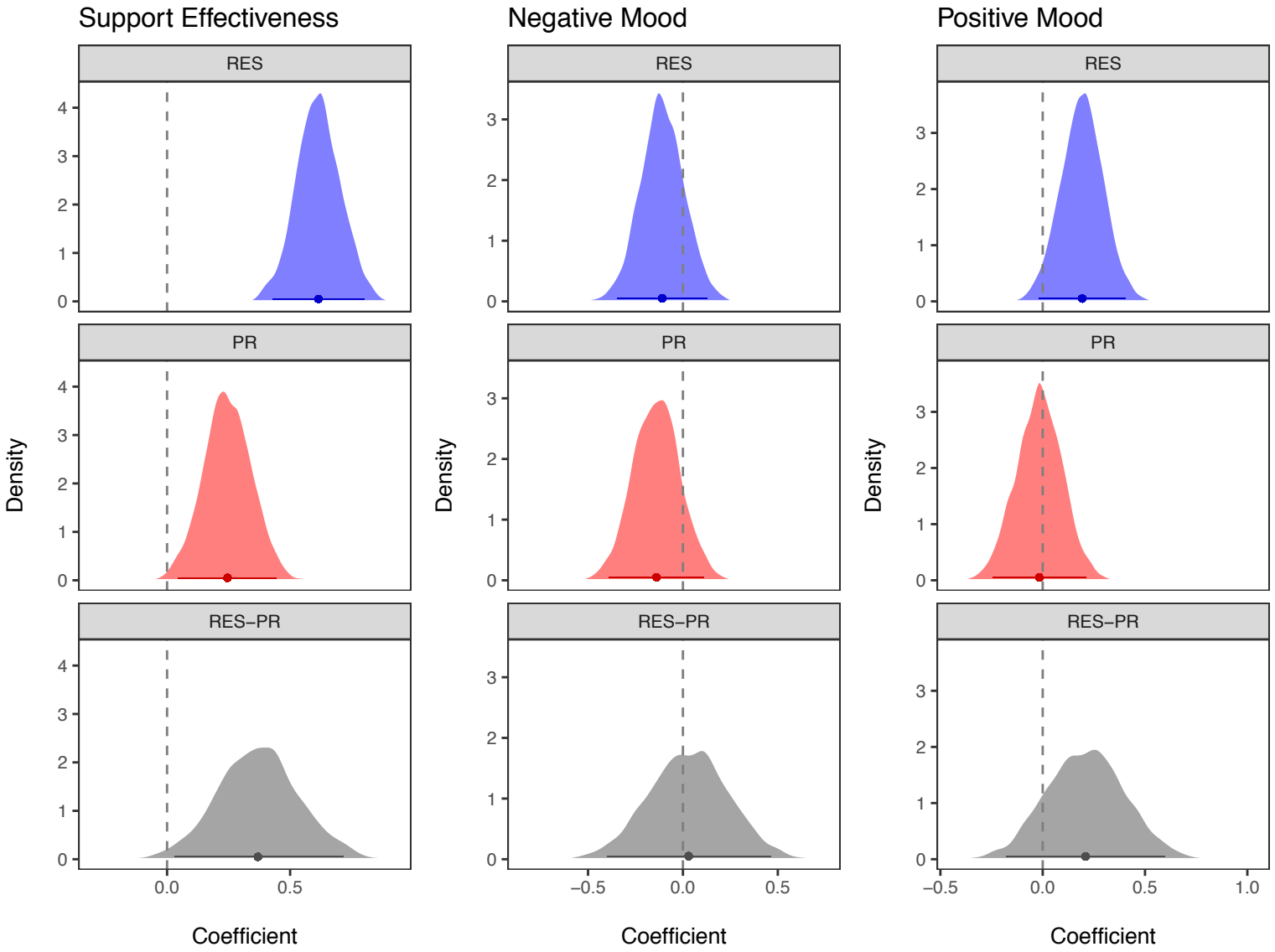


*Figure S2.* Posterior distributions of between-person effects of regulatory effectiveness of support (RES) and perceived responsiveness (PR) and the difference in their effects (RES-PR), pilot diary study.

## Meta-Analysis without Support Effectiveness

We performed additional versions of our analyses without support effectiveness included in order to reduce potential issues of content overlap with RES and PR.

**Table S5**

Summary of supplemental meta-analysis results, fixed effects

| Variable | Coefficient | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Obs |
|---|---|---|---|---|---|---|---|---|
| RES | Intercept | 0.23 | 0.05 | 0.13 | 0.35 | 0.15 | 0.32 | 46 |
| RES | Relational Variable | -0.06 | 0.08 | -0.24 | 0.10 | -0.19 | 0.06 | 46 |
| RES | Level of Analysis | -0.08 | 0.03 | -0.13 | -0.02 | -0.13 | -0.03 | 46 |
| PR | Intercept | 0.05 | 0.04 | -0.04 | 0.14 | -0.02 | 0.12 | 46 |
| PR | Relational Variable | 0.41 | 0.06 | 0.29 | 0.52 | 0.31 | 0.50 | 46 |
| PR | Level of Analysis | -0.01 | 0.03 | -0.07 | 0.05 | -0.06 | 0.04 | 46 |
| RES-PR | Intercept | 0.15 | 0.05 | 0.07 | 0.26 | 0.08 | 0.23 | 46 |
| RES-PR | Relational Variable | -0.43 | 0.07 | -0.58 | -0.29 | -0.54 | -0.32 | 46 |
| RES-PR | Level of Analysis | -0.06 | 0.04 | -0.15 | 0.02 | -0.13 | 0.01 | 46 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. RES-PR = difference of RES and PR (RES minus PR). Relational Variable is coded as 1 = relational variable, 0 = non-relational variable (self-regulation relevant variable). Level of Analysis is coded as 1 = within-person effect, 0 = between-person.

**Table S6**

Summary of supplemental meta-analysis results, random effects

| Model | Term | Estimate | SE | Lower | Upper |
|---|---|---|---|---|---|
| RES | DV SD | 0.07 | 0.06 | 0.00 | 0.24 |
| RES | Study SD | 0.05 | 0.05 | 0.00 | 0.16 |
| RES | DV x Study SD | 0.03 | 0.02 | 0.00 | 0.09 |
| RES | Residual | 0.04 | 0.02 | 0.00 | 0.09 |
| PR | DV SD | 0.04 | 0.03 | 0.00 | 0.13 |
| PR | Study SD | 0.05 | 0.05 | 0.00 | 0.18 |
| PR | DV x Study SD | 0.02 | 0.01 | 0.00 | 0.05 |
| PR | Residual | 0.05 | 0.02 | 0.01 | 0.09 |
| RES-PR | DV SD | 0.04 | 0.04 | 0.00 | 0.15 |
| RES-PR | Study SD | 0.04 | 0.05 | 0.00 | 0.15 |
| RES-PR | DV x Study SD | 0.03 | 0.02 | 0.00 | 0.08 |
| RES-PR | Residual | 0.05 | 0.03 | 0.00 | 0.11 |

*Note.* RES = Regulatory Effectiveness of Support. PR = Perceived Responsiveness. RES-PR = difference of RES and PR (RES minus PR). Relational Variable is coded as 1 = relational variable, 0 = non-relational variable (self-regulation relevant variable). Level of Analysis is coded as 1 = within-person effect, 0 = between-person. SD = standard deviation.

## Results summaries for results with only RES and only PR

The following tables show the results of the main analyses with the effects of RES and PR modeled separately. All results present unstandardized coefficients. Lower and Upper refer to 95% credibility intervals, and Lower90 and Upper90 refer to 90% credibility intervals

**Table S7**

Effects of RES, Study 2

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Negative Mood | Intercept | 1.70 | 0.07 | 1.57 | 1.83 | 1.59 | 1.81 | 181 |
| Negative Mood | RES | -0.45 | 0.07 | -0.59 | -0.32 | -0.56 | -0.34 | 181 |
| Positive Mood | Intercept | 5.03 | 0.08 | 4.88 | 5.19 | 4.90 | 5.17 | 181 |
| Positive Mood | RES | 0.79 | 0.09 | 0.63 | 0.97 | 0.65 | 0.93 | 181 |
| IOS | Intercept | 5.99 | 0.07 | 5.85 | 6.14 | 5.87 | 6.12 | 181 |
| IOS | RES | 0.48 | 0.07 | 0.34 | 0.63 | 0.36 | 0.60 | 181 |

**Table S8**

Effects of PR, Study 2

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Negative Mood | Intercept | 1.71 | 0.07 | 1.57 | 1.84 | 1.59 | 1.82 | 181 |
| Negative Mood | PR | -0.44 | 0.08 | -0.61 | -0.28 | -0.58 | -0.31 | 181 |
| Positive Mood | Intercept | 5.04 | 0.09 | 4.87 | 5.22 | 4.89 | 5.18 | 181 |
| Positive Mood | PR | 0.85 | 0.11 | 0.64 | 1.06 | 0.68 | 1.03 | 181 |
| IOS | Intercept | 5.99 | 0.07 | 5.87 | 6.13 | 5.89 | 6.11 | 181 |
| IOS | PR | 0.71 | 0.08 | 0.56 | 0.87 | 0.58 | 0.85 | 181 |

**Table S9**

Fixed Effects of RES, Study 3

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.29 | 0.06 | 4.17 | 4.41 | 4.19 | 4.39 | 222 | 720 |
| Support Effectiveness | RES-within | 0.57 | 0.05 | 0.47 | 0.67 | 0.49 | 0.66 | 222 | 720 |
| Support Effectiveness | RES-between | 0.75 | 0.05 | 0.65 | 0.85 | 0.66 | 0.84 | 222 | 720 |
| Support Effectiveness | Day | -0.05 | 0.03 | -0.12 | 0.01 | -0.11 | 0.000 | 222 | 720 |
| Negative Mood | Intercept | 2.95 | 0.08 | 2.81 | 3.10 | 2.83 | 3.08 | 222 | 729 |
| Negative Mood | RES-within | -0.24 | 0.04 | -0.32 | -0.16 | -0.30 | -0.18 | 222 | 729 |
| Negative Mood | RES-between | -0.22 | 0.07 | -0.35 | -0.09 | -0.33 | -0.11 | 222 | 729 |
| Negative Mood | Day | -0.14 | 0.03 | -0.20 | -0.08 | -0.19 | -0.09 | 222 | 729 |
| Positive Mood | Intercept | 3.66 | 0.07 | 3.53 | 3.80 | 3.55 | 3.78 | 222 | 729 |
| Positive Mood | RES-within | 0.24 | 0.04 | 0.15 | 0.32 | 0.17 | 0.31 | 222 | 729 |
| Positive Mood | RES-between | 0.25 | 0.06 | 0.14 | 0.37 | 0.15 | 0.35 | 222 | 729 |
| Positive Mood | Day | 0.02 | 0.03 | -0.05 | 0.08 | -0.04 | 0.07 | 222 | 729 |
| Coping | Intercept | 4.42 | 0.06 | 4.31 | 4.53 | 4.33 | 4.51 | 222 | 729 |
| Coping | RES-within | 0.12 | 0.03 | 0.07 | 0.18 | 0.08 | 0.17 | 222 | 729 |
| Coping | RES-between | 0.13 | 0.05 | 0.04 | 0.22 | 0.05 | 0.21 | 222 | 729 |
| Coping | Day | -0.12 | 0.02 | -0.17 | -0.07 | -0.16 | -0.08 | 222 | 729 |
| IOS | Intercept | 4.23 | 0.09 | 4.05 | 4.42 | 4.08 | 4.39 | 222 | 729 |
| IOS | RES-within | 0.32 | 0.04 | 0.23 | 0.40 | 0.25 | 0.39 | 222 | 729 |
| IOS | RES-between | 0.60 | 0.08 | 0.44 | 0.77 | 0.47 | 0.74 | 222 | 729 |
| IOS | Day | 0.003 | 0.03 | -0.05 | 0.06 | -0.04 | 0.05 | 222 | 729 |

**Table S10**

Fixed Effects of PR, Study 3

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.29 | 0.07 | 4.16 | 4.42 | 4.18 | 4.40 | 226 | 736 |
| Support Effectiveness | PR-within | 0.53 | 0.05 | 0.42 | 0.64 | 0.44 | 0.62 | 226 | 736 |
| Support Effectiveness | PR-between | 0.63 | 0.05 | 0.53 | 0.73 | 0.55 | 0.72 | 226 | 736 |
| Support Effectiveness | Day | -0.07 | 0.03 | -0.13 | 0.002 | -0.12 | -0.009 | 226 | 736 |
| Negative Mood | Intercept | 2.92 | 0.07 | 2.77 | 3.06 | 2.80 | 3.04 | 227 | 758 |
| Negative Mood | PR-within | -0.16 | 0.05 | -0.26 | -0.07 | -0.24 | -0.09 | 227 | 758 |
| Negative Mood | PR-between | -0.18 | 0.06 | -0.29 | -0.07 | -0.27 | -0.08 | 227 | 758 |
| Negative Mood | Day | -0.13 | 0.03 | -0.19 | -0.07 | -0.18 | -0.08 | 227 | 758 |
| Positive Mood | Intercept | 3.68 | 0.07 | 3.54 | 3.81 | 3.57 | 3.79 | 227 | 758 |
| Positive Mood | PR-within | 0.21 | 0.05 | 0.11 | 0.30 | 0.13 | 0.29 | 227 | 758 |
| Positive Mood | PR-between | 0.11 | 0.05 | 0.009 | 0.21 | 0.02 | 0.19 | 227 | 758 |
| Positive Mood | Day | 0.003 | 0.03 | -0.06 | 0.07 | -0.05 | 0.06 | 227 | 758 |
| Coping | Intercept | 4.37 | 0.06 | 4.26 | 4.49 | 4.28 | 4.47 | 227 | 758 |
| Coping | PR-within | 0.08 | 0.03 | 0.02 | 0.15 | 0.03 | 0.14 | 227 | 758 |
| Coping | PR-between | 0.11 | 0.04 | 0.03 | 0.19 | 0.04 | 0.18 | 227 | 758 |
| Coping | Day | -0.13 | 0.02 | -0.18 | -0.08 | -0.17 | -0.09 | 227 | 758 |
| IOS | Intercept | 4.25 | 0.09 | 4.08 | 4.42 | 4.11 | 4.39 | 227 | 758 |
| IOS | PR-within | 0.51 | 0.04 | 0.43 | 0.60 | 0.44 | 0.58 | 227 | 758 |
| IOS | PR-between | 0.67 | 0.06 | 0.55 | 0.80 | 0.57 | 0.78 | 227 | 758 |
| IOS | Day | 0.01 | 0.03 | -0.04 | 0.06 | -0.03 | 0.05 | 227 | 758 |

**Table S11**

Fixed Effects of RES, Study 4

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.29 | 0.07 | 4.15 | 4.44 | 4.17 | 4.42 | 176 | 538 |
| Support Effectiveness | RES-within | 0.65 | 0.06 | 0.53 | 0.77 | 0.55 | 0.75 | 176 | 538 |
| Support Effectiveness | RES-between | 0.71 | 0.06 | 0.60 | 0.82 | 0.61 | 0.80 | 176 | 538 |
| Support Effectiveness | Day | -0.01 | 0.04 | -0.08 | 0.06 | -0.07 | 0.05 | 176 | 538 |
| Negative Mood | Intercept | 3.04 | 0.09 | 2.87 | 3.22 | 2.89 | 3.19 | 176 | 548 |
| Negative Mood | RES-within | -0.20 | 0.05 | -0.30 | -0.10 | -0.29 | -0.12 | 176 | 548 |
| Negative Mood | RES-between | -0.33 | 0.07 | -0.46 | -0.20 | -0.43 | -0.22 | 176 | 548 |
| Negative Mood | Day | -0.13 | 0.03 | -0.20 | -0.07 | -0.19 | -0.08 | 176 | 548 |
| Positive Mood | Intercept | 3.80 | 0.07 | 3.65 | 3.94 | 3.68 | 3.91 | 176 | 548 |
| Positive Mood | RES-within | 0.15 | 0.05 | 0.05 | 0.26 | 0.07 | 0.24 | 176 | 548 |
| Positive Mood | RES-between | 0.37 | 0.06 | 0.26 | 0.49 | 0.28 | 0.47 | 176 | 548 |
| Positive Mood | Day | 0.03 | 0.03 | -0.03 | 0.10 | -0.02 | 0.09 | 176 | 548 |
| Coping | Intercept | 4.38 | 0.07 | 4.25 | 4.52 | 4.27 | 4.49 | 176 | 549 |
| Coping | RES-within | 0.17 | 0.04 | 0.09 | 0.24 | 0.10 | 0.23 | 176 | 549 |
| Coping | RES-between | 0.16 | 0.05 | 0.05 | 0.26 | 0.07 | 0.24 | 176 | 549 |
| Coping | Day | -0.18 | 0.03 | -0.23 | -0.13 | -0.22 | -0.13 | 176 | 549 |
| IOS | Intercept | 4.12 | 0.10 | 3.93 | 4.32 | 3.95 | 4.28 | 176 | 549 |
| IOS | RES-within | 0.32 | 0.05 | 0.22 | 0.43 | 0.24 | 0.41 | 176 | 549 |
| IOS | RES-between | 0.72 | 0.08 | 0.57 | 0.88 | 0.59 | 0.86 | 176 | 549 |
| IOS | Day | -0.05 | 0.03 | -0.11 | 0.01 | -0.10 | 0.002 | 176 | 549 |
| Sleep Quality | Intercept | 4.98 | 0.11 | 4.76 | 5.20 | 4.80 | 5.16 | 131 | 288 |
| Sleep Quality | RES-within (lagged) | 0.11 | 0.08 | -0.04 | 0.26 | -0.01 | 0.24 | 131 | 288 |
| Sleep Quality | RES-between | 0.21 | 0.08 | 0.05 | 0.38 | 0.07 | 0.35 | 131 | 288 |
| Sleep Quality | Day | -0.02 | 0.07 | -0.15 | 0.11 | -0.13 | 0.09 | 131 | 288 |

**Table S12**

Fixed Effects of PR, Study 4

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.29 | 0.07 | 4.14 | 4.43 | 4.17 | 4.41 | 177 | 546 |
| Support Effectiveness | PR-within | 0.65 | 0.06 | 0.53 | 0.77 | 0.54 | 0.75 | 177 | 546 |
| Support Effectiveness | PR-between | 0.72 | 0.06 | 0.60 | 0.83 | 0.62 | 0.82 | 177 | 546 |
| Support Effectiveness | Day | 0.02 | 0.04 | -0.05 | 0.10 | -0.04 | 0.09 | 177 | 546 |
| Negative Mood | Intercept | 3.01 | 0.09 | 2.84 | 3.19 | 2.87 | 3.16 | 179 | 574 |
| Negative Mood | PR-within | -0.18 | 0.06 | -0.29 | -0.07 | -0.28 | -0.09 | 179 | 574 |
| Negative Mood | PR-between | -0.25 | 0.07 | -0.38 | -0.11 | -0.36 | -0.13 | 179 | 574 |
| Negative Mood | Day | -0.14 | 0.03 | -0.21 | -0.08 | -0.20 | -0.09 | 179 | 574 |
| Positive Mood | Intercept | 3.81 | 0.08 | 3.65 | 3.96 | 3.68 | 3.94 | 179 | 574 |
| Positive Mood | PR-within | 0.20 | 0.06 | 0.10 | 0.31 | 0.11 | 0.29 | 179 | 574 |
| Positive Mood | PR-between | 0.21 | 0.06 | 0.09 | 0.33 | 0.11 | 0.31 | 179 | 574 |
| Positive Mood | Day | 0.05 | 0.03 | -0.02 | 0.11 | -0.005 | 0.10 | 179 | 574 |
| Coping | Intercept | 4.35 | 0.07 | 4.21 | 4.49 | 4.23 | 4.47 | 179 | 575 |
| Coping | PR-within | 0.14 | 0.04 | 0.05 | 0.22 | 0.07 | 0.21 | 179 | 575 |
| Coping | PR-between | 0.13 | 0.05 | 0.02 | 0.24 | 0.04 | 0.22 | 179 | 575 |
| Coping | Day | -0.16 | 0.03 | -0.21 | -0.10 | -0.20 | -0.11 | 179 | 575 |
| IOS | Intercept | 4.10 | 0.10 | 3.91 | 4.29 | 3.94 | 4.26 | 179 | 575 |
| IOS | PR-within | 0.38 | 0.04 | 0.29 | 0.46 | 0.30 | 0.45 | 179 | 575 |
| IOS | PR-between | 0.85 | 0.07 | 0.71 | 0.99 | 0.73 | 0.97 | 179 | 575 |
| IOS | Day | -0.04 | 0.03 | -0.10 | 0.01 | -0.09 | 0.005 | 179 | 575 |
| Sleep Quality | Intercept | 5.01 | 0.11 | 4.78 | 5.24 | 4.82 | 5.20 | 135 | 317 |
| Sleep Quality | PR-within (lagged) | -0.007 | 0.08 | -0.16 | 0.14 | -0.14 | 0.12 | 135 | 317 |
| Sleep Quality | PR-between | 0.16 | 0.09 | -0.02 | 0.34 | 0.01 | 0.32 | 135 | 317 |
| Sleep Quality | Day | -0.05 | 0.07 | -0.18 | 0.08 | -0.16 | 0.06 | 135 | 317 |

**Table S13**

Fixed Effects of RES, Study 5

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.54 | 0.07 | 4.41 | 4.67 | 4.43 | 4.65 | 231 | 626 |
| Support Effectiveness | RES-within | 0.56 | 0.06 | 0.45 | 0.67 | 0.47 | 0.65 | 231 | 626 |
| Support Effectiveness | RES-between | 0.63 | 0.05 | 0.53 | 0.73 | 0.55 | 0.72 | 231 | 626 |
| Support Effectiveness | Day | 0.001 | 0.04 | -0.07 | 0.07 | -0.06 | 0.06 | 231 | 626 |
| Negative Mood | Intercept | 2.93 | 0.07 | 2.78 | 3.08 | 2.81 | 3.05 | 231 | 638 |
| Negative Mood | RES-within | -0.16 | 0.05 | -0.25 | -0.07 | -0.24 | -0.09 | 231 | 638 |
| Negative Mood | RES-between | -0.13 | 0.06 | -0.25 | -0.02 | -0.23 | -0.04 | 231 | 638 |
| Negative Mood | Day | -0.20 | 0.03 | -0.26 | -0.14 | -0.25 | -0.15 | 231 | 638 |
| Positive Mood | Intercept | 3.80 | 0.07 | 3.66 | 3.94 | 3.68 | 3.91 | 232 | 641 |
| Positive Mood | RES-within | 0.13 | 0.05 | 0.03 | 0.23 | 0.04 | 0.22 | 232 | 641 |
| Positive Mood | RES-between | 0.29 | 0.05 | 0.19 | 0.39 | 0.20 | 0.37 | 232 | 641 |
| Positive Mood | Day | 0.05 | 0.04 | -0.02 | 0.12 | -0.01 | 0.11 | 232 | 641 |
| Coping | Intercept | 4.44 | 0.07 | 4.31 | 4.57 | 4.33 | 4.55 | 232 | 645 |
| Coping | RES-within | 0.11 | 0.03 | 0.05 | 0.18 | 0.06 | 0.17 | 232 | 645 |
| Coping | RES-between | 0.11 | 0.05 | 0.01 | 0.20 | 0.03 | 0.19 | 232 | 645 |
| Coping | Day | -0.12 | 0.02 | -0.17 | -0.07 | -0.16 | -0.08 | 232 | 645 |
| IOS | Intercept | 4.28 | 0.10 | 4.09 | 4.48 | 4.12 | 4.45 | 232 | 645 |
| IOS | RES-within | 0.29 | 0.05 | 0.19 | 0.39 | 0.21 | 0.38 | 232 | 645 |
| IOS | RES-between | 0.46 | 0.07 | 0.32 | 0.61 | 0.34 | 0.58 | 232 | 645 |
| IOS | Day | -0.003 | 0.03 | -0.07 | 0.06 | -0.05 | 0.05 | 232 | 645 |
| Sleep Quality | Intercept | 4.82 | 0.12 | 4.59 | 5.04 | 4.64 | 5.01 | 146 | 312 |
| Sleep Quality | RES-within (lagged) | 0.03 | 0.07 | -0.10 | 0.17 | -0.08 | 0.15 | 146 | 312 |
| Sleep Quality | RES-between | 0.17 | 0.10 | -0.01 | 0.35 | 0.02 | 0.33 | 146 | 312 |
| Sleep Quality | Day | -0.02 | 0.06 | -0.13 | 0.10 | -0.11 | 0.08 | 146 | 312 |
| Task Motivation | Intercept | 5.46 | 0.10 | 5.26 | 5.66 | 5.30 | 5.63 | 232 | 607 |
| Task Motivation | RES-within | 0.11 | 0.05 | 0.01 | 0.21 | 0.03 | 0.20 | 232 | 607 |
| Task Motivation | RES-between | 0.21 | 0.07 | 0.07 | 0.35 | 0.09 | 0.33 | 232 | 607 |
| Task Motivation | Day | -0.05 | 0.03 | -0.12 | 0.01 | -0.11 | 0.003 | 232 | 607 |
| Task Performance | Intercept | 5.06 | 0.08 | 4.91 | 5.22 | 4.93 | 5.20 | 232 | 607 |
| Task Performance | RES-within | 0.03 | 0.04 | -0.05 | 0.11 | -0.03 | 0.09 | 232 | 607 |
| Task Performance | RES-between | 0.22 | 0.06 | 0.11 | 0.33 | 0.13 | 0.31 | 232 | 607 |
| Task Performance | Day | -0.05 | 0.03 | -0.11 | 0.008 | -0.10 | -0.002 | 232 | 607 |

**Table S14**

Fixed Effects of PR, Study 5

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 4.54 | 0.07 | 4.41 | 4.66 | 4.43 | 4.64 | 228 | 626 |
| Support Effectiveness | PR-within | 0.57 | 0.07 | 0.43 | 0.70 | 0.45 | 0.68 | 228 | 626 |
| Support Effectiveness | PR-between | 0.69 | 0.06 | 0.58 | 0.80 | 0.60 | 0.79 | 228 | 626 |
| Support Effectiveness | Day | 0.03 | 0.04 | -0.04 | 0.10 | -0.03 | 0.09 | 228 | 626 |
| Negative Mood | Intercept | 2.93 | 0.08 | 2.78 | 3.08 | 2.81 | 3.05 | 228 | 653 |
| Negative Mood | PR-within | -0.12 | 0.06 | -0.23 | -0.01 | -0.22 | -0.03 | 228 | 653 |
| Negative Mood | PR-between | -0.15 | 0.06 | -0.27 | -0.03 | -0.25 | -0.05 | 228 | 653 |
| Negative Mood | Day | -0.21 | 0.03 | -0.27 | -0.15 | -0.26 | -0.16 | 228 | 653 |
| Positive Mood | Intercept | 3.78 | 0.07 | 3.64 | 3.92 | 3.67 | 3.89 | 229 | 657 |
| Positive Mood | PR-within | 0.12 | 0.06 | 0.004 | 0.24 | 0.02 | 0.22 | 229 | 657 |
| Positive Mood | PR-between | 0.22 | 0.06 | 0.11 | 0.33 | 0.13 | 0.32 | 229 | 657 |
| Positive Mood | Day | 0.05 | 0.04 | -0.02 | 0.12 | -0.01 | 0.10 | 229 | 657 |
| Coping | Intercept | 4.42 | 0.07 | 4.29 | 4.55 | 4.31 | 4.53 | 229 | 661 |
| Coping | PR-within | 0.13 | 0.04 | 0.06 | 0.21 | 0.07 | 0.20 | 229 | 661 |
| Coping | PR-between | 0.07 | 0.06 | -0.04 | 0.18 | -0.02 | 0.16 | 229 | 661 |
| Coping | Day | -0.11 | 0.02 | -0.16 | -0.06 | -0.15 | -0.07 | 229 | 661 |
| IOS | Intercept | 4.28 | 0.09 | 4.11 | 4.46 | 4.14 | 4.43 | 229 | 661 |
| IOS | PR-within | 0.43 | 0.05 | 0.32 | 0.54 | 0.34 | 0.52 | 229 | 661 |
| IOS | PR-between | 0.78 | 0.07 | 0.64 | 0.92 | 0.66 | 0.90 | 229 | 661 |
| IOS | Day | 0.009 | 0.03 | -0.04 | 0.07 | -0.04 | 0.06 | 229 | 661 |
| Sleep Quality | Intercept | 4.85 | 0.11 | 4.64 | 5.07 | 4.67 | 5.04 | 148 | 332 |
| Sleep Quality | PR-within (lagged) | 0.09 | 0.08 | -0.07 | 0.24 | -0.04 | 0.22 | 148 | 332 |
| Sleep Quality | PR-between | 0.14 | 0.10 | -0.07 | 0.33 | -0.03 | 0.30 | 148 | 332 |
| Sleep Quality | Day | -0.07 | 0.06 | -0.18 | 0.05 | -0.17 | 0.03 | 148 | 332 |
| Task Motivation | Intercept | 5.46 | 0.10 | 5.27 | 5.65 | 5.30 | 5.63 | 228 | 622 |
| Task Motivation | PR-within | 0.09 | 0.05 | -0.02 | 0.19 | -0.001 | 0.18 | 228 | 622 |
| Task Motivation | PR-between | 0.11 | 0.08 | -0.06 | 0.27 | -0.03 | 0.24 | 228 | 622 |
| Task Motivation | Day | -0.02 | 0.03 | -0.08 | 0.04 | -0.08 | 0.03 | 228 | 622 |
| Task Performance | Intercept | 5.05 | 0.08 | 4.89 | 5.20 | 4.92 | 5.18 | 228 | 622 |
| Task Performance | PR-within | 0.01 | 0.04 | -0.06 | 0.09 | -0.05 | 0.08 | 228 | 622 |
| Task Performance | PR-between | 0.13 | 0.06 | 0.004 | 0.25 | 0.02 | 0.23 | 228 | 622 |
| Task Performance | Day | -0.05 | 0.03 | -0.10 | 0.01 | -0.09 | 0.002 | 228 | 622 |

**Table S15**

Random Effects of RES, Study 3

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.38 | 0.17 | 0.04 | 0.66 | 0.08 | 0.63 |
| Support Effectiveness | RES SD | 0.28 | 0.08 | 0.09 | 0.42 | 0.14 | 0.40 |
| Support Effectiveness | Intercept-RES Cor | -0.20 | 0.40 | -0.93 | 0.73 | -0.85 | 0.54 |
| Support Effectiveness | Residual | 1.21 | 0.05 | 1.11 | 1.30 | 1.13 | 1.28 |
| Support Effectiveness | AR(1) | 0.25 | 0.08 | 0.08 | 0.39 | 0.11 | 0.37 |
| Negative Mood | Intercept SD | 0.90 | 0.07 | 0.75 | 1.04 | 0.78 | 1.02 |
| Negative Mood | RES SD | 0.16 | 0.07 | 0.02 | 0.29 | 0.04 | 0.27 |
| Negative Mood | Intercept-RES Cor | -0.52 | 0.30 | -0.96 | 0.13 | -0.93 | -0.03 |
| Negative Mood | Residual | 1.04 | 0.04 | 0.97 | 1.12 | 0.98 | 1.11 |
| Negative Mood | AR(1) | 0.13 | 0.07 | -0.003 | 0.27 | 0.02 | 0.25 |
| Positive Mood | Intercept SD | 0.74 | 0.10 | 0.51 | 0.91 | 0.56 | 0.88 |
| Positive Mood | RES SD | 0.10 | 0.07 | 0.004 | 0.25 | 0.009 | 0.22 |
| Positive Mood | Intercept-RES Cor | -0.23 | 0.47 | -0.95 | 0.82 | -0.91 | 0.68 |
| Positive Mood | Residual | 1.17 | 0.05 | 1.08 | 1.27 | 1.09 | 1.25 |
| Positive Mood | AR(1) | 0.09 | 0.09 | -0.06 | 0.28 | -0.04 | 0.24 |
| Coping | Intercept SD | 0.52 | 0.14 | 0.16 | 0.71 | 0.24 | 0.69 |
| Coping | RES SD | 0.11 | 0.06 | 0.007 | 0.23 | 0.01 | 0.21 |
| Coping | Intercept-RES Cor | -0.06 | 0.42 | -0.88 | 0.81 | -0.76 | 0.70 |
| Coping | Residual | 0.83 | 0.04 | 0.75 | 0.92 | 0.76 | 0.91 |
| Coping | AR(1) | 0.33 | 0.13 | 0.08 | 0.58 | 0.11 | 0.55 |
| IOS | Intercept SD | 1.26 | 0.08 | 1.11 | 1.42 | 1.12 | 1.39 |
| IOS | RES SD | 0.26 | 0.07 | 0.11 | 0.38 | 0.15 | 0.36 |
| IOS | Intercept-RES Cor | -0.12 | 0.19 | -0.50 | 0.25 | -0.42 | 0.19 |
| IOS | Residual | 0.99 | 0.04 | 0.92 | 1.08 | 0.93 | 1.07 |
| IOS | AR(1) | 0.11 | 0.08 | -0.03 | 0.27 | -0.01 | 0.24 |

**Table S16**

Random Effects of PR, Study 3

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.57 | 0.16 | 0.08 | 0.79 | 0.24 | 0.76 |
| Support Effectiveness | PR SD | 0.21 | 0.11 | 0.02 | 0.41 | 0.03 | 0.38 |
| Support Effectiveness | Intercept-PR Cor | -0.28 | 0.42 | -0.94 | 0.73 | -0.89 | 0.51 |
| Support Effectiveness | Residual | 1.27 | 0.05 | 1.17 | 1.37 | 1.18 | 1.35 |
| Support Effectiveness | AR(1) | 0.13 | 0.09 | -0.04 | 0.31 | -0.01 | 0.29 |
| Negative Mood | Intercept SD | 0.84 | 0.08 | 0.68 | 1.00 | 0.70 | 0.97 |
| Negative Mood | PR SD | 0.22 | 0.10 | 0.03 | 0.39 | 0.05 | 0.37 |
| Negative Mood | Intercept-PR Cor | 0.07 | 0.33 | -0.63 | 0.73 | -0.49 | 0.61 |
| Negative Mood | Residual | 1.09 | 0.04 | 1.00 | 1.18 | 1.02 | 1.16 |
| Negative Mood | AR(1) | 0.21 | 0.07 | 0.07 | 0.36 | 0.09 | 0.33 |
| Positive Mood | Intercept SD | 0.61 | 0.15 | 0.25 | 0.84 | 0.33 | 0.81 |
| Positive Mood | PR SD | 0.17 | 0.10 | 0.008 | 0.37 | 0.02 | 0.34 |
| Positive Mood | Intercept-PR Cor | 0.10 | 0.43 | -0.80 | 0.90 | -0.65 | 0.82 |
| Positive Mood | Residual | 1.21 | 0.05 | 1.11 | 1.31 | 1.12 | 1.30 |
| Positive Mood | AR(1) | 0.24 | 0.09 | 0.07 | 0.42 | 0.10 | 0.39 |
| Coping | Intercept SD | 0.54 | 0.14 | 0.16 | 0.74 | 0.26 | 0.72 |
| Coping | PR SD | 0.06 | 0.04 | 0.003 | 0.17 | 0.005 | 0.15 |
| Coping | Intercept-PR Cor | -0.02 | 0.53 | -0.93 | 0.94 | -0.87 | 0.85 |
| Coping | Residual | 0.90 | 0.04 | 0.82 | 0.99 | 0.83 | 0.97 |
| Coping | AR(1) | 0.33 | 0.11 | 0.11 | 0.54 | 0.15 | 0.52 |
| IOS | Intercept SD | 1.14 | 0.07 | 1.00 | 1.28 | 1.02 | 1.26 |
| IOS | PR SD | 0.18 | 0.08 | 0.02 | 0.31 | 0.04 | 0.29 |
| IOS | Intercept-PR Cor | -0.07 | 0.29 | -0.66 | 0.56 | -0.55 | 0.41 |
| IOS | Residual | 0.93 | 0.04 | 0.86 | 1.00 | 0.87 | 0.99 |
| IOS | AR(1) | 0.12 | 0.07 | -0.02 | 0.27 | 0.002 | 0.25 |

**Table S17**

Random Effects of RES, Study 4

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.71 | 0.09 | 0.53 | 0.88 | 0.56 | 0.85 |
| Support Effectiveness | RES SD | 0.29 | 0.09 | 0.11 | 0.47 | 0.14 | 0.44 |
| Support Effectiveness | Intercept-RES Cor | -0.68 | 0.21 | -0.98 | -0.21 | -0.96 | -0.30 |
| Support Effectiveness | Residual | 1.10 | 0.05 | 1.01 | 1.21 | 1.02 | 1.19 |
| Support Effectiveness | AR(1) | -0.01 | 0.09 | -0.18 | 0.17 | -0.16 | 0.14 |
| Negative Mood | Intercept SD | 0.98 | 0.08 | 0.83 | 1.12 | 0.85 | 1.10 |
| Negative Mood | RES SD | 0.20 | 0.06 | 0.07 | 0.33 | 0.10 | 0.31 |
| Negative Mood | Intercept-RES Cor | -0.73 | 0.21 | -0.99 | -0.25 | -0.98 | -0.34 |
| Negative Mood | Residual | 1.02 | 0.05 | 0.94 | 1.11 | 0.95 | 1.10 |
| Negative Mood | AR(1) | -0.10 | 0.08 | -0.24 | 0.06 | -0.22 | 0.03 |
| Positive Mood | Intercept SD | 0.77 | 0.07 | 0.64 | 0.91 | 0.66 | 0.89 |
| Positive Mood | RES SD | 0.08 | 0.06 | 0.003 | 0.24 | 0.006 | 0.21 |
| Positive Mood | Intercept-RES Cor | -0.03 | 0.50 | -0.92 | 0.89 | -0.85 | 0.82 |
| Positive Mood | Residual | 1.10 | 0.05 | 1.02 | 1.20 | 1.03 | 1.18 |
| Positive Mood | AR(1) | -0.26 | 0.07 | -0.40 | -0.11 | -0.38 | -0.13 |
| Coping | Intercept SD | 0.75 | 0.06 | 0.63 | 0.87 | 0.64 | 0.85 |
| Coping | RES SD | 0.16 | 0.08 | 0.02 | 0.31 | 0.03 | 0.29 |
| Coping | Intercept-RES Cor | -0.34 | 0.32 | -0.94 | 0.31 | -0.87 | 0.21 |
| Coping | Residual | 0.75 | 0.04 | 0.69 | 0.83 | 0.70 | 0.81 |
| Coping | AR(1) | 0.05 | 0.09 | -0.12 | 0.23 | -0.10 | 0.20 |
| IOS | Intercept SD | 1.25 | 0.09 | 1.09 | 1.44 | 1.11 | 1.40 |
| IOS | RES SD | 0.34 | 0.06 | 0.22 | 0.47 | 0.24 | 0.45 |
| IOS | Intercept-RES Cor | 0.03 | 0.17 | -0.31 | 0.36 | -0.26 | 0.31 |
| IOS | Residual | 0.87 | 0.05 | 0.78 | 0.96 | 0.79 | 0.94 |
| IOS | AR(1) | 0.11 | 0.11 | -0.08 | 0.35 | -0.05 | 0.31 |
| Sleep Quality | Intercept SD | 0.98 | 0.11 | 0.77 | 1.19 | 0.80 | 1.15 |
| Sleep Quality | RES SD | 0.16 | 0.10 | 0.008 | 0.38 | 0.02 | 0.34 |
| Sleep Quality | Intercept-RES Cor | 0.39 | 0.42 | -0.68 | 0.97 | -0.47 | 0.94 |
| Sleep Quality | Residual | 1.06 | 0.08 | 0.92 | 1.22 | 0.94 | 1.19 |
| Sleep Quality | AR(1) | -0.28 | 0.12 | -0.51 | -0.02 | -0.47 | -0.06 |

**Table S18**

Random Effects of PR, Study 4

| DV | Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.62 | 0.13 | 0.30 | 0.83 | 0.37 | 0.80 |
| Support Effectiveness | PR SD | 0.16 | 0.11 | 0.008 | 0.40 | 0.01 | 0.36 |
| Support Effectiveness | Intercept-PR Cor | -0.08 | 0.48 | -0.90 | 0.88 | -0.83 | 0.80 |
| Support Effectiveness | Residual | 1.19 | 0.06 | 1.09 | 1.32 | 1.10 | 1.29 |
| Support Effectiveness | AR(1) | 0.02 | 0.10 | -0.16 | 0.22 | -0.13 | 0.19 |
| Negative Mood | Intercept SD | 1.00 | 0.08 | 0.85 | 1.17 | 0.88 | 1.14 |
| Negative Mood | PR SD | 0.26 | 0.09 | 0.06 | 0.43 | 0.10 | 0.40 |
| Negative Mood | Intercept-PR Cor | -0.26 | 0.26 | -0.75 | 0.26 | -0.65 | 0.16 |
| Negative Mood | Residual | 1.02 | 0.04 | 0.94 | 1.11 | 0.95 | 1.09 |
| Negative Mood | AR(1) | 0.002 | 0.08 | -0.15 | 0.17 | -0.13 | 0.14 |
| Positive Mood | Intercept SD | 0.87 | 0.07 | 0.74 | 1.01 | 0.76 | 0.98 |
| Positive Mood | PR SD | 0.10 | 0.07 | 0.004 | 0.27 | 0.007 | 0.23 |
| Positive Mood | Intercept-PR Cor | 0.11 | 0.48 | -0.87 | 0.93 | -0.74 | 0.86 |
| Positive Mood | Residual | 1.08 | 0.04 | 1.00 | 1.17 | 1.02 | 1.15 |
| Positive Mood | AR(1) | -0.27 | 0.07 | -0.40 | -0.14 | -0.38 | -0.16 |
| Coping | Intercept SD | 0.74 | 0.08 | 0.58 | 0.88 | 0.61 | 0.86 |
| Coping | PR SD | 0.22 | 0.06 | 0.08 | 0.35 | 0.11 | 0.32 |
| Coping | Intercept-PR Cor | -0.38 | 0.27 | -0.87 | 0.20 | -0.80 | 0.10 |
| Coping | Residual | 0.83 | 0.04 | 0.76 | 0.91 | 0.77 | 0.90 |
| Coping | AR(1) | 0.21 | 0.10 | 0.03 | 0.41 | 0.06 | 0.37 |
| IOS | Intercept SD | 1.12 | 0.08 | 0.98 | 1.28 | 1.00 | 1.26 |
| IOS | PR SD | 0.12 | 0.08 | 0.006 | 0.29 | 0.01 | 0.27 |
| IOS | Intercept-PR Cor | -0.15 | 0.40 | -0.91 | 0.73 | -0.83 | 0.56 |
| IOS | Residual | 0.89 | 0.04 | 0.82 | 0.97 | 0.83 | 0.96 |
| IOS | AR(1) | 0.07 | 0.08 | -0.09 | 0.24 | -0.06 | 0.21 |
| Sleep Quality | Intercept SD | 1.09 | 0.10 | 0.91 | 1.30 | 0.94 | 1.26 |
| Sleep Quality | PR SD | 0.19 | 0.10 | 0.02 | 0.41 | 0.04 | 0.37 |
| Sleep Quality | Intercept-PR Cor | 0.58 | 0.33 | -0.30 | 0.98 | -0.07 | 0.96 |
| Sleep Quality | Residual | 0.99 | 0.06 | 0.88 | 1.13 | 0.89 | 1.11 |
| Sleep Quality | AR(1) | -0.29 | 0.11 | -0.49 | -0.06 | -0.46 | -0.09 |

**Table S19A**

Random Effects of RES, Study 5

| dv | term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.60 | 0.15 | 0.21 | 0.82 | 0.29 | 0.79 |
| Support Effectiveness | RES SD | 0.17 | 0.10 | 0.008 | 0.38 | 0.02 | 0.35 |
| Support Effectiveness | Intercept-RES Cor | -0.16 | 0.45 | -0.92 | 0.82 | -0.85 | 0.66 |
| Support Effectiveness | Residual | 1.22 | 0.06 | 1.11 | 1.35 | 1.13 | 1.33 |
| Support Effectiveness | AR(1) | 0.10 | 0.09 | -0.08 | 0.29 | -0.05 | 0.26 |
| Negative Mood | Intercept SD | 0.91 | 0.08 | 0.75 | 1.06 | 0.78 | 1.03 |
| Negative Mood | RES SD | 0.22 | 0.09 | 0.03 | 0.39 | 0.06 | 0.36 |
| Negative Mood | Intercept-RES Cor | -0.29 | 0.31 | -0.88 | 0.32 | -0.81 | 0.20 |
| Negative Mood | Residual | 1.01 | 0.05 | 0.92 | 1.11 | 0.94 | 1.09 |
| Negative Mood | AR(1) | 0.07 | 0.09 | -0.10 | 0.26 | -0.07 | 0.22 |
| Positive Mood | Intercept SD | 0.51 | 0.17 | 0.10 | 0.79 | 0.15 | 0.75 |
| Positive Mood | RES SD | 0.12 | 0.09 | 0.004 | 0.31 | 0.008 | 0.28 |
| Positive Mood | Intercept-RES Cor | -0.08 | 0.53 | -0.94 | 0.91 | -0.88 | 0.84 |
| Positive Mood | Residual | 1.27 | 0.06 | 1.16 | 1.38 | 1.18 | 1.36 |
| Positive Mood | AR(1) | 0.18 | 0.09 | -0.01 | 0.35 | 0.02 | 0.33 |
| Coping | Intercept SD | 0.84 | 0.06 | 0.71 | 0.96 | 0.73 | 0.94 |
| Coping | RES SD | 0.07 | 0.05 | 0.003 | 0.19 | 0.006 | 0.17 |
| Coping | Intercept-RES Cor | 0.15 | 0.47 | -0.83 | 0.93 | -0.71 | 0.88 |
| Coping | Residual | 0.80 | 0.04 | 0.74 | 0.87 | 0.74 | 0.86 |
| Coping | AR(1) | 0.11 | 0.09 | -0.05 | 0.28 | -0.02 | 0.26 |
| IOS | Intercept SD | 1.31 | 0.09 | 1.13 | 1.49 | 1.16 | 1.46 |
| IOS | RES SD | 0.25 | 0.10 | 0.04 | 0.42 | 0.07 | 0.40 |
| IOS | Intercept-RES Cor | -0.21 | 0.25 | -0.76 | 0.30 | -0.63 | 0.18 |
| IOS | Residual | 1.03 | 0.06 | 0.92 | 1.15 | 0.93 | 1.13 |
| IOS | AR(1) | 0.17 | 0.10 | -0.02 | 0.39 | 0.009 | 0.35 |
| Sleep Quality | Intercept SD | 1.06 | 0.14 | 0.76 | 1.31 | 0.82 | 1.27 |
| Sleep Quality | RES SD | 0.11 | 0.08 | 0.006 | 0.29 | 0.01 | 0.26 |
| Sleep Quality | Intercept-RES Cor | 0.23 | 0.49 | -0.84 | 0.96 | -0.70 | 0.92 |
| Sleep Quality | Residual | 1.04 | 0.08 | 0.90 | 1.21 | 0.92 | 1.18 |
| Sleep Quality | AR(1) | 0.23 | 0.14 | -0.04 | 0.52 | 0.000 | 0.47 |

**Table S19B**

Random Effects of RES, Study 5, continued

| dv | term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Task Motivation | Intercept SD | 1.22 | 0.10 | 1.03 | 1.42 | 1.06 | 1.38 |
| Task Motivation | RES SD | 0.29 | 0.07 | 0.13 | 0.42 | 0.16 | 0.40 |
| Task Motivation | Intercept-RES Cor | -0.57 | 0.20 | -0.94 | -0.17 | -0.90 | -0.23 |
| Task Motivation | Residual | 1.00 | 0.05 | 0.90 | 1.11 | 0.91 | 1.09 |
| Task Motivation | AR(1) | 0.30 | 0.11 | 0.09 | 0.52 | 0.12 | 0.48 |
| Task Performance | Intercept SD | 0.88 | 0.11 | 0.63 | 1.07 | 0.68 | 1.04 |
| Task Performance | RES SD | 0.09 | 0.06 | 0.003 | 0.24 | 0.006 | 0.21 |
| Task Performance | Intercept-RES Cor | -0.17 | 0.48 | -0.95 | 0.84 | -0.90 | 0.70 |
| Task Performance | Residual | 0.93 | 0.06 | 0.82 | 1.04 | 0.83 | 1.02 |
| Task Performance | AR(1) | 0.33 | 0.13 | 0.07 | 0.58 | 0.11 | 0.54 |

**Table S20A**

Random Effects of PR, Study 5

| dv | term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept SD | 0.45 | 0.18 | 0.05 | 0.73 | 0.10 | 0.70 |
| Support Effectiveness | PR SD | 0.25 | 0.14 | 0.02 | 0.53 | 0.03 | 0.49 |
| Support Effectiveness | Intercept-PR Cor | -0.06 | 0.46 | -0.89 | 0.87 | -0.80 | 0.74 |
| Support Effectiveness | Residual | 1.28 | 0.06 | 1.15 | 1.40 | 1.17 | 1.38 |
| Support Effectiveness | AR(1) | 0.06 | 0.09 | -0.12 | 0.23 | -0.09 | 0.21 |
| Negative Mood | Intercept SD | 0.88 | 0.07 | 0.74 | 1.03 | 0.76 | 1.01 |
| Negative Mood | PR SD | 0.27 | 0.09 | 0.06 | 0.43 | 0.10 | 0.41 |
| Negative Mood | Intercept-PR Cor | -0.04 | 0.29 | -0.57 | 0.61 | -0.48 | 0.47 |
| Negative Mood | Residual | 1.01 | 0.04 | 0.93 | 1.09 | 0.94 | 1.08 |
| Negative Mood | AR(1) | 0.05 | 0.08 | -0.11 | 0.21 | -0.08 | 0.18 |
| Positive Mood | Intercept SD | 0.59 | 0.15 | 0.18 | 0.83 | 0.27 | 0.79 |
| Positive Mood | PR SD | 0.17 | 0.10 | 0.01 | 0.39 | 0.02 | 0.35 |
| Positive Mood | Intercept-PR Cor | 0.24 | 0.44 | -0.76 | 0.94 | -0.58 | 0.89 |
| Positive Mood | Residual | 1.24 | 0.06 | 1.14 | 1.36 | 1.15 | 1.34 |
| Positive Mood | AR(1) | 0.15 | 0.09 | -0.03 | 0.34 | -0.002 | 0.31 |
| Coping | Intercept SD | 0.84 | 0.06 | 0.71 | 0.96 | 0.73 | 0.94 |
| Coping | PR SD | 0.06 | 0.04 | 0.002 | 0.16 | 0.004 | 0.14 |
| Coping | Intercept-PR Cor | -0.19 | 0.52 | -0.97 | 0.88 | -0.93 | 0.78 |
| Coping | Residual | 0.85 | 0.03 | 0.78 | 0.92 | 0.79 | 0.90 |
| Coping | AR(1) | 0.14 | 0.08 | -0.01 | 0.30 | 0.008 | 0.27 |
| IOS | Intercept SD | 1.12 | 0.08 | 0.95 | 1.28 | 0.98 | 1.26 |
| IOS | PR SD | 0.31 | 0.08 | 0.15 | 0.46 | 0.18 | 0.43 |
| IOS | Intercept-PR Cor | -0.15 | 0.21 | -0.54 | 0.27 | -0.48 | 0.20 |
| IOS | Residual | 0.95 | 0.05 | 0.87 | 1.05 | 0.88 | 1.04 |
| IOS | AR(1) | 0.21 | 0.09 | 0.03 | 0.40 | 0.06 | 0.37 |
| Sleep Quality | Intercept SD | 1.11 | 0.12 | 0.86 | 1.34 | 0.92 | 1.30 |
| Sleep Quality | PR SD | 0.11 | 0.08 | 0.004 | 0.31 | 0.008 | 0.27 |
| Sleep Quality | Intercept-PR Cor | -0.08 | 0.52 | -0.93 | 0.91 | -0.88 | 0.82 |
| Sleep Quality | Residual | 1.03 | 0.08 | 0.90 | 1.19 | 0.92 | 1.17 |
| Sleep Quality | AR(1) | 0.01 | 0.15 | -0.26 | 0.31 | -0.21 | 0.26 |

**Table S20B**

Random Effects of PR, Study 5, continued

| dv | term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|---|
| Task Motivation | Intercept SD | 1.27 | 0.09 | 1.09 | 1.46 | 1.12 | 1.43 |
| Task Motivation | PR SD | 0.20 | 0.09 | 0.03 | 0.37 | 0.05 | 0.34 |
| Task Motivation | Intercept-PR Cor | -0.39 | 0.33 | -0.93 | 0.36 | -0.87 | 0.18 |
| Task Motivation | Residual | 1.03 | 0.05 | 0.93 | 1.14 | 0.94 | 1.12 |
| Task Motivation | AR(1) | 0.21 | 0.10 | 0.02 | 0.40 | 0.05 | 0.37 |
| Task Performance | Intercept SD | 0.93 | 0.10 | 0.73 | 1.11 | 0.77 | 1.08 |
| Task Performance | PR SD | 0.06 | 0.05 | 0.003 | 0.19 | 0.005 | 0.16 |
| Task Performance | Intercept-PR Cor | 0.08 | 0.50 | -0.89 | 0.94 | -0.80 | 0.86 |
| Task Performance | Residual | 0.90 | 0.05 | 0.81 | 1.00 | 0.83 | 0.99 |
| Task Performance | AR(1) | 0.34 | 0.12 | 0.10 | 0.57 | 0.14 | 0.53 |

**Table S21**

Effects of Self-Reported RES, Study 6

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Sup. Eff. | Intercept | 5.21 | 0.07 | 5.07 | 5.34 | 5.09 | 5.32 | 101 |
| Sup. Eff. | RES | 0.80 | 0.05 | 0.70 | 0.89 | 0.71 | 0.88 | 101 |
| Negative Mood | Intercept | 2.63 | 0.10 | 2.43 | 2.83 | 2.47 | 2.80 | 101 |
| Negative Mood | RES | -0.30 | 0.07 | -0.45 | -0.15 | -0.42 | -0.18 | 101 |
| Negative Mood | Pre Neg. Mood | 0.47 | 0.05 | 0.36 | 0.58 | 0.38 | 0.56 | 101 |
| Positive Mood | Intercept | 3.88 | 0.07 | 3.74 | 4.03 | 3.76 | 4.00 | 101 |
| Positive Mood | RES | 0.37 | 0.06 | 0.26 | 0.48 | 0.28 | 0.46 | 101 |
| Positive Mood | Pre Pos. Mood | 0.56 | 0.06 | 0.45 | 0.68 | 0.47 | 0.66 | 101 |
| IOS | Intercept | 4.96 | 0.11 | 4.76 | 5.17 | 4.78 | 5.13 | 101 |
| IOS | RES | 0.53 | 0.08 | 0.37 | 0.68 | 0.40 | 0.65 | 101 |
| Closeness | Intercept | 6.41 | 0.06 | 6.28 | 6.53 | 6.30 | 6.51 | 101 |
| Closeness | RES | 0.25 | 0.05 | 0.16 | 0.34 | 0.17 | 0.32 | 101 |
| Closeness | Pre Closeness | 0.35 | 0.08 | 0.20 | 0.51 | 0.23 | 0.48 | 101 |

**Table S22**

Effects of Self-Reported PR, Study 6

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Sup. Eff. | Intercept | 5.21 | 0.09 | 5.02 | 5.39 | 5.05 | 5.36 | 101 |
| Sup. Eff. | PR | 0.66 | 0.07 | 0.51 | 0.80 | 0.54 | 0.78 | 101 |
| Negative Mood | Intercept | 2.63 | 0.11 | 2.42 | 2.83 | 2.46 | 2.80 | 101 |
| Negative Mood | PR | -0.19 | 0.09 | -0.37 | -0.02 | -0.34 | -0.04 | 101 |
| Negative Mood | Pre Neg. Mood | 0.48 | 0.06 | 0.37 | 0.60 | 0.39 | 0.58 | 101 |
| Positive Mood | Intercept | 3.89 | 0.08 | 3.73 | 4.04 | 3.76 | 4.02 | 101 |
| Positive Mood | PR | 0.31 | 0.07 | 0.17 | 0.44 | 0.19 | 0.42 | 101 |
| Positive Mood | Pre Pos. Mood | 0.61 | 0.06 | 0.49 | 0.73 | 0.51 | 0.71 | 101 |
| IOS | Intercept | 4.96 | 0.10 | 4.77 | 5.17 | 4.80 | 5.13 | 101 |
| IOS | PR | 0.67 | 0.08 | 0.51 | 0.84 | 0.53 | 0.81 | 101 |
| Closeness | Intercept | 6.41 | 0.06 | 6.29 | 6.52 | 6.31 | 6.50 | 101 |
| Closeness | PR | 0.43 | 0.05 | 0.33 | 0.52 | 0.35 | 0.51 | 101 |
| Closeness | Pre Closeness | 0.28 | 0.07 | 0.14 | 0.42 | 0.16 | 0.40 | 101 |

**Table S23**

Effects of Coder-Rated RES, Study 6

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Sup. Eff. | Intercept | 5.21 | 0.07 | 5.08 | 5.34 | 5.10 | 5.32 | 101 |
| Sup. Eff. | RES | 0.80 | 0.05 | 0.70 | 0.89 | 0.72 | 0.88 | 101 |
| Negative Mood | Intercept | 2.63 | 0.10 | 2.44 | 2.82 | 2.47 | 2.79 | 101 |
| Negative Mood | RES | -0.30 | 0.08 | -0.45 | -0.15 | -0.43 | -0.18 | 101 |
| Negative Mood | Pre Neg. Mood | 0.47 | 0.05 | 0.37 | 0.58 | 0.38 | 0.56 | 101 |
| Positive Mood | Intercept | 3.88 | 0.08 | 3.73 | 4.04 | 3.76 | 4.01 | 101 |
| Positive Mood | RES | 0.37 | 0.06 | 0.26 | 0.49 | 0.28 | 0.47 | 101 |
| Positive Mood | Pre Pos. Mood | 0.56 | 0.06 | 0.45 | 0.68 | 0.46 | 0.67 | 101 |
| IOS | Intercept | 4.96 | 0.11 | 4.75 | 5.17 | 4.79 | 5.14 | 101 |
| IOS | RES | 0.53 | 0.07 | 0.38 | 0.67 | 0.40 | 0.65 | 101 |
| Closeness | Intercept | 6.41 | 0.06 | 6.28 | 6.53 | 6.30 | 6.51 | 101 |
| Closeness | RES | 0.25 | 0.05 | 0.16 | 0.34 | 0.17 | 0.32 | 101 |
| Closeness | Pre Closeness | 0.35 | 0.08 | 0.20 | 0.51 | 0.23 | 0.48 | 101 |

**Table S24**

Effects of Coder-Rated PR, Study 6

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Sup. Eff. | Intercept | 5.21 | 0.09 | 5.02 | 5.39 | 5.05 | 5.36 | 101 |
| Sup. Eff. | PR | 0.66 | 0.07 | 0.51 | 0.80 | 0.54 | 0.78 | 101 |
| Negative Mood | Intercept | 2.63 | 0.11 | 2.42 | 2.83 | 2.46 | 2.80 | 101 |
| Negative Mood | PR | -0.19 | 0.09 | -0.37 | -0.02 | -0.34 | -0.04 | 101 |
| Negative Mood | Pre Neg. Mood | 0.48 | 0.06 | 0.37 | 0.60 | 0.39 | 0.58 | 101 |
| Positive Mood | Intercept | 3.89 | 0.08 | 3.73 | 4.04 | 3.76 | 4.02 | 101 |
| Positive Mood | PR | 0.31 | 0.07 | 0.17 | 0.44 | 0.19 | 0.42 | 101 |
| Positive Mood | Pre Pos. Mood | 0.61 | 0.06 | 0.49 | 0.73 | 0.51 | 0.71 | 101 |
| IOS | Intercept | 4.96 | 0.10 | 4.77 | 5.17 | 4.80 | 5.13 | 101 |
| IOS | PR | 0.67 | 0.08 | 0.51 | 0.84 | 0.53 | 0.81 | 101 |
| Closeness | Intercept | 6.41 | 0.06 | 6.29 | 6.52 | 6.31 | 6.50 | 101 |
| Closeness | PR | 0.43 | 0.05 | 0.33 | 0.52 | 0.35 | 0.51 | 101 |
| Closeness | Pre Closeness | 0.28 | 0.07 | 0.14 | 0.42 | 0.16 | 0.40 | 101 |

**Table S25**

Effects of RES, Study 7

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 5.34 | 0.08 | 5.18 | 5.50 | 5.21 | 5.48 | 110 |
| Support Effectiveness | RES | 0.85 | 0.07 | 0.70 | 0.99 | 0.72 | 0.97 | 110 |
| Negative Mood | Intercept | 2.32 | 0.05 | 2.22 | 2.41 | 2.24 | 2.40 | 105 |
| Negative Mood | RES | -0.10 | 0.05 | -0.19 | -0.009 | -0.17 | -0.02 | 105 |
| Negative Mood | Pre Neg. Mood | 0.69 | 0.05 | 0.60 | 0.79 | 0.61 | 0.77 | 105 |
| Positive Mood | Intercept | 4.17 | 0.07 | 4.02 | 4.32 | 4.05 | 4.29 | 105 |
| Positive Mood | RES | 0.02 | 0.07 | -0.11 | 0.14 | -0.09 | 0.13 | 105 |
| Positive Mood | Pre Pos. Mood | 0.93 | 0.07 | 0.80 | 1.06 | 0.82 | 1.04 | 105 |
| IOS | Intercept | 5.04 | 0.12 | 4.81 | 5.28 | 4.84 | 5.24 | 107 |
| IOS | RES | 0.56 | 0.11 | 0.33 | 0.78 | 0.37 | 0.74 | 107 |
| Closeness | Intercept | 5.72 | 0.07 | 5.57 | 5.87 | 5.60 | 5.84 | 110 |
| Closeness | RES | 0.33 | 0.07 | 0.20 | 0.47 | 0.22 | 0.45 | 110 |
| Closeness | Pre Closeness | 0.55 | 0.06 | 0.44 | 0.67 | 0.46 | 0.65 | 110 |
| Change in Motivation | Intercept | 0.37 | 0.11 | 0.15 | 0.59 | 0.18 | 0.55 | 105 |
| Change in Motivation | RES | 0.26 | 0.11 | 0.05 | 0.48 | 0.09 | 0.44 | 105 |
| Change in Motivation | Pre Motivation | -0.43 | 0.09 | -0.60 | -0.27 | -0.57 | -0.29 | 105 |
| Help with Speech | Intercept | 4.52 | 0.12 | 4.29 | 4.74 | 4.32 | 4.70 | 110 |
| Help with Speech | RES | 0.69 | 0.11 | 0.49 | 0.90 | 0.52 | 0.87 | 110 |
| Speech Performance | Intercept | 3.87 | 0.07 | 3.73 | 4.01 | 3.75 | 3.98 | 106 |
| Speech Performance | RES | -0.03 | 0.07 | -0.16 | 0.10 | -0.14 | 0.08 | 106 |

**Table S26**

Effects of PR, Study 7

| DV | Predictor | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj |
|---|---|---|---|---|---|---|---|---|
| Support Effectiveness | Intercept | 5.34 | 0.10 | 5.15 | 5.53 | 5.18 | 5.50 | 110 |
| Support Effectiveness | PR | 0.71 | 0.09 | 0.53 | 0.90 | 0.56 | 0.86 | 110 |
| Negative Mood | Intercept | 2.32 | 0.05 | 2.22 | 2.42 | 2.24 | 2.40 | 105 |
| Negative Mood | PR | -0.09 | 0.05 | -0.18 | 0.007 | -0.16 | -0.008 | 105 |
| Negative Mood | Pre Neg. Mood | 0.68 | 0.05 | 0.58 | 0.77 | 0.59 | 0.76 | 105 |
| Positive Mood | Intercept | 4.17 | 0.07 | 4.03 | 4.32 | 4.05 | 4.29 | 105 |
| Positive Mood | PR | 0.04 | 0.07 | -0.11 | 0.18 | -0.09 | 0.16 | 105 |
| Positive Mood | Pre Pos. Mood | 0.93 | 0.07 | 0.80 | 1.06 | 0.82 | 1.04 | 105 |
| IOS | Intercept | 5.04 | 0.11 | 4.81 | 5.26 | 4.85 | 5.23 | 107 |
| IOS | PR | 0.69 | 0.11 | 0.47 | 0.91 | 0.51 | 0.87 | 107 |
| Closeness | Intercept | 5.72 | 0.07 | 5.58 | 5.86 | 5.60 | 5.84 | 110 |
| Closeness | PR | 0.39 | 0.07 | 0.24 | 0.53 | 0.27 | 0.51 | 110 |
| Closeness | Pre Closeness | 0.51 | 0.06 | 0.39 | 0.63 | 0.41 | 0.61 | 110 |
| Change in Motivation | Intercept | 0.36 | 0.12 | 0.13 | 0.60 | 0.17 | 0.56 | 105 |
| Change in Motivation | PR | 0.05 | 0.12 | -0.19 | 0.28 | -0.15 | 0.24 | 105 |
| Change in Motivation | Pre Motivation | -0.41 | 0.09 | -0.58 | -0.23 | -0.56 | -0.26 | 105 |
| Help with Speech | Intercept | 4.52 | 0.13 | 4.26 | 4.77 | 4.30 | 4.74 | 110 |
| Help with Speech | PR | 0.46 | 0.13 | 0.20 | 0.71 | 0.24 | 0.68 | 110 |
| Speech Performance | Intercept | 3.87 | 0.07 | 3.74 | 4.01 | 3.76 | 3.99 | 106 |
| Speech Performance | PR | -0.10 | 0.07 | -0.24 | 0.02 | -0.22 | 0.004 | 106 |

**Table S27**

Fixed Effects of RES on cardiovascular responses, Study 7

| Coefficient | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|
| Intercept | 670.41 | 11.17 | 648.61 | 693.30 | 652.30 | 688.45 | 106 | 3226 |
| RES | 0.36 | 10.77 | -21.15 | 21.39 | -17.32 | 17.90 | 106 | 3226 |
| Baseline vs. Speech | 133.69 | 10.36 | 113.35 | 154.34 | 116.74 | 151.02 | 106 | 3226 |
| Support vs. Speech | 57.06 | 6.39 | 44.80 | 69.76 | 46.82 | 67.64 | 106 | 3226 |
| Recovery vs. Speech | 136.99 | 8.48 | 120.15 | 153.29 | 122.69 | 150.79 | 106 | 3226 |
| RES x Support vs. Speech | -6.91 | 5.74 | -17.94 | 4.47 | -16.18 | 2.72 | 106 | 3226 |
| RES x Recovery vs. Speech | -6.94 | 7.73 | -22.26 | 8.22 | -19.43 | 5.91 | 106 | 3226 |
| RES x Baseline vs. Speech | -6.12 | 9.45 | -25.06 | 12.39 | -21.93 | 9.19 | 106 | 3226 |

**Table S28**

Fixed Effects of PR on cardiovascular responses, Study 7

| Coefficient | Estimate | SE | Lower | Upper | Lower90 | Upper90 | N_Subj | N_Obs |
|---|---|---|---|---|---|---|---|---|
| Intercept | 670.53 | 11.14 | 648.85 | 691.89 | 651.99 | 688.63 | 106 | 3226 |
| PR | -11.13 | 11.00 | -32.50 | 10.45 | -29.70 | 6.74 | 106 | 3226 |
| Baseline vs. Speech | 133.44 | 10.38 | 113.16 | 154.19 | 116.43 | 150.48 | 106 | 3226 |
| Support vs. Speech | 56.85 | 6.56 | 43.95 | 69.79 | 46.05 | 67.70 | 106 | 3226 |
| Recovery vs. Speech | 136.60 | 8.40 | 119.80 | 153.05 | 122.77 | 150.30 | 106 | 3226 |
| PR x Baseline vs. Speech | -4.27 | 10.12 | -23.79 | 15.68 | -20.86 | 12.33 | 106 | 3226 |
| PR x Support vs. Speech | 0.48 | 6.18 | -11.84 | 12.50 | -9.65 | 10.58 | 106 | 3226 |
| PR x Recovery vs. Speech | -1.97 | 8.18 | -17.76 | 13.99 | -15.54 | 11.69 | 106 | 3226 |

**Table S29**

Random Effects for model predicting cardiovascular responses, RES, Study 7

| Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Intercept SD | 112.72 | 8.59 | 97.53 | 131.16 | 99.50 | 127.45 |
| Baseline vs. Speech SD | 100.61 | 7.62 | 87.15 | 116.64 | 89.01 | 113.96 |
| Support vs. Speech SD | 57.01 | 5.04 | 48.01 | 67.68 | 49.20 | 65.62 |
| Recovery vs. Speech SD | 79.41 | 6.65 | 67.80 | 93.26 | 69.23 | 90.92 |
| Intercept-Baseline vs. Speech Cor | -0.27 | 0.10 | -0.45 | -0.07 | -0.42 | -0.10 |
| Intercept-Support vs, Speech Cor | -0.23 | 0.10 | -0.43 | -0.02 | -0.39 | -0.05 |
| Intercept-Recovery vs. Speech Cor | -0.20 | 0.10 | -0.39 | 0.01 | -0.36 | -0.02 |
| Support vs. Speech-Baseline vs. Speech Cor | 0.67 | 0.06 | 0.53 | 0.78 | 0.56 | 0.77 |
| Support vs. Speech-Recovery vs. Speech Cor | 0.61 | 0.08 | 0.44 | 0.75 | 0.47 | 0.73 |
| Recovery vs. Speech-Baseline vs. Speech Cor | 0.81 | 0.04 | 0.71 | 0.88 | 0.73 | 0.87 |
| Residual | 39.66 | 0.55 | 38.62 | 40.79 | 38.77 | 40.60 |
| AR(1) | 0.37 | 0.03 | 0.32 | 0.42 | 0.33 | 0.42 |

**Table S30**

Random Effects for model predicting cardiovascular responses, PR, Study 7

| Term | Estimate | SE | Lower | Upper | Lower90 | Upper90 |
|---|---|---|---|---|---|---|
| Intercept SD | 111.24 | 8.17 | 96.80 | 128.45 | 98.71 | 125.21 |
| Baseline vs. Speech SD | 100.42 | 7.62 | 86.43 | 116.09 | 88.37 | 113.19 |
| Support vs. Speech SD | 57.59 | 4.98 | 48.28 | 67.90 | 49.75 | 66.28 |
| Recovery vs. Speech SD | 79.47 | 6.68 | 67.53 | 93.56 | 69.24 | 90.77 |
| Intercept-Baseline vs. Speech Cor | -0.27 | 0.10 | -0.46 | -0.09 | -0.43 | -0.12 |
| Intercept-Support vs, Speech Cor | -0.22 | 0.11 | -0.43 | -0.02 | -0.39 | -0.05 |
| Intercept-Recovery vs. Speech Cor | -0.20 | 0.10 | -0.40 | 0.009 | -0.37 | -0.02 |
| Support vs. Speech-Baseline vs. Speech Cor | 0.67 | 0.07 | 0.53 | 0.78 | 0.56 | 0.77 |
| Support vs. Speech-Recovery vs. Speech Cor | 0.62 | 0.08 | 0.45 | 0.75 | 0.47 | 0.73 |
| Recovery vs. Speech-Baseline vs. Speech Cor | 0.80 | 0.04 | 0.71 | 0.88 | 0.73 | 0.87 |
| Residual | 39.68 | 0.55 | 38.62 | 40.81 | 38.79 | 40.61 |
| AR(1) | 0.38 | 0.03 | 0.32 | 0.43 | 0.33 | 0.42 |