

# Above and below baselines: The nonmonotonic effects of dyadic emotional support in daily life

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## Abstract

The current study tests an explanation inspired by social baseline theory (Beckes & Coan, 2011). Social baseline theory: The role of social proximity in emotion and economy of action. *Social and Personality Psychology Compass*, 5, 976–988. doi:10.1111/j.1751-9004.2011.00400 for the mixed blessings associated with received emotional support from one's partner. We reason that the receipt of emotional support engenders benefits only up to individualized baseline points—that is, support effects will be nonmonotonic. In two dyadic daily-diary samples ( $N = 38/80$  couples, over 21/35 days, respectively), we used piecewise multilevel modeling, finding support for our hypotheses. Receiving emotional support exceeding one's baseline was associated with little affective change; receiving emotional support falling short of one's baseline was consistently associated with worsened moods and relationship feelings. This work highlights the importance of individuals' baseline levels as reference or comparison points for understanding support's effects.

## Keywords

Daily diaries, dyadic emotional support, intimate relationships, multilevel modeling, piecewise regression

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From cradle to grave, humans are social beings who rely on help and comfort from significant others at times of need and stress (Beckes & Coan, 2011; Bowlby, 1969/1982). Indeed, the perceived availability of significant others' support is strongly associated with health and well-being (e.g., Cohen & Wills, 1985; Hobfoll, 2009; Taylor, 2007). Once we enter adulthood, the most salient bonds for many people are their romantic relationships; perceiving these as supportive is associated with both individual well-being and relationship satisfaction and functioning (e.g., Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993; Cutrona, Russell, & Gardner, 2005; Sullivan, Pasch, Johnson, & Bradbury, 2010).

Unlike *perceived* support (defined as one's perception regarding support's general availability), which has consistently been associated with positive outcomes, *received* support (defined as one's receipt of specific supportive behaviors) has been tied to more mixed outcomes (see Haber, Cohen, Lucas, & Baltes, 2007; Nurullah, 2012). Specifically, many studies in the last two decades have revealed that the actual receipt of support does not always help (e.g., Bolger, Foster, Vinokur, & Ng, 1996; Gable, Gosnell, Maisel, & Strachman, 2012) and may even be harmful to the recipient (e.g., Bolger & Amarel, 2007; Kappes & Shrout, 2011; Selcuk & Ong, 2012).

Recently, Rafaeli and Gleason (2009; see also McClure et al., 2013) reviewed this literature and suggested several explanations for these disappointing, and sometimes negative, effects of support. Among them are the ideas that supportive acts may undermine recipients' sense of efficacy, self-esteem, or autonomy, may focus recipients' attention on the stressors they aim to alleviate, and may make recipients feel indebted to their partners.

The current study tests a complementary explanation for the paradoxical pattern of results found with received support, one inspired by social baseline theory (SBT; Beckes & Coan, 2011). As SBT suggests, humans are adapted to a social ecology—the presence of other humans—more so than to any physical ecology. Consequently, the social proximity to other humans (characterized by familiarity, joint attention, shared goals, and interdependence) is the default or *baseline* assumption of the human brain.

Beckes and Coan (2011) ground the term “baseline” in the neuroscientific investigation of social support. Specifically, they note the paucity of associations between social support and neural activity (e.g., Coan, Schaefer, & Davidson, 2006; Eisenberger, Taylor, Gable, Hilmert, & Lieberman, 2007) and, in particular, the fact that neural circuits associated with self-regulation of emotion are not more active when social support is provided but rather less so. The interpretation offered by SBT for these findings is that social support may not regulate emotion by activating intraindividual regulatory processes but instead signals a return to a baseline state of relative calm. In other words, the brain's response to threat cues is minimized when a high-quality relational partner is on hand.

Like the neuroscientific studies that undergird SBT, abundant studies examining moods as outcomes of support receipt have yielded null or limited benefits (cf., Haber et al., 2007; Rafaeli & Gleason, 2009) and may also reflect a social baseline effect. Accordingly, the receipt of sufficient support is the default expectation or baseline; when it occurs, recipients return to their emotional baseline and are able to face external stressors or challenges with the buffering of social resources (Beckes & Coan,

2011; Cohen & McKay, 1984). Any support beyond the sufficient amount has little additional effect once the baseline has been attained or maintained. In contrast, support that falls short of the baseline expectation leads to increased need for personal resources, which often results in a decrease in emotion regulation capabilities (Beckes & Coan, 2011; Diamond, Hicks, & Otter-Henderson, 2008). Thus, support is likely to exert nonmonotonic effects.

Importantly, studies examining social support to date have implicitly assumed that it exerts monotonic effects on outcomes and have not considered the possibility of non-monotonic effects. Without such consideration, such studies may have failed to distinguish levels of support receipt that matter from ones that do not. This may have resulted in weak or disappointing evidence for support receipt's benefits (cf., Nurullah, 2012). In contrast, based on SBT, we suggest that the utility of additional support increases only up to the threshold (baseline) point and not beyond it. It is not uncommon to find marginal utility functions shaped this way when physiological needs (e.g., for sleep, food, or water) are considered (e.g., Crespi, 1944). In our work, we hope to show that the social need for support follows the same function.

To summarize, this study examines our prediction that emotional support receipt would matter only up to one's baseline point and not once that point is exceeded. It does so using daily-diary data from two samples. The first sample included 38 romantic couples followed over 3 weeks. The second sought to replicate the obtained effects with twice as many couples (80) over a longer (5 weeks) period of time.

## Method

### Participants

Both samples involved adult couples (age > 18) who were in relationships for at least 6 months.

*Sample 1.* Forty-three heterosexual Israeli couples completed initial background questionnaires. We excluded five couples who had insufficient daily diaries (entries <6 for either partner). Among the remaining 38 couples, mean age for men was 30.0 years (range: 20–65,  $SD = 9.7$ ) and mean age for women was 27.8 years (range: 20–57,  $SD = 8.4$ ). All participants had at least a high-school education, with an average of 2.5 years ( $SD = 2.3$ ) of postsecondary education. Average relationship duration was 6.9 years (range: 10 months to 36 years,  $SD = 8.5$  years). Among the couples, 30 (78.9%) were married and 17 (44.7%) had at least one child.

*Sample 2.* Eighty-six heterosexual Israeli couples completed initial background questionnaires. Six couples dropped out. Among the remaining 80 couples, mean age for men was 29.3 (range: 23–43,  $SD = 4.4$ ) and mean age for women was 26.7 (range: 21–38,  $SD = 3.9$ ). All participants had at least a high-school education, with an average of 2.5 years ( $SD = 2.3$ ) of postsecondary education. Average relationship duration was 4.6 years (range: 1–17 years,  $SD = 2.9$ ). Among the couples, 56 (70.0%) were married and 21 (26.2%) had at least one child.

## Procedure

**Sample 1.** As part of a course requirement, undergraduate students recruited couples as participants. Participating couples were entered into a raffle for a prize worth approximately US\$80. At the study's initiation, a research assistant visited the couple's home, introduced the study's goal of examining daily processes in intimate relationships, and gave each participant a personal password for a secure online data collection site ([www.surveymonkey.com](http://www.surveymonkey.com)). After providing informed consent, participants were asked to complete the questionnaires privately and to avoid discussing their answers with their partners. Participants were requested to complete the daily diaries within an hour of going to bed over 21 consecutive evenings; on average, participants completed 17.8 ( $SD = 4.2$ ) of these daily-diary entries (84.9% compliance).

**Sample 2.** Participants were recruited via flyers, social media, and online classified websites, which offered approximately US\$100 per couple and inclusion in a raffle for a gift worth US\$200. In the first lab visit, after completing background questionnaires, participants were introduced to the web diary, instructed in its use, and given a personal password for a secure online data collection site ([www.qualtrics.com](http://www.qualtrics.com)). Each evening, for 35 days, participants received an e-mailed link to that day's diary questionnaire. They were asked to complete it within an hour of going to bed. When participants failed to complete the diary for two consecutive days, a research assistant contacted them to emphasize the importance of adherence. Participants completed an average of 34.8 ( $SD = .6$ ) of the diary entries (99.4% compliance).

## Measures

For both samples, only measures relevant to the current report are described. The studies were administered in Hebrew; all instruments were translated and back-translated to ensure consistency with the English versions.

**Daily stressors.** In Sample 1, participants were provided with a daily checklist of 19 possible stressful events not directly related to their relationship (e.g., *receiving negative feedback at school or work; feeling ill*) and asked to check each event that had occurred on that day. The daily sum of checked events indexed the level of daily stressors. In Sample 2, participants were provided with 5 items, each rated on a 5-point scale, inquiring about stressful events experienced outside their relationship (e.g., *chores, physical illness*). The average of these items indexed the level of daily stressors.

**Daily emotional support.** Participants were provided with a daily support behavior checklist, adapted from Barrera's (1986) Scale of Social Support, and asked to check whether they had received any of six forms of emotional support from their partner in response to the daily stressors reported. The items were *Told me they cared a lot about me; Comforted me by showing physical affection such as a hug; Listened to me talk about my feelings; Spent time with me, or was right there with me (physically) in a stressful*

situation; Expressed confidence in my ability or praised a personal quality of mine; and Told me that I am still a good person even when I have a problem. For Sample 2, 2 items were added: Took my side when discussing my situation and Said it was OK to feel the way I was feeling.

**Daily positive and negative mood.** Participants' daily moods were assessed using an adapted and shortened daily-diary version (Cranford et al., 2006) of Lorr and McNair's profile of mood states (1971), which included 18 items rated on 5-point scales, ranging from *not at all* to *extremely*. Based on Watson and Tellegen's (1985) positive and negative activation model, these items were aggregated to create two scales: one for positive mood (e.g., cheerful and lively) and one for negative mood (e.g., angry and anxious). The scores were rescaled to a 0–100 range. The between- and within-person reliabilities for the scales were computed using procedures outlined by Shrout and Lane (2012); they were .92 and .76 for *positive mood*, and .89 and .81 for *negative mood* in Sample 1; and .96 and .73 for *positive mood* and .96 and .88 for *negative mood* in Sample 2.

**Daily relationship feelings (RFs).** Participants' daily RF levels were assessed using an adapted version (Rafaeli, Cranford, Green, Shrout, & Bolger, 2008) of the Emotional Tone Index (Berscheid, Snyder, & Omoto, 1989) that included 12 items, 6 assessing *negative feelings* within the relationship (e.g., angry, sad, and fearful) and 6 assessing *positive feelings* within the relationship (e.g., passionate, loved, and content). Items were rated on 5-point scales, ranging from *not at all* to *extremely*. The scores were rescaled to a 0–100 range. The between-person and within-person reliabilities were .83 and .87 for *positive RFs* and .94 and .86 for *negative RFs* in Sample 1; and .98 and .82 for *positive RFs* and .94 and .75 for *negative RFs* in Sample 2.

## Results

Descriptive statistics for all study variables are presented in Table 1.

### Statistical model

Because our data has a multilevel structure (days nested within persons nested within couples), we used multilevel regression models (PROC MIXED; SAS Institute Inc., Cary, NC; SAS Institute, 2003). Such models have two levels (a within-individual level and a between-individual level), take into account the nonindependence of partners in a couple, and can accommodate nonbalanced data. A series of such models were tested in which each of the four outcomes (i.e., *positive* or *negative RFs* or *moods*) was predicted by the participants' daily emotional support receipt.

To test the asymmetrical effects of support receipt, we used piecewise multilevel modeling (MLM) analyses, with two dummy-coded indicator variables. If, on a particular day, individuals received less support than their average support receipt, two

**Table 1.** Descriptive statistics for support, mood, RFs, and stress.

	Sample 1				Sample 2			
	Men		Women		Men		Women	
	M (SD)	Range	M (SD)	Range	M (SD)	Range	M (SD)	Range
Emotional support	1.55 (1.81)	0-6	1.49 (1.59)	0-6	2.01 (2.44)	0-8	2.78 (2.52)	0-8
Below	385 (57.8%) cases		398 (57.4%) cases		1,745 (62.5%) cases		1,550 (55.6%) cases	
Baseline	39 (5.9%) cases		22 (3.2%) cases		38 (1.4%) cases		4 (1%) cases	
Above	236 (35.8%) cases		274 (39.5%) cases		1,008 (36.1%) cases		1,233 (44.2%) cases	
Positive mood	77.01 (14.41)	0-100	74.41 (15.14)	16.67-100	66.01 (15.47)	0-100	63.63 (16.55)	0-100
Negative mood	16.38 (12.81)	0-80.6	17.91 (14.55)	0-83.3	21.46 (14.70)	0-93.8	23.52 (16.62)	0-91.7
Positive RFs	71.88 (19.57)	0-100	68.87 (20.63)	0-100	67.68 (2.55)	0-100	70.26 (22.02)	0-100
Negative RFs	6.48 (13.87)	0-100	5.47 (11.66)	0-87.5	6.31 (12.88)	0-100	7.24 (13.96)	0-100
Stress	1.47 (1.52)	0-9	1.90 (1.63)	0-8	.66 (.61)	0-3.8	.92 (.76)	0-4

Note: RFs = relationship feelings.

indicator variables (“*Below*” and “*Above*”) were set to 1 and 0, respectively. Alternatively, if individuals received more support than their average level, the indicators were reversed (for more information on MLM piecewise analyses, see Stadler, Snyder, Horn, Shrout, & Bolger, 2012). We estimated separate intercepts and slopes for men and women using “two intercept/slopes” models (for more information, see Bolger & Laurenceau, 2013). Each Level-1 predictor was centered on the subject’s own mean, so effects could be interpreted as changes in outcome associated with variation from the subject’s average reports.

The generic day-level within-individual (Level 1) equation was:

$$\begin{aligned} \text{Outcome}_{tm/ff} = & \beta_{0mj} + \beta_{1mj} \times \text{stress} + \beta_{2mj} \text{support} \times \text{below} \\ & + \beta_{3mj} \text{support} \times \text{below} \times \text{stress} + \beta_{4mj} \text{support} \times \text{above} \\ & + \beta_{5mj} \text{support} \times \text{above} \times \text{stress} + \beta_{6mj} \text{outcome}_{(t-1)} \\ & + \beta_{7mj} \text{time} + e_{tmj} + \beta_{0ff} + \beta_{1ff} \times \text{stress} + \beta_{2ff} \text{support} \times \text{below} \\ & + \beta_{3ff} \text{support} \times \text{below} \times \text{stress} + \beta_{4ff} \text{support} \times \text{above} \\ & + \beta_{5ff} \text{support} \times \text{above} \times \text{stress} + \beta_{6ff} \text{outcome}_{(t-1)} + \beta_{7ff} \text{time} + e_{tff}, \end{aligned}$$

Outcome<sub>tm/ff</sub> is the predicted outcome (e.g., positive mood) on day *t* for the male (*m*) or female (*f*) subject in couple *j*.  $\beta_{0mj}/\beta_{0ff}$  are the intercepts for this male or female. They represent the outcome level when support is at its average level (i.e., neither above nor below one’s average level);  $\beta_{2mj}/\beta_{2ff}$  are the male’s or female’s slopes for emotional support receipt when it is below one’s average level; and  $\beta_{4mj}/\beta_{4ff}$  are the male’s or female’s slopes for emotional support receipt when it is above one’s average level.

Several statistical adjustments were made to the model. Because participants’ support was received in response to indicated stressors, the effects of daily stressors ( $\beta_{1mj}/\beta_{1ff}$ ) and its interactions with support below ( $\beta_{3mj}/\beta_{3ff}$ ) and above ( $\beta_{5mj}/\beta_{5ff}$ ) baseline were also estimated. When support slopes were qualified by this interaction, we estimated (and report in the text below) simple slopes on days with low ( $-1 SD$ ), average, and high ( $+1 SD$ ) stress levels using Preacher, Curran, and Bauer’s (2006) computational tool for probing interaction effects in MLM analyses. To adjust for the possible linear effect of time,  $\beta_{7mj}/\beta_{7ff}$ , the male’s or female’s slopes for the effect of time were also included in the equation. Time was centered on the subject’s average day, and thus all effects can be interpreted as estimates for the middle of the diary period. To rule out reverse causation (i.e., that changes in daily affective and relational outcomes cause the receipt of emotional support), the models adjusted for the previous day’s outcome by including  $\beta_{6mj}/\beta_{6ff}$ , the male’s or female’s slopes for the outcome on the previous day ( $t - 1$ ). Finally,  $e_{tmj}/e_{tff}$  is a residual component on day *t* for that male or female. Residuals within couples were allowed to correlate, and first-order autoregressive structure was imposed on the covariance matrix for the within-person residuals.

All within-individual effects were considered to be random, and thus allowed to vary from person to person. Thus, the person-level, between-individual (Level 2) equations were:

$$\begin{array}{ll}
 \beta_{0mj} = \gamma_{00m} + u_{0mj} & \beta_{0ff} = \gamma_{00f} + u_{0ff} \\
 \beta_{1mj} = \gamma_{10m} + u_{1mj} & \beta_{1ff} = \gamma_{10f} + u_{1ff} \\
 \beta_{2mj} = \gamma_{20m} + u_{2mj} & \beta_{2ff} = \gamma_{20f} + u_{2ff} \\
 \beta_{3mj} = \gamma_{30m} + u_{3mj} & \beta_{3ff} = \gamma_{30f} + u_{3ff} \\
 \beta_{4mj} = \gamma_{40m} + u_{4mj} & \beta_{4ff} = \gamma_{40f} + u_{4ff} \\
 \beta_{5mj} = \gamma_{50m} + u_{5mj} & \beta_{5ff} = \gamma_{50f} + u_{5ff}
 \end{array}$$

In these equations,  $\gamma$  represents the fixed effect—the effect for the average person—and  $u$  represents the random effect—one’s deviation from the fixed effect. The results of the MLM analyses are presented in Table 2 and Figure 1 (top for Sample 1 and bottom for Sample 2).

### Sample 1

On days in which men received less emotional support than their average level, support receipt was tied positively with levels of positive moods (Figure 1, panel (A)) and positive RFs (panel (B)), and negatively with levels of negative moods (panel (C)) and negative RFs (panel (D)). In contrast, on days in which men received more emotional support than their average level, they did not report any improvement in their moods or RFs. The same pattern held with women’s positive and negative RFs (panels (B) and (D)). However, women’s effects were qualified by daily stress. Specifically, the slopes were significant on average-stress days ( $b = 3.25$ ,  $SE = 1.50$ ,  $p < .05$  and  $b = -3.67$ ,  $SE = 1.26$ ,  $p < .01$  for positive and negative RFs, respectively) and high-stress days ( $b = 6.49$ ,  $SE = 2.23$ ,  $p < .01$  and  $b = -6.58$ ,  $SE = 1.81$ ,  $p < .001$ ) but not on low-stress days ( $b = .00$ ,  $SE = 1.68$ , *n.s.* and  $b = -.75$ ,  $SE = 1.45$ , *n.s.*).

We calculated pseudo- $R^2$  for the models according to the recommendations outlined by Peugh (2014; see also Snijders and Bosker (1999)). Specifically, we solved the multilevel equations for each participant on each day to obtain the daily predicted outcome for each participant; we then squared the correlation between the predicted and the observed outcomes. Using this procedure, we found that the models explained 50.3% and 56.6% of the variance in positive mood and RFs, respectively, and 41.9% and 50.2% in negative mood and RFs, respectively.

### Sample 2

On days in which participants (regardless of gender) received less emotional support than their average level, support receipt was tied positively with levels of positive moods (panel (E)) and positive RFs (panel (F)) and negatively with levels of negative moods (panel (G)) and negative RFs (panel (H)). In contrast, on days in which they received more emotional support than their average level, they did not report any improvement in their positive moods, negative moods, or negative RFs; in fact, men’s positive and negative moods worsened on high-stress days ( $b = -.91$ ,  $SE = .34$ ,  $p < .01$  and  $b = 1.00$ ,  $SE = .31$ ,  $p < .01$  for positive and negative moods, respectively). Unlike the other outcomes, positive RFs did improve on days in which participants received more emotional support than average (panel (F)). Notably, for women this improvement occurred only on



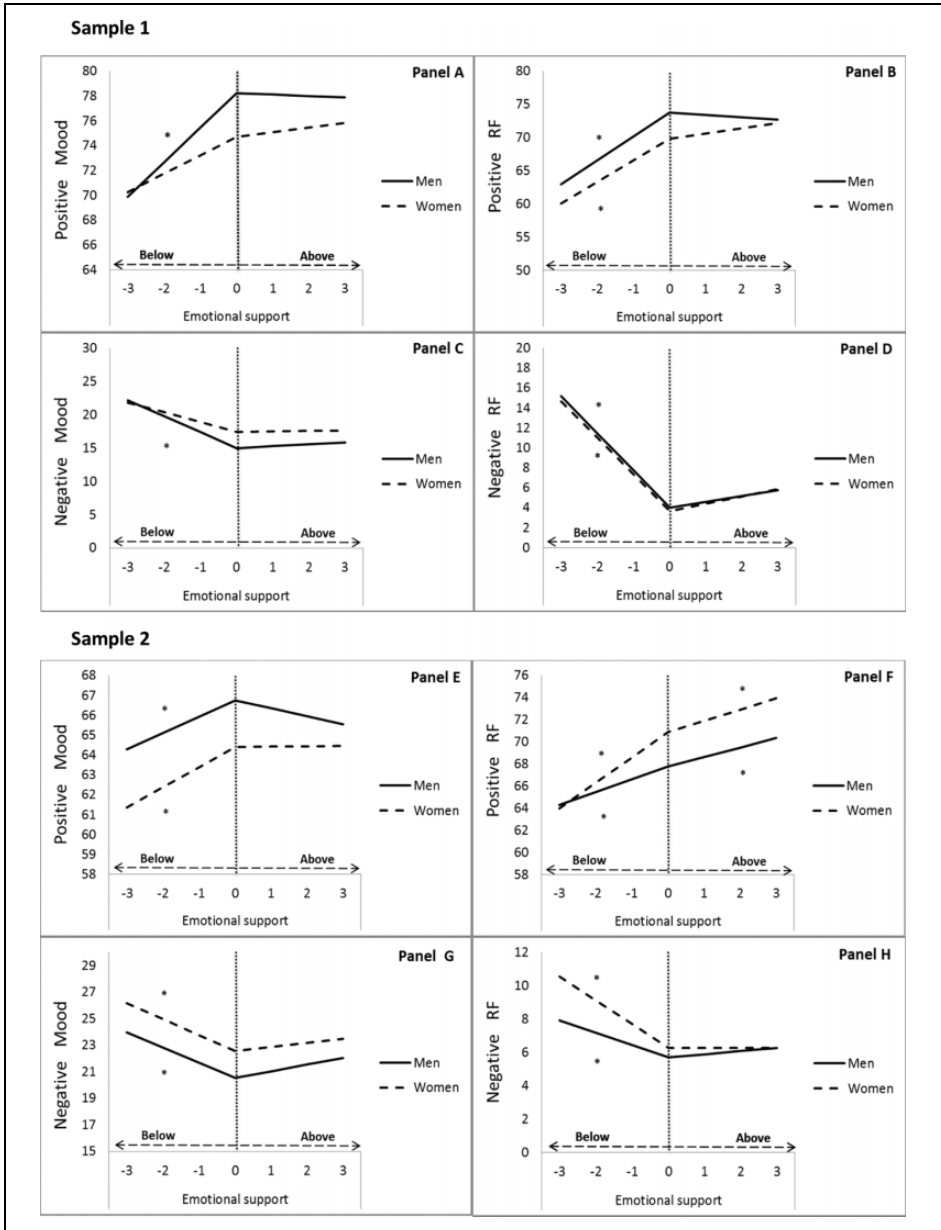
**Table 2.** Piecewise MLM analyses (top for Sample 1 and bottom for Sample 2) of emotional support below and above individuals' average levels predicting moods and RFs.

	Positive mood				Negative mood				Negative RFs			
	Men		Women		Men		Women		Men		Women	
<b>Sample 1</b>												
Intercept	78.20 (1.71) <sup>***</sup>	74.69 (1.66) <sup>***</sup>	73.77 (2.50) <sup>***</sup>	69.78 (2.45) <sup>***</sup>	14.99 (1.45) <sup>***</sup>	17.43 (1.54) <sup>***</sup>	4.02 (1.49) <sup>*</sup>	3.66 (1.02) <sup>***</sup>				
Stress	-2.87 (1.04) <sup>**</sup>	-.82 (.71)	-1.24 (1.10)	.05 (.85)	1.58 (.87)	.07 (.75)	.74 (.79)	-.73 (.66)				
Below	2.78 (.92) <sup>**</sup>	1.48 (1.26)	3.62 (1.19) <sup>**</sup>	3.25 (1.50) <sup>*</sup>	-2.38 (1.07) <sup>*</sup>	-1.47 (1.20)	-3.72 (1.32) <sup>**</sup>	-3.67 (1.26) <sup>**</sup>				
Below × Stress	.82 (.70)	.99 (.82)	.51 (.82)	2.85 (1.12) <sup>***a</sup>	-1.52 (.95)	-1.01 (.84)	-1.43 (1.05)	-2.56 (.93) <sup>***a</sup>				
Above	-.11 (.68)	.38 (.78)	-.37 (.71)	.80 (.77)	.28 (.57)	.06 (.89)	.57 (.59)	.73 (.79)				
Above × Stress	.35 (.57)	.20 (.76)	.58 (.64)	-.29 (.68)	-.02 (.53)	-.06 (.75)	-.19 (.53)	.32 (.57)				
Lagged outcome	-.21 (.04) <sup>***</sup>	-.25 (.04) <sup>***</sup>	-.18 (.04) <sup>***</sup>	-.18 (.04) <sup>***</sup>	-.19 (.04) <sup>***</sup>	-.23 (.04) <sup>***</sup>	-.07 (.04)	-.15 (.04) <sup>***</sup>				
Time	.01 (.11)	.34 (.12) <sup>**</sup>	.21 (.14)	.39 (.15) <sup>*</sup>	-.07 (.10)	-.41 (.11) <sup>**</sup>	-.04 (.10)	-.24 (.09) <sup>**</sup>				
<b>Sample 2</b>												
Intercept	66.74 (1.23) <sup>***</sup>	64.39 (1.17) <sup>***</sup>	67.74 (1.79) <sup>***</sup>	70.86 (1.86) <sup>***</sup>	20.53 (1.10) <sup>***</sup>	22.54 (1.15) <sup>***</sup>	5.71 (.90) <sup>***</sup>	6.26 (.83) <sup>***</sup>				
Stress	-8.15 (1.00) <sup>***</sup>	-9.74 (1.07) <sup>***</sup>	-4.79 (1.09) <sup>***</sup>	-7.17 (1.07) <sup>***</sup>	9.89 (.94) <sup>***</sup>	12.16 (.97) <sup>***</sup>	4.37 (.99) <sup>***</sup>	4.69 (.87) <sup>***</sup>				
Below	.82 (.36) <sup>*</sup>	1.01 (.34) <sup>**</sup>	1.15 (.40) <sup>**</sup>	2.29 (.40) <sup>***</sup>	-1.14 (.31) <sup>***</sup>	-1.21 (.35) <sup>***</sup>	-.73 (.32) <sup>*</sup>	-1.43 (.41) <sup>***</sup>				
Below × Stress	1.43 (.80)	.04 (.67)	1.11 (.96)	-.49 (.73)	-1.39 (.73)	.38 (.63)	-.87 (.80)	.19 (.69)				
Above	-.40 (.32)	.02 (.28)	.86 (.42) <sup>*</sup>	1.02 (.32) <sup>**</sup>	.50 (.31)	.32 (.28)	.18 (.29)	.00 (.25)				
Above × Stress	-1.25 (.55) <sup>***a</sup>	-.69 (.52)	-.19 (.61)	1.38 (.53) <sup>***a</sup>	1.23 (.41) <sup>***a</sup>	-.39 (.49)	.84 (.51)	-.67 (.43)				
Lagged outcome	-.10 (.02) <sup>***</sup>	-.11 (.02) <sup>***</sup>	-.17 (.02) <sup>***</sup>	-.15 (.02) <sup>***</sup>	-.08 (.02) <sup>***</sup>	-.11 (.02) <sup>***</sup>	-.21 (.02) <sup>***</sup>	-.18 (.02) <sup>***</sup>				
Time	-.08 (.03) <sup>**</sup>	.04 (.03)	.16 (.04) <sup>***</sup>	.26 (.04) <sup>***</sup>	.00 (.02)	-.10 (.03) <sup>***</sup>	-.08 (.03) <sup>**</sup>	-.10 (.03) <sup>**</sup>				

Note. Values are the MLM unstandardized b coefficients (SE in parentheses). MLM = multilevel modeling, RFs = relationship feelings.

<sup>a</sup> These interactions were probed using Preacher et al.'s (2006) computational tool for MLM analyses and reported in the text.

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001.



**Figure I.** Piecewise MLM slopes (top for Sample 1 and bottom for Sample 2) for emotional support under and over individuals' average levels as predictors of moods and RFs. MLM = multilevel modeling, RFs = relationship feelings. \* $p < .05$ .

average-stress days ( $b = 1.02, SE = .32, p < .01$ ) and high-stress days ( $b = 1.69, SE = .36, p < .001$ ) but not on low-stress days ( $b = .35, SE = .46, n.s.$ ).

As in Sample 1, we again calculated pseudo- $R^2$  for the models. The models explained 53.5% and 59.4% of the variance in positive mood and RFs, respectively, and 55.6% and 43.4% in negative mood and RFs, respectively.

## Discussion

The current study tested the prediction, inspired by SBT (Beckes & Coan, 2011), that the receipt of dyadic emotional support will matter only up to a threshold (baseline) point. The study did so in a novel way, by analyzing daily-diary within-person reports of support receipt with reference to individuals' baseline support levels. Its results suggest that the presence of sufficient emotional support from our partners is, in true psychological sense, a *baseline*. Specifically, the receipt of *more* emotional support than one is accustomed to from one's partner was associated with little change in moods or in RFs. In contrast, the receipt of *less* emotional support than one is accustomed to from one's partner was associated consistently with worsened moods and worsened feelings within the relationship. This main pattern of results was replicated in two samples, the second of which vested with much greater statistical power (more participants over a longer period of time); the models applied to both samples accounted for a very large percentage of the variance.

The SBT model emphasizes the role of close proximity and of available close connections in the regulation of self and of emotions (Beckes & Coan, 2011). Individuals whose relationships are marked by perceived mutuality and responsiveness are characterized by decreased self-regulatory effort and by reduced preparation to respond to threat cues (Coan, Kasle, Jackson, Schaefer, & Davidson, 2013). This conservation of energy occurs once baseline is established; in contrast, when that condition does not occur, individuals become more keenly aware of threats and are forced to recruit internal resources to cope with these threats.

We believe our within-person results demonstrate this phenomenon in a new and ecologically valid way. Specifically, our findings suggest that people hold a basic expectation that their intimate partners will be responsive to their support needs (cf., Reis & Clark, 2013; Reis, Clark, & Holmes, 2004). As SBT (Beckes & Coan, 2011) would predict, day-to-day deviation from this baseline expectation leads to adverse consequences, both affective and relational.

As Beckes and Coan (2011) note, a key feature of the social baseline is the default expectation that one's relationship partners will be both available and responsive to one's own needs. Indeed, other models (e.g., Reis et al.'s (2004) perceived partner responsiveness) have also emphasized the importance of responsiveness. The SBT model in general, and our data in particular, helps sharpen these models in showing that *unresponsive* support is more consequential than *responsive* support. Specifically, whereas unresponsive support is tied to considerable detrimental consequences for both affective and relational outcomes, responsive support does not exert much effect on affective outcomes, because it is our default baseline. For similar findings, see Bar-Kalifa and Rafaeli (2013) as well as Gable et al. (2012).

A second related point emerging from our results is the importance of determining individuals' baselines and of using these as reference points when examining support processes. Rather than relying on a sample-wide baseline (e.g., the average support receipt across individuals and days), which would equate above- and below-baseline support with simple high and low absolute levels, our use of individualized baselines removed the possible confounds reflected in between-individual differences (e.g., that some individuals' relationships are more supportive than others).

Using this novel, within-person comparison of support processes above versus below individualized thresholds allowed us to get a deeper and clearer picture of the differential effects of these processes. Specifically, it helped make evident a complex nonlinear association between support receipt and its affective and relational outcomes. Through this, we were able to uncover the diminishing marginal utility of additional support at different levels of support receipt—a utility function that resembles those found with the satiation of physiological needs (e.g., Crespi, 1944).

The diminishing marginal utility concept gives us an interesting perspective on the inconvenient findings in the field of social support, namely that enacted support often leaves recipients without benefit (cf., Nurullah, 2012; Rafaeli & Gleason, 2009). To date, studies examining social support have implicitly assumed that it exerts a monotonic effect on outcomes. Without attending to the possibility of nonmonotonic effects, such studies (e.g., Rafaeli et al., 2008) effectively failed to consider that there may be levels of support receipt that matter and ones that do not. This may have resulted in the weak or disappointing evidence for support receipt's benefits (cf., Nurullah, 2012).

In certain respects, our results resemble work inspired by Baumeister, Bratslavsky, Finkenauer, and Vohs (2001) and their assertion that “bad tends to be stronger than good”—that is, that negative stimuli exert stronger effects on people than do positive stimuli. Extensive empirical work has documented this phenomenon in various domains including the relational one. For example, negative communication has been shown to have a stronger impact on relational satisfaction than positive communication (Gottman, 1994), and negative interactions predict marital satisfaction more strongly than positive ones (Gottman & Krokoff, 1989). Recent results have also shown this phenomenon in the context of dyadic support. Specifically, a series of three daily-diary studies found that hindrance (negative dyadic behavior) exerts stronger and wider effects than support (positive dyadic behavior; Rafaeli et al., 2008).

These earlier studies pitted bad against good behaviors. In contrast, our work examines a (supposedly) “good” behavior—support—at different levels (ranging from deprivation to excess) and does not pit it against a counterpart “bad” behavior, such as hindrance or conflict. Future research will need to examine whether the nonmonotonic function we found for support also exists (though maybe in inverse form) for bad, negative, or hindering behaviors (e.g., Gable, Reis, & Downey, 2003; Pasch & Bradbury, 1998; Rafaeli et al., 2008).

### *Strengths and limitations of the current study*

One of the strengths of daily studies of support (e.g., Bolger, Zuckerman, & Kessler, 2000; Rafaeli et al., 2008) is that they allow an examination of processes as they unfold

in daily life, in an ecologically valid manner. However, such studies are often constrained by a trade-off driven by the need to minimize participant burden: They obtain a large quantity of responses at the expense of using relatively brief and therefore noncomplex indices. Thus, studies of daily support have often relied on single items to assess this variable of interest. The current study's use of multiple daily support items allowed us to identify an important phenomenon that would otherwise not have been detected—the idea of individualized baselines in support levels that go beyond a receipt/no receipt dichotomy.

The social support literature distinguishes between the general *perception* of support availability (i.e., *perceived support*) and the specific receipt of enacted supportive acts (i.e., *received support*). Both of these constructs are often measured using global retrospective self-reports, but even with shared methods, are often weakly associated with each other, and yield different results (cf., Haber et al., 2007). Moreover, the measurement of received support using global retrospective measures is problematic to some extent; scores on such measures are strongly influenced by extraneous factors such as personality and relational expectancies (Lakey & Cassady, 1990; cf., Lakey & Orehek, 2011). The use of ecologically valid methods (like those employed in this work) eschews retrospective reports (Bolger, Davis, & Rafaeli, 2003) and may mitigate these biases. However, diary methods still rely on self-reports; as such, they remain, in some sense, measures of perception.

In the current work, we chose to focus on the *recipient's perception* of their partner's actual and specific support behaviors. Future research in which support is assessed using the providers' reports, or in which both perspectives will be taken into account, may lead to a different pattern of results. In particular, it would be interesting to examine whether the nonmonotonic effects of support emerge when these perspectives are used jointly (e.g., Bolger et al., 2000; Gleason, Iida, Shrout, & Bolger, 2003).

Because of our focus on the recipients' perspective, our work addresses support that was clearly visible to them. The distinction between visible (vs. invisible) support has received much attention in the past decade, following Bolger et al.'s (2000) finding that invisible support is associated with enhanced well-being, whereas visible support is associated with various costs to the recipient (cf., Bolger & Amarel, 2007; Shrout, Herman, & Bolger, 2006). Notably, many other studies have found visible support to actually have salubrious effects (e.g., Gable et al., 2003; Gleason, Iida, Shrout, & Bolger, 2008; Lemay & Neal, 2014). In fact, Lemay and Neal recently showed that when it comes to support's benefits, recipients *must* perceive the support before it can exert its effects on their well-being—in other words, that effective support requires visibility. (For similar findings regarding other relationship behaviors, such as expressions of compassionate love, see Reis, Maniaci, & Rogge, 2013.)

In an effort to resolve the inconsistency among studies addressing visibility, several authors (e.g., Gable et al., 2003; Lemay & Neal, 2014) have suggested that the invisible support effect may depend on contextual factors, such as major external stressors. Our results, which suggest that visible support ranges in its effects from positive (below the baseline) to neutral (above the baseline) essentially position the relative lack or abundance of support on any particular day as another, and very relevant (idiographic), context to consider. In other words, it may be that visible support is needed below one's

baseline, but invisible support would work better above the baseline. Future work could explore this possibility by examining the interaction of recipients' and providers' reports of support above and below the baseline.

Two exceptional findings, both found in Sample 2, merit some attention. First, emotional support above the threshold led this sample to one salubrious outcome: Increased positive RFs for both genders (though for women this was true only under moderate or high stress). On the other hand, on high-stress days, emotional support above the threshold was associated with worsened mood for men in this sample. This "mixed blessing" pattern of results (i.e., benefits to the relationship along with costs to the person's mood) echoes the findings of Gleason et al. (2008) who found emotional support to be associated with greater intimacy but worsened mood. Importantly, our results suggest that this mixed blessing may not be a general effect. Instead, it may depend on gender, occur only with support that exceeds the threshold, and require high levels of stress. Of course, these candidate factors should be further examined, as they are based solely on one of our samples' results.

We focused our attention in this work on emotional support for two reasons.<sup>1</sup> First, the role emotional support plays in well-being and relationship satisfaction is more central than that of other forms of support (e.g., Chen & Feeley, 2012; Cutrona & Russell, 1990; Reinhardt, Boerner, & Horowitz, 2006). As Shrout and his colleagues (2010) note, emotional support events are more often related to subsequent mood than nonemotional support events. Xu and Burleson (2004), for example, examined five types of spousal support and found emotional support to have the strongest association with marital satisfaction. Similarly, Liu and Rook (2013) found emotional support (expressions of empathy and reassurance as well as companionship) to be more consequential than practical support in reducing loneliness among married older adults. Second, our study was motivated, at least in part, by the wish to examine the conditions under which the paradoxical negative or null effects of support exist; it is mostly with emotional support that this paradox has been examined in the past (cf., Bolger et al., 2000; Girme, Overall, & Simpson, 2013; Maisel & Gable, 2009).

We adjusted for three covariates in the current study. Adjusting for *time* helped us control for systematic collinearity between support and outcomes due to the time in the study (see Bolger & Laurenceau, 2013 for an in-depth discussion of this adjustment). Adjusting for the level of the outcome variable on the *preceding day* helped us allay concerns regarding reverse causation (i.e., the possibility that changes in daily affective and relational outcomes predicted support levels). It also allowed us to interpret the outcomes as changes from the prior day. Finally, adjusting for *daily stressors* allowed us to reduce our concern that the stress which prompted support in the first place, accounted for both the reported daily support and the affective/relational outcomes (Shrout et al., 2010). Of course, even with these adjustments, we cannot claim a causal association or rule out other mechanisms, which may explain the asymmetrical associations of support and outcomes. Future work, examining these processes experimentally or observationally, could help test alternative explanations for these effects.

In addition to our treatment of stress as a covariate, we considered it as a possible moderator of support receipt. Given the literature on support buffering (cf., Cohen & Wills, 1985), one might expect such moderation; however, both above and below baselines, stress seemed to have little impact on the effects of support. In fact, we were

surprised to find a stress-*exacerbation* pattern (i.e., above-threshold support on high-stress days leading to worse outcomes) for men's positive and negative moods. These findings may reflect the fact that high-stress days are characterized by greater vulnerability, which could bring out the negative qualities of support receipt, such as impaired autonomy and self-esteem (cf., Bolger et al., 2000).

Following the receipt of above-baseline support, our participants' moods and relationship feelings did not improve relative to their baseline level (with the exception of positive RFs in Sample 2). Despite this finding, it is noteworthy that these baseline levels themselves were quite positive. It may be that moods and RFs at such levels are "good enough" to maintain personal and dyadic well-being—and that exceeding these levels carries little payoff. Future work, focused on couples for whom the baseline is chronically lower (e.g., distressed couples, e.g., Pasch & Bradbury, 1998, or ones in which one partner suffers from psychopathology, e.g., social phobia; Kashdan, 2007) or for whom it is temporarily lower (e.g., following intrarelational conflict, Campbell, Simpson, Boldry, & Kashy, 2005, or extra-relational stressors, such as major exams, Bolger et al., 2000, or the transition to parenthood, Rini & Dunkel Schetter, 2010) may reveal different patterns.

## Summary and implications

This work contributes to our growing understanding of support's effects and highlights the importance of considering individuals' baseline levels as a reference or comparison point. Our findings inspired by SBT (Beckes & Coan, 2011) and utilizing piecewise within-person analyses demonstrated how, when considered in reference to these baseline points, emotional support exerts positive effects as long as it does not exceed one's baseline but becomes rather inert beyond this baseline. These findings stress the complex nature of dyadic emotional support, and the need for appropriately complex methods and measures to study this important relational construct. Moreover, they can inform relationship scientists and practitioners who are interested in increasing the skillfulness of dyadic support. Currently, most relationship-focused prevention and intervention programs tend to highlight communication and problem-solving skills (e.g., Markman, Renick, Floyd, Stanley, & Clements, 1993), whereas fewer programs address social support processes (cf., Bodenmann & Randall, 2012). SBT, and particularly its implications for dyadic support and coping evident in our findings, may offer a valuable addition to such programs and may increase the utility of addressing social support within them.

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## Note

1. In line with these findings, we reran all models presented here with practical, instead of emotional, support. Very few and inconsistent effects were found for practical support either above or below baselines. Moreover, when we ran additional models in which we adjusted for the effect of emotional support, even these few effects disappeared. These results are available upon request from the authors.

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