

Does support need to be seen? Daily invisible support promotes next day relationship well-being

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Abstract:

Direct and overt visible support promotes recipients' relationship satisfaction but can also exacerbate negative mood. In contrast, subtle and indirect invisible support can bypass costs to mood, but it is unclear whether it undermines or boosts relationship satisfaction. Because invisible support is not perceived by recipients, its relational impact may be delayed across time. Thus, the current research used three dyadic daily diary studies (total N 322 married couples) to explore, for the first time, both the immediate (same day) and lagged (next day) effects of visible and invisible support on recipients' mood and relationship satisfaction. Consistent with prior research, visible support was associated with recipients reporting greater relationship satisfaction and greater anxiety the same day. In contrast, but also consistent with prior research, invisible support had no significant same-day effects, and thus avoided mood costs. Nevertheless, invisible support was associated with recipients reporting greater relationship satisfaction the next day. Study 3 provided evidence that such effects emerged because invisible support was also associated with greater satisfaction with partners' helpful behaviors (e.g., household chores) and relationship interactions (e.g., time spent together) on the next day. These studies demonstrate the importance of assessing different temporal effects associated with support acts (which may otherwise go undetected) and provide the first evidence that invisible support enhances relationship satisfaction but does so across days.

Keywords: invisible support | visible support | relationship satisfaction

Article:

Relationships are a crucial source of support. Over the course of a long-term relationship, however, people face opportunities to support one another in both overt and subtle ways. Sometimes, support is explicit, direct, and perceived by partners—termed visible support. For example, people might explicitly tell their partner that they'll take over the housework, so their partner can focus on a work deadline. Other times, support is subtle, indirect, and not perceived by partners—termed invisible support (Bolger, Zuckerman, & Kessler, 2000). For example, people might clean the house before their partner gets home so their partner can focus on meeting their work deadline. Although the relationship benefits associated with visible support have been well-documented (Collins & Feeney, 2000; Feeney & Collins, 2003; Gleason, Iida,

Shrout, & Bolger, 2008; Maisel & Gable, 2009; Overall, Fletcher, & Simpson, 2010), the links between invisible support and relationship outcomes are unclear, in part because the subtle nature of invisible support means that it is not perceived by recipients in the moment. But, it might be the case that the relational impact of invisible support is delayed across time, such that it emerges when recipients are no longer focused on their coping and are able to reflect on the subtle supportive relationship environment. The current research explores this possibility by assessing, for the first time, both the immediate (same day) and lagged (next day) relationship benefits associated with invisible support.

Visible Support Has Relationship Benefits but Also Personal Costs

The social support literature has amply documented that visible (or perceived) support has relationship benefits. Perceiving support from partners makes recipients feel like their partner is available (Collins & Feeney, 2000; Feeney, 2004) and responsive to their feelings, concerns, and needs (Reis, Clark, & Holmes, 2004; Reis & Gable, 2015). Indeed, visible forms of support consistently predict greater feelings of love, closeness, and relationship quality (Feeney & Collins, 2003; Gable, Reis, & Downey, 2003; Gleason et al., 2008; Maisel & Gable, 2009; Overall et al., 2010).

Nevertheless, despite such relational benefits, visible support can backfire by increasing the salience of stressors and/or conveying that recipients are unable to cope and require the help of others (Bolger et al., 2000; also see Rafaeli & Gleason, 2009 for a review). Consequently, visible support can heighten recipients' anxiety and depressed mood (Bolger et al., 2000; Gable et al., 2003; Gleason et al., 2008; Shrout, Herman, & Bolger, 2006) and reduce self-efficacy and confidence (Bolger & Amarel, 2007; Howland & Simpson, 2010; also see Feeney & Thrush, 2010). Indeed, prior research has demonstrated that visible support can facilitate better relational outcomes, while simultaneously incurring personal costs (Gable et al., 2003; Girme, Overall, & Simpson, 2013; Gleason et al., 2008; Maisel & Gable, 2009).

Invisible Support Has Personal Benefits, but What About Relationship Outcomes?

Theorists have argued that, in order to bypass the personal costs associated with visible support, invisible support is more effective because it circumvents efficacy threats and salience of stressors (Bolger et al., 2000; Shrout et al., 2006). Invisible support has been conceptualized as support provision reported by the partner but not perceived by the recipient (Bolger et al., 2000; Maisel & Gable, 2009; Shrout et al., 2006) as well as subtle and indirect behaviors that de-emphasize the roles of the provider and recipient and shift the focus of the problem away from the recipient (Girme et al., 2013; Howland & Simpson, 2010). In particular, compared to visible support, invisible support yields null associations with, or smaller increases in, recipients' anxiety, depressed mood, anger, and fatigue (Bolger et al., 2000; Gable et al., 2003; Howland & Simpson, 2010; Maisel & Gable, 2009; Shrout et al., 2006), and greater efficacy (Howland & Simpson, 2010; Bolger & Amarel, 2007) and goal achievement across time (Girme et al., 2013). Furthermore, these personal benefits emerge immediately when invisible support is provided (Bolger & Amarel, 2007; Gable et al., 2003; Howland & Simpson, 2010; Maisel & Gable, 2009), as well as across days and time (Bolger et al., 2000; Girme et al., 2013; Shrout et al., 2006), likely because invisible support facilitates recipients' ownership over their coping and

problem-solving in ways that benefit recipients well after partners have initially provided support (Girme et al., 2013).

There has been little attention to the relational consequences of invisible support. To date, only two articles have examined the association between invisible support and relationship outcomes (Gable et al., 2003; Maisel & Gable, 2009). In these studies, invisible support was not associated with recipients' feelings of relationship well-being (Gable et al., 2003) or relationship connectedness and security (Maisel & Gable, 2009) on the same day. Notably, Maisel and Gable (2009) found that invisible support was associated with recipients reporting lower relationship connection and security on days the partner was perceived to be unresponsive to recipients' concerns. However, the same relational costs were also observed when partners' support was visible, but partners were also perceived to be low in responsiveness, which indicates that the relationship costs were driven by partners' lack of responsiveness rather than whether partners' support was visible or invisible. Thus, given that invisible support is not perceived by recipients in the moment, the relational benefits of invisible support might be delayed. However, no existing research has examined whether invisible support is associated with lagged relationship outcomes.

So, why might relational benefits of invisible support emerge across days? Invisible support behavior creates a facilitative environment that frees recipients' resources to focus on important upcoming tasks and allocate attention and energy to their coping and goal pursuits (Bolger et al., 2000; Shrout et al., 2006). This type of supportive environment allows individuals to focus on their daily stressors, hassles, and tasks in the moment, which results in personal benefits. However, when recipients are focused on the task on hand, they may fail to perceive their partner's behavior as supportive, and thus not experience any changes to relationship satisfaction on that day. Instead, invisible support might improve relationship satisfaction the next day, when recipients are no longer so focused on their tasks, and are able to experience the subtly supportive relationship environment. Indeed, research outside of the social support literature suggests that affective experiences at one moment in time can affect relationship evaluations at subsequent moments (Forgas, Levinger, & Moylan, 1994; McNulty, Olson, Jones, & Acosta, 2017; Neff & Karney, 2004). Thus, any relationship benefits associated with invisible support may only accrue over time.

Notably, exploring different temporal effects of invisible support might also inform our understanding of the relationship benefits and personal costs associated with visible support. Unlike invisible support that works in subtle and indirect ways that may take time to emerge, visible support is direct and overt, which should function to immediately soothe recipients' distress and signal that partners are available, caring, and supportive (Collins & Feeney, 2000; Cutrona, Shaffer, Wesner, & Gardner, 2007; Feeney & Collins, 2003; Girme et al., 2013; Iida, Seidman, Shrout, Fujita, & Bolger, 2008). Likewise, these same direct aspects of visible support often exacerbate recipients' negative mood and threaten their self-efficacy (Bolger et al., 2000; Girme et al., 2013; Howland & Simpson, 2010; Shrout et al., 2006). Thus, visible support may have relationship benefits and personal costs on the same day because visible support is typically provided to soothe recipients' immediate distress.

The lagged effects of visible support across days, however, are unclear. Consistent with the argument that visible support functions to respond to recipients' immediate needs, some studies have demonstrated that visible support is associated with relationship benefits and personal mood costs on the same day (Gable et al., 2003; Gleason et al., 2008; Maisel & Gable, 2009). However, other studies have shown that visible support has relationship benefits and

personal costs on the next day (Bolger et al., 2000; Shrout et al., 2006). Furthermore, studies that have assessed visible support during couples' support-relevant discussions have found relationship benefits and personal costs immediately following discussions (Girme et al., 2013; Howland & Simpson, 2010), but no effects on goal achievement across time (Girme et al., 2013). Thus, although visible support should have relationship benefits and personal costs immediately as support is provided, whether these effects are sustained or subside across days remains unclear.

Practical Versus Emotional Invisible Support

We also expected that the benefits of invisible support days may be most evident for practical (vs. emotional) support. Prior work has theorized that invisible support during daily life might entail helpful practical tasks such as taking care of household chores without the recipient knowing or keeping other daily disturbances at bay (Bolger et al., 2000; Shrout et al., 2006). Empirical work also suggests that practical forms of help and assistance are common sources of support within home environments because they offer tangible ways for providers to help recipients cope with daily stressors and hassles, thereby reducing the burden on recipients so that they have resources to focus on more immediate or important concerns (Wang & Repetti, 2014, 2016). Similarly, research examining both practical and emotional invisible support suggests that practical (but not emotional) invisible support increases the recipient's ability to focus on the task at hand by reducing fatigue and boosting vigor and efficacy (Shrout et al., 2006; Howland & Simpson, 2010; also see Bolger & Amarel, 2007).

We are not suggesting that invisible emotional support may not have similar benefits, but that potential (lagged) benefits of emotional invisible support might occur in contexts that require partners to be reassuring and caring, rather than providing tangible help. For example, during couples' support-relevant discussions about important personal goals, invisible emotional support is better at down-regulating recipients' depressive mood and anxiety about ongoing efforts to pursue personal goals (Howland & Simpson, 2010) and facilitates goal achievement across six months (Girme et al., 2013). Similarly, partners' emotional comfort and reassurance may be most relevant when recipients are dealing with stressors that are particularly distressing or uncontrollable (Cutrona & Russell, 1990; Cutrona et al., 2007). Thus, we focused on invisible practical support that is more theoretically and empirically relevant to couples' concerns and hassles during daily life (Wang & Repetti, 2014, 2016).

The Current Research

In three dyadic daily diary studies (Study 1, $N = 89$ married couples; Study 2, $N = 175$ newlyweds; Study 3, $N = 58$ newlyweds), we compared, for the first time, both the immediate (same day) and lagged (next day) associations between visible and invisible support days and recipients' relationship satisfaction and mood. We predicted that invisible support would not have relationship benefits on the day it is provided, and instead would have lagged benefits that emerge on the next day. We also predicted that, consistent with prior research, invisible support would bypass the personal costs associated with visible support by producing either null associations with, or smaller increases in, anxiety or happiness compared to visible support. Also consistent with prior research, we expected that visible support would be associated with greater relationship satisfaction, but also greater anxiety and lower happiness. We expected that these

effects would appear on the same day visible support is provided and explored whether these effects might be sustained or subside on the next day.

We wanted to rule out alternative explanations for any associations between invisible support and relational benefits. First, it is possible that potential benefits of invisible support might occur in times of lower stress, when recipients are happier, less anxious, and more satisfied. Similarly, visible support might have higher personal costs because high stress days are naturally accompanied by recipients' negative mood, which is more likely to appeal to partners' explicit help. Thus, in Studies 2 and 3, we controlled for recipients' daily stress. Furthermore, we examined the possibility that invisible support reduces individuals' stress levels the next day, thereby freeing individuals to experience their positive relationship environment. Second, in order to corroborate the original conceptualization of invisible support (i.e., reported by providers, but not perceived by recipients), Study 3 also examined the association between invisible support and recipients' satisfaction with their partners' support to ensure that any potential lagged relationship benefits of invisible support are not attributable to invisible support behaviors becoming visible to recipients on the next day.

Studies 1 and 2

Method and Participants.

Study 1. A total of 89 heterosexual married couples were recruited from western New York using advertisements in local newspapers and on shopping bags in a local supermarket.¹ Husbands and wives were an average of 39.34 ($SD = 10.28$) and 37.20 ($SD = 9.71$) years old, respectively, and had been married an average of 10.44 years ($SD = 9.83$). Thirty-four percent of husbands and 40% of wives had earned a bachelor's degree, and an additional 20% of husbands and 16% of wives had postbaccalaureate degrees. Eighty-six percent of husbands and 34% of wives were employed full-time. The median income range reported by these couples was \$20,000 to \$30,000 per year (note: this data was collected two decades ago when income levels were substantially lower than they are now). Ninety-two percent of participants were White and non-Hispanic, 5% were members of an ethnic minority group, 2% reported other, and 3% did not report their race or ethnicity.

Study 2. A total of 175 North American heterosexual newlywed couples were recruited from bridal show registries and Internet forums and advertisements. Husbands and wives were an average of 29.02 ($SD = 5.64$) and 27.33 ($SD = 4.73$) years old, respectively, and had been married an average of 7.17 months ($SD = 3.47$) at study onset. Forty-seven percent of husbands and 50% of wives earned a bachelor's degree and an additional 28% of husbands and 34% of wives had received a postbaccalaureate degree. Twelve percent of husbands and 18% of wives were attending school full-time. The median household income reported by both husbands and wives was US\$80,000 to US\$89,999. Seventy-five percent of participants were Caucasian (5% Hispanic), 12% were Asian, 7% were African American, and 6% were multiracial or other.

Materials and Procedure

All procedures were performed in accordance with IRB ethical standards. Studies 1 and 2 followed similar procedures. In Study 1, during an initial laboratory visit, participants completed a questionnaire packet including demographic information along with other measures that are not relevant to the current article. In Study 2, this packet was administered on a website after the

research team had telephone contact with both spouses. Participants in both studies were then asked to complete a diary survey each evening at bedtime for the next 14 days and were instructed to complete the surveys independently of their spouse. In Study 1, each participant received a supply of 14 printed daily diary surveys, which were returned at the end of the 14-day diary period. Couples received a financial incentive of US\$50 for completing the daily diary portion of the study. One couple was excluded for completing fewer than half of the daily surveys. The remaining participants completed an average of 13.6 of the 14 daily diaries (97.1%). In Study 2, participants received an e-mail at exactly 7:00 p.m. with a unique link to that night's survey. This link remained open until 9:00am the next morning, after which the daily survey became inaccessible. Couples received US\$100 if both completed at least 12 daily diary surveys, US\$90 if both completed 9–11 surveys, US\$70 if both completed 6–8 surveys, and US\$50 if both completed fewer than 6 surveys. For each diary completed, participants also received an entry into a lottery drawing for one of two US\$100 prizes. Participants completed an average of 13.2 of the 14 daily diaries (94.3%).

Support days. Individuals responded to a 1-item binary variable that asked whether they perceived practical support from their partner (Study 1: “My partner tried to help me solve a problem”; Study 2: “My partner offered me suggestions about a problem I was having”; 0 no, 1 yes) and reported on an analogous measure about whether they provided their partner with support (Study 1: “I tried to help my partner solve a problem”; Study 2: “I offered my partner suggestions about a problem he/she was having”; 0 no, 1 yes)².

Relationship satisfaction. In both Studies 1 and 2, participants reported on their relationship satisfaction with a single item: “Today our relationship was . . .” (1 = *terrible*, 9 = *terrific*; e.g., Gable & Poore, 2008; Gable et al., 2003).

Anxiety. In Study 1, participants reported how “nervous” and “jittery” they felt that day (1 = *not at all*, 5 = *extremely*). These items were highly related and were averaged to index overall anxiety ($r = .75$, computed separately for each day and then averaged). In Study 2, participants reported how “anxious” they felt that day (1 = *very little*, 7 = *a great deal*).

Happiness. In both Studies 1 and 2, participants reported how “happy” they felt that day (Study 1: 1 = *not at all*, 5 = *extremely*; Study 2: 1 = *very little*, 7 = *a great deal*).

Daily stress. In Study 2, participants were asked, “Outside of your relationship with your partner, did anything stressful happen today?” (0 = *no*, 1 = *yes*). Participants who reported a stressful event were also asked, “How stressful was it?” (1 = *Just a little*, 4 = *Somewhat*, 7 = *A great deal*). These items were combined so that a score of “0” represented no stressful event, and a score of “1” to “7” represented the event’s stressfulness.

Results

We employed Quasi-Signal Detection Analyses to combine individuals’ perceived support and partners’ reported support in order to identify visible and invisible support days (see Gable et al., 2003; Maisel & Gable, 2009; Reis, Maniaci, & Rogge, 2014, 2017 for similar applications). Three dummy codes were created that indexed: (a) visible support days, which were days when individuals perceived support and their partners also reported having provided support, (b) invisible support days, which were days when individuals did not perceive support but their partners reported having provided support, and (c) pseudo support days, which were days when individuals perceived support but their partners did not report having provided support. By entering these three dummy codes as simultaneous predictors in the analyses described below, the analyses test the unique effects of visible, invisible, and pseudo support

days compared to no support days, which were days when neither partner indicated that support had occurred. Table 1 displays the frequency of support days across the 14-day period, and descriptive statistics across the measures.

Analyzing Immediate (Same Day) Effects of Visible and Invisible Support

Our data had a nested structure, with multiple daily reports (level 1) nested within each dyad (level 2). Thus, we followed Kenny, Kashy, and Cook's (2006) recommendations for analyzing repeated measures dyadic diary data using the MIXED procedure in SPSS 24. In order to test the effect of visible and invisible support days on relationship satisfaction the same day we regressed relationship satisfaction on day *i* on prior day relationship satisfaction (day *i*-1), and three dummy-coded support variables on day *i* representing (a) visible support, (b) invisible support, and (c) pseudo support days.³ All variables were person-mean centered in order to adjust for the proportion of support days experienced by each individual (see Enders & Tofighi, 2007). The models included the random effect of the intercept for men and women, and applied an autoregressive error structure (Bolger & Laurenceau, 2013).⁴

To ensure that we were examining the effects of support received rather than any costs or benefits of providing support, and to account for support equity within a given day (Gleason, Iida, Bolger, & Shrout, 2003), we also added the partners' support days as simultaneous predictors⁵, including partners' visible support, invisible support, and pseudo support days. The models pooled the effects of men and women, but all main and interaction effects of gender were included. There were few gender differences across all three Studies, but paths that differed significantly across men and women are presented separately in the results tables.

Table 1
Descriptive Statistics of Support Days and Daily Measures (Studies 1–3)

Support day frequencies	Study 1	Study 2	Study 3
Visible support days	12.6%	17.2%	35.1%
Invisible support days	21.4%	17.1%	15.7%
Pseudo support days	15.8%	13.7%	16.6%
No support days	50.2%	52.0%	32.6%

Descriptive statistics	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
Relationship satisfaction	6.56 (1.54)	1–9	5.79 (1.15)	1–7	6.12 (1.06)	1–7
Anxiety	1.42 (.71)	1–5	2.56 (1.68)	1–7	2.55 (1.69)	1–7
Happiness	3.14 (1.01)	1–5	5.15 (1.38)	1–7	5.37 (1.37)	1–7
Daily stress	—	—	1.29 (2.27)	0–7	3.03 (1.66)	1–7
Satisfaction with partners' help						
Household chores	—	—	—	—	5.61 (1.48)	1–7
Dependability	—	—	—	—	6.06 (1.16)	1–7
Satisfaction with relationship						
Interactions						
Partners' affection	—	—	—	—	5.67 (1.36)	1–7
Sex life	—	—	—	—	4.65 (1.79)	1–7
Time together	—	—	—	—	5.44 (1.53)	1–7
Conversations	—	—	—	—	5.80 (1.26)	1–7
Satisfaction with partners' support	—	—	—	—	5.90 (1.25)	1–7

Analyzing Lagged (Next Day) Effects of Visible and Invisible Support

We also ran analogous analyses to test the effect of visible and invisible support on next day relationship satisfaction. We modeled the associations between support behavior on day i with outcomes on day $i + 1$ controlling for those outcomes on day i .

Visible support. Table 2 (under Study 1 and Study 2) outlines the same and next day effects of visible support days compared to no support days, controlling for the effects of invisible and pseudo support days. Consistent with prior research, visible support was associated with significantly greater relationship satisfaction and greater anxiety on the same day (left section of Table 2). There were no significant effects of visible support the next day, with the exception of greater happiness the next day in the results for Study 2 (right section of Table 2).

Invisible support. Table 3 (under Study 1 and Study 2) outlines the same and next day effects of invisible support days compared to no support days, controlling for the effects of visible and pseudo support. Unlike visible support, invisible support was not associated with relationship satisfaction the same day but was associated with lower happiness on the same day in Study 2. Consistent with our hypothesis, both Studies 1 and 2 found that invisible support predicted greater relationship satisfaction the next day. As in previous work, invisible support was not associated with changes in anxiety or happiness the next day, thereby obviating the personal costs associated with visible support days.

Daily stress controls. In Study 2, we reran our analyses controlling for daily stress in order to rule out the possibility that the personal costs of visible support occur in response to existing daily stressors, or that invisible support might be beneficial in times of lower stress, when recipients might be generally happier, less anxious and more satisfied. As Tables 2 and 3 show, controlling for stress did not eliminate the same-day personal costs of visible support on anxiety, but it did eliminate the same-day personal costs of invisible support on happiness, suggesting that visible (but not invisible) support likely exacerbates recipients' existing distress by increasing the salience of the stressor. The association between invisible support and relationship satisfaction the next day remained significant when controlling for daily stress. More information is available in the online supplementary materials. Finally, we explored whether invisible support might have relationship benefits the next day by reducing next-day stress. We did not find support for this explanation as invisible support did not predict changes in next-day stress ($B = .13, t = 1.31, p = .19$).

Table 2

Association Between Visible Support and Recipients' Relationship Satisfaction and Mood (Studies 1–3)

Dependent variables	Same day						Next day					
	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI		<i>r</i>	<i>B</i>	<i>SE</i>	<i>t</i>	95% C		<i>r</i>
				Low	High					Low	High	
Study 1												
Relationship satisfaction	.24	.09	2.65**	.06	.43	.06	.09	.09	.98	-.09	.27	.02
Anxiety	.13	.05	2.72**	.04	.23	.06	-.04	.05	-.93	-.14	.04	.02
Happy	-.10	.06	-1.50	-.22	.03	.06	.09	.06	1.46	-.03	.22	.03
Study 2												
Relationship satisfaction	.26	.05	5.31**	.17	.36	.09	.09	.05	1.81	-.01	.18	.03
Anxiety	.51	.07	6.99**	.36	.65	.11	-.04	.07	-.59	-.18	.10	.01
Happy	-.09	.06	-1.45	-.20	.03	.02	.12	.06	2.01*	.00	.23	.03
Study 3												
Relationship satisfaction	.15	.10	1.54 _W	.04	.35 _W	.05	.18	.07	2.63*	.04	.31	.08
	.47	.11	4.47 _M	.27	.68 _M	.15						
Anxiety	.52	.18	2.93_W	.17	.87_W	.09	.06	.13	.48	-.19	.31	.02
	.01	.19	.08 _M	-.36	.39 _M	.00						
Happy	-.38	.15	-2.50_W	-.68	-.08_W	.08	.12	.11	1.14	-.09	.34	.04
	-.10	.17	.63 _M	-.22	.43 _M	.02						

Note (Table 2). Significant effects highlighted in bold. For Studies 2 and 3, significant effects that fall away when controlling for daily stress are italicized. Paths that significantly differed across men and women are listed separately for men (denoted with M) and women (denoted with W). Effect sizes (r) were computed using Rosenthal and Rosnow's (2007) formula: $r = \sqrt{t^2/t^2 + df}$. CI confidence interval.

* $p < .05$.

Study 3

Studies 1 and 2 provided evidence that invisible support goes unnoticed on the same day, but boosts relationship satisfaction the next day. However, it remains unclear what behaviors might be associated with invisible support. During daily life, people can support one another in a variety of ways, including taking care of household chores and childcare, keeping day-to-day annoyances at bay, providing space to deal with personal issues, and so forth. Although these behaviors are sometimes visible, they can often be subtler. Yet, we do not know whether these daily supportive behaviors are experienced as visible or invisible support. Thus, in Study 3, we drew on existing theories of visible and invisible support to propose a novel understanding about what invisible support might entail during daily life, and how the visibility of daily support behaviors might reveal different temporal effects.

A range of theoretical perspectives suggest that rather than simply delivering direct advice or comfort, support also involves everyday behaviors and interactions that demonstrate that partners are helpful and available (Feeney & Collins, 2015; Kaul & Lakey, 2003; Lakey, 2013). For example, partners' engagement in helpful background behaviors, such as helping with household chores and childcare or keeping other day-to-day annoyances at bay, promotes greater relationship wellbeing (Johnson, Galambos, & Anderson, 2016; Kaul & Lakey, 2003; Wang & Repetti, 2014, 2016). Similarly, Feeney and colleagues have argued that support also involves indirect and nonintrusive behaviors that allow individuals to cope with problems and pursue goals, all the while knowing that partners are available for help or support if needed (Feeney, 2004; Feeney & Thrush, 2010).

Table 3
Association Between Invisible Support and Recipients' Relationship Satisfaction and Mood (Studies 1–3)

Dependent variables	Same day						Next day					
	B	SE	t	95% CI		r	B	SE	t	95% C		r
				Low	High					Low	High	
Study 1												
Relationship satisfaction	-.02	.08	-.23	-.17	.14	.01	.21	.08	2.75**	.06	.37	.07
Anxiety	-.04	.04	-.89	-.11	.04	.02	-.03	.04	-.68	-.10	.05	.02
Happy	-.03	.05	-.47	-.13	.08	.01	.08	.05	1.60	-.02	.19	.04
Study 2												
Relationship satisfaction	.04	.05	.74	-.06	.13	.01	.11	.05	2.37*	.02	.20	.04
Anxiety	.09	.07	1.37	-.04	.23	.02	-.04	.07	-.61	-.17	.09	.01
Happy	<i>-.12</i>	<i>.06</i>	<i>-2.06*</i>	<i>-.23</i>	<i>-.01</i>	<i>.04</i>	.04	.06	.75	-.07	.15	.01
Study 3												
Relationship satisfaction	.05	.08	.66	-.10	.21	.02	.29	.08	3.77*	.14	.45	.13
Anxiety	.05	.14	.35	-.23	.33	.01	.08	.14	.56	-.20	.35	.02
Happy	-.16	.12	-1.32	-.40	.08	.04	.27	.12	2.24*	.03	.50	.07

Note. Significant effects highlighted in bold. For Studies 2 and 3, significant effects that fall away when controlling for daily stress are italicized. Effect sizes (r) were computed using Rosenthal and Rosnow's (2007) formula: $r = \sqrt{t^2/t^2 + df}$. CI confidence interval.

* $p < .05$.

Because these partner behaviors and relationship interactions do not necessarily entail prototypical forms of support such as providing direct assistance, advice, or suggestions, they may or may not be construed as “support” by recipients (Kaul & Lakey, 2003; Lakey, 2013). Indeed, partner behaviors and relationship interactions are likely to provide relationship benefits regardless of whether or not they are seen as “support” by recipients, in ways that are consistent with the temporal impact observed in Studies 1 and 2 for visible support (on the same day) and invisible support (on the next day). For example, on days that partners provide visible support, recipients may conceptualize their partners’ intent to be helpful and available as “support,” and thus experience greater satisfaction with partners’ helpful behaviors (e.g., partners’ contribution to household chores) and satisfaction with relationship interactions (e.g., time spent together) on the same day. In contrast, on days that partners provide more indirect and subtle invisible support, recipients may not encode or perceive their partners’ behaviors and relationship interactions as “support.” However, after recipients have coped with their daily tasks or issues (Bolger et al., 2000; Shrout et al., 2006), we might expect that recipients will be free to reap the benefits of the positive relationship climate on the next day.

Study 3 also extended Studies 1 and 2 by assessing recipients’ satisfaction with their partners’ support to ensure that the relationship benefits of invisible support occur, not because partners’ invisible support becomes visible to recipients on the next day, but because partners’ invisible support involves relationship acts that are not seen or perceived as explicit “support” by recipients but still enhance recipients’ relationship wellbeing.

Method and Participants

Participants were 58 newlywed couples drawn from the sixth wave of a broader longitudinal study that began with 135 newlywed couples. Participants were recruited in East Tennessee by placing advertisements in community newspapers, bridal shops and sending invitations to couples who had completed marriage license applications. At baseline, these husbands and wives were 25.97 ($SD = 4.23$) and 23.83 ($SD = 3.49$) years of age, respectively, and had completed 16.68 ($SD = 2.51$) and 16.21 ($SD = 2.32$) years of education, respectively. Sixty-eight percent of husbands and 51% of wives were employed full time and 32% of husbands 30% of wives were full-time students. The median income range reported by husbands and wives were both \$20,001 to \$25,000. Ninety-three percent of husbands and 95% of wives self-identified as Caucasian.

Materials and Procedure

All procedures were performed in accordance with IRB ethical standards. Although 73 couples completed the 6th wave of data collection, the sample size was limited to the 58 couples in which both couple members completed the diary portion associated with that wave. This was the only wave in which participants answered questions about visible and invisible support. At the end of a laboratory session, both members of all couples were offered the opportunity to complete a daily survey that asked about various daily activities every night for the subsequent 14 nights. Sixty of these couples chose to take part in this diary study. Because both partners’ data are needed to assess visible and invisible support days, two couples were dropped from the analyses because only one couple member completed the diary. The remaining 58 couples completed an average of 11.03 of the 14 daily diaries (78.8%), although the link remained active and 13 couples completed 1 to 4 additional diary days that were retained as part of the analyses.

Couples were paid \$35 for completing all 28 diaries, or \$1.00 per diary if they failed to complete all days.

Support days. Individuals responded on a binary variable that assessed whether they perceived practical support from their partners (“Did your spouse go out of his/her way to help/support you today?” 0 = *no*, 1 = *yes*) and reported on analogous measures about whether they provided their partners with support (“Did you go out of your way to help/support your spouse today?” 0 = *no*, 1 = *yes*).

Relationship satisfaction. Participants reported on their satisfaction with their relationship (“How satisfied were you with . . .”, “. . . your partner today?”, “. . . your relationship with your partner today?”, “. . . your marriage today?”, 1 = *not at all satisfied*, 7 = *extremely satisfied*). The three items were averaged to index overall relationship satisfaction ($\alpha = .96$ computed separately for each diary day and then averaged).

Anxiety. Participants rated how “anxious” they felt that day (1 = *not at all*, 7 = *a lot*).

Happiness. Participants rated how “happy” they felt that day (1 = *not at all*, 7 = *a lot*).

Satisfaction with partners’ help. Participants reported on how satisfied they were with their partners’ helpful behaviors: “Thinking about the past 24 hours”, “how satisfied were you with . . .”, “. . . the way your spouse contributed to household chores?”, “. . . how dependable your spouse was?” (1 = *not at all satisfied*, 7 = *extremely satisfied*). Although we conceptualize these items to reflect theoretically similar behaviors, we analyzed these single-item measures individually to gain insight about each unique behavior.

Satisfaction with relationship interactions. Participants also reported on relationship interactions that could indicate partners’ availability: “Thinking about the past 24 hours”, “how satisfied were you with . . .”, “. . . how affectionate your spouse was?”, “. . . your sex life?”, “. . . the amount of time the two of you spent together?”, “. . . your conversations with your spouse?” (1 = *not at all satisfied*, 7 = *extremely satisfied*). Although we conceptualize these items to reflect theoretically similar behaviors, we analyzed these single-item measures individually to gain insight about each unique behavior.

Daily stress. Participants reported on their daily stress: “How stressful was your day today?” (1 = *not at all stressful*, 7 = *extremely stressful*).

Satisfaction with partners’ support. Participants reported on their satisfaction with their partners’ support: “Thinking about the past 24 hours, how satisfied were you with how your spouse supported you?” (1 = *not at all satisfied*, 7 = *extremely satisfied*).

Results

We used the same analytic strategy as in Studies 1 and 2. Table 1 displays the frequency of support days across the 14-day period, and descriptive statistics across the measures.

Visible Support

Visible support was associated with greater relationship satisfaction the same day for men. Demonstrating personal costs, visible support was associated with greater anxiety and lower happiness for women (left section of Table 2). The next day effects of visible support (right section of Table 2) indicated that visible support continued to predict greater relationship satisfaction the next day for both men and women, but there were no significant effects of visible support on anxiety and happiness the next day.

Invisible Support

Invisible support was not associated with relationship satisfaction or mood the same day (left section of Table 3), but it was associated with greater relationship satisfaction and happiness the next day (right section of Table 3).

Satisfaction with Partners' Help and Relationship Interactions

The additional contribution of Study 3 was examining the associations between invisible and visible support and satisfaction with partners' help and relationship interactions. These effects are shown in Table 4 and demonstrate that visible support was associated with greater satisfaction with partners' help (contribution to household chores and dependability) and relationship interactions (affection, sex life, time spent together and conversations) on the same day. The next day effects of visible support showed that visible support also continued to predict increasing satisfaction with partners' help and sex life. Furthermore, invisible support was not associated with satisfaction with partners' help or relationship interactions on the same day. Nevertheless, consistent with Studies 1 and 2, invisible support was associated with greater satisfaction with partners' help and relationship interactions the next day.

Daily Stress Controls

We wanted to ensure that the different effects of visible and invisible support were not a function of different support needs (see Tables 2 to 4). Unlike Study 2, rerunning the models controlling for recipients' daily stress eliminated the same day personal costs of visible support on women's anxiety and happiness, suggesting that the personal costs associated with visible support days might be more indicative of recipients' experiences of daily stress. The significant associations between visible support and relationship satisfaction and satisfaction with partners' daily help and relationship interactions remained significant. The personal and relationship benefits of invisible support also remained significant controlling for stress, demonstrating that invisible support does not simply occur during times of less stress, when visible support is not expected, and when individuals may generally be happier and more satisfied. More information about these control analyses is available in the online supplementary materials. Finally, replicating Study 2, invisible support did not predict changes in stress the next day ($B = .12, t = .84, p = .40$), indicating that invisible support does not have relationship benefits because it reduces next-day stress.

Table 4

Association Between Visible and Invisible Support Days and Recipients' Satisfaction With Partners' Help, Relationship Interactions, and Partners' Support (Study 3)

Dependent variables	Same day						Next day					
	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI		<i>r</i>	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI		<i>r</i>
				Low	High					Low	High	
Visible support												
<i>Satisfaction with partners' help</i>												
Household chores	.56	.09	5.89*	.37	.74	.19	.29	.10	3.01*	.10	.48	.10
Dependability	.41	.08	5.30*	.26	.57	.17	.18	.08	2.35*	.03	.34	.08
<i>Satisfaction with relationship interactions</i>												
Partners' affection	.36	.09	3.77*	.17	.54	.12	.16	.09	1.72	-.02	.35	.06
	.15	.17	.93W	-.17	.48	.03	.29	.11	2.60*	.07	.51	.09
Sex life	.73	.18	4.09M	.38	1.08	.14						
Time together	.43	.12	3.62*	.20	.67	.12	.22	.12	1.86	-.01	.45	.06
Conversations together	.45	.09	5.00*	.27	.62	.16	.05	.09	.52	-.13	.22	.02
<i>Satisfaction with partners' support</i>	.57	.09	6.45*	.39	.74	.21	.13	.09	1.50	-.04	.30	.05
Invisible support												
<i>Satisfaction with partners' help</i>												
Household chores	.16	.11	1.52	-.05	.37	.05	.34	.11	3.19*	.13	.54	.10
Dependability	.11	.09	1.28	-.06	.29	.04	.28	.09	3.19*	.11	.44	.11

Satisfaction with relationship interactions

Partners' affection	.12	.11	1.07	-.10	.33	.04	.36	.11	3.43*	.15	.57	.11
Sex life	.15	.13	1.08	-.12	.41	.04	.37	.13	2.81*	.11	.62	.10
Time together	.22	.14	1.55	-.06	.49	.05	.49	.14	3.55*	.22	.76	.12
Conversations together	.18	.10	1.75	-.02	.38	.06	.30	.10	3.01*	.10	.49	.10
<i>Satisfaction with partners' support</i>	.04	.10	.39	-.16	.23	.01	.14	.10	1.43	-.05	.33	.05

Note. Significant effects highlighted in bold. Controlling for daily stress did not alter any of the significant paths. Paths that significantly differed across men and women are listed separately for men (denoted with M) and women (denoted with W). Effect sizes (r) were computed using Rosenthal and Rosnow's (2007) formula: $r = \sqrt{t^2 / (t^2 + df)}$. CI confidence interval.

* $p < .05$.

Perceptions of Partners' Support Control

Lastly, we wanted to ensure that the relationship benefits associated with invisible support did not occur because invisible support behaviors became visible to recipients on the next day, and thus are driven by the relationship benefits of visible support. As demonstrated in Table 4, visible support days were associated with recipients' satisfaction with partners' support on the same day, but not on the next day. Invisible support days were not associated with recipients' satisfaction with partners' support on the same day or the next day. Importantly, controlling for satisfaction with partners' next-day support (i.e., on the day invisible support has relationship benefits) did not alter the significant associations between invisible support and relationship satisfaction ($B = .23, t = 3.58, p = .001$) or satisfaction with partners' help and relationship interactions ($Bs = .21, ts = 2.92, ps = .009$) the next day. Consistent with the original conceptualization of invisible support, these results suggest that invisible support is not perceived as (visible) support on the next day, but nonetheless facilitates greater relationship well-being across days.

General Discussion

Prior research has shown that invisible support can bypass the personal mood costs associated with visible support, but in those studies the impact of invisible support on relationship satisfaction was unclear. In the current research, three studies assessing married couples' daily life examined the immediate (same day) and lagged (next day) effects of visible and invisible support days on recipients' relationship satisfaction and mood. Consistent with prior work (Bolger et al., 2000; Gable et al., 2003; Maisel & Gable, 2009), invisible support days avoided the personal costs associated with visible support days (Studies 1–3). Advancing prior research, our results provide the first evidence that invisible support has relationship benefits. Although invisible support was not associated with relationship satisfaction the same day, in all three studies it was consistently associated with greater relationship satisfaction the next day. Furthermore, the relationship benefits associated with invisible support extended to recipients' satisfaction with partners' daily help (e.g., household chores, dependability) and daily interactions (e.g., time spent together, sex life), but only on the next day (Study 3). In the following sections, we discuss how these findings advance understanding of both visible and invisible support in relationships.

Invisible Support Has Lagged Relationship Benefits Across Days

The current research offers the first evidence that invisible support promotes relationship satisfaction across days. The lagged next day relationship benefits associated with invisible support suggest that invisible support may involve more subtle relationship behaviors and interactions and that the benefits of these behaviors may accrue over time. Furthermore, our results demonstrate that support providers are engaging in positive relationship-enhancing behaviors and interactions when they deliver invisible support, and that these behaviors and interactions have relationship-enhancing effects despite not being linked to recipients' perceptions of, or satisfaction with, support. This result indicates that invisible support is not so much a lack of support as it is a set of more routine behaviors and interactions that are not perceived or conceptualized as "support" by recipients. For example, invisible support positively predicted satisfaction with a range of partner behaviors and relationship interactions that are

likely the underlying bedrock of daily support in relationships, including partners' help with household chores, partners' affection, time spent together, and conversations with partners. These relationship acts represent nonobvious behaviors that may be intended to provide the space and resources to facilitate recipients' own coping efforts (Bolger et al., 2000; Shrout et al., 2006) by nurturing and taking care of the relationship (Feeney & Collins, 2015; Kaul & Lakey, 2003; Lakey, 2013).

In fact, it may be precisely because invisible support involves relatively routine partner behaviors and relationship interactions that invisible support avoids the personal costs associated with visible support without undermining relationship benefits. Consistent with prior research, our results indicate that invisible support that is not perceived as "support" by recipients can avoid impairing recipients' mood, likely because it avoids efficacy threats associated with perceiving that one needs help from others (Bolger et al., 2000, 2007; Howland & Simpson, 2010). However, extending the extant literature, our results highlight that rather than bypassing relationship benefits, invisible support boosts positive evaluations of partners as dependable and caring, improves satisfaction with relationship interactions, and fosters greater relationship satisfaction and well-being. Taken together, the overall set of findings suggest that invisible support, although not perceived by recipients as support per se, may still be noticed and experienced as positive relationship acts.

Visible Support Has Immediate Relationship Benefits, With the Risk of Personal Costs

The results of these three studies also advance understanding of visible support. Consistent with the existing literature (Gable et al., 2003; Gleason et al., 2008; Maisel & Gable, 2009), despite exacerbating anxiety and reducing happiness, visible support days were associated with immediate same-day increases in relationship satisfaction (Studies 1–3). These results might suggest that visible support fosters relationship satisfaction by providing immediate evidence of partners' care and availability (Cutrona et al., 2007; Feeney & Collins, 2003; Girme et al., 2013), but does so at the expense of recipients' coping, perhaps by increasing the salience of the stressor and threatening their feelings of efficacy (Bolger et al., 2000; Bolger & Amarel, 2007; Shrout et al., 2006). In other words, partners' well-intended support can foster greater closeness while simultaneously undermining recipients' coping (Gleason et al., 2008; Gable et al., 2003; Maisel & Gable, 2009).

The current research also demonstrates that the same day personal costs and relationship benefits of visible support may occur precisely because support providers are responding to recipients' distress and need for support—that is, recipients' distress may precede partners' visible support provision (Iida et al., 2008). If visible support tends to occur during times of high stress, then the personal costs of visible support may, at least partly, be a function of that context. Supporting this idea, the personal costs of visible support in Study 3 (but not Study 2) became nonsignificant when controlling for recipients' daily stress. Rather than exacerbating negative mood, then, the negative effects of visible support may reflect recipients' existing distress. This mixed evidence suggests that future research needs to take a more temporally nuanced approach to identifying why these personal costs occur by teasing apart recipients' distress before and after partners' visible support provision.

Gender Differences

No consistent gender differences arose in the effects of visible and invisible support, but some notable exceptions did emerge in Study 3. Visible support was associated with greater same-day relationship satisfaction and satisfaction with sex life for male recipients, whereas visible support was associated with greater anxiety and reduced happiness on the same day for female recipients. These gender differences are consistent with prior research that demonstrates that women tend to provide more responsive support on days their partners experience greater stress (Neff & Karney, 2005) and are more caring and emotive support providers (Burleson, 2003). In contrast, on days when women experience greater stress, men tend to provide more support but also greater criticism (Neff & Karney, 2005), which may explain why men's visible support was associated with greater anxiety and lower happiness for women. Nonetheless, gender differences were only obtained in Study 3 so we are hesitant to draw strong conclusions about differences between men and women.

Limitations and Future Research Directions

The three dyadic diary studies presented here provide the first evidence that invisible support days can have lagged relationship benefits, despite not being perceived or conceptualized by recipients as "support." However, our results do not explain why invisible support has lagged benefits. Invisible support did not reduce next-day stress (Studies 2 and 3), which might have freed individuals from thinking about daily hassles, allowing them to experience their positive relationship environment. Furthermore, our results do not provide insight about whether invisible support has lagged relationship benefits because it goes unnoticed by recipients on the day it is delivered, or because it is noticed on the same day but just not encoded as "support." It is also possible that invisible support boosts implicit relationship evaluations on the same day, which leads to more favorable explicit evaluations of the relationship across time (see Gawronski & Bodenhausen, 2006). Future research should assess the underlying mechanisms for how practical invisible support during daily life facilitates relationship satisfaction the next day, which may have important clinical implications for how couples support each other during daily life.

Another limitation is that we focused on practical (and not emotional) invisible support. However, partners can also provide emotional invisible support during daily life that aim to soothe recipients' distress and facilitate recipients' own emotion regulation (Girme et al., 2013). For example, partners may put on a funny movie or use 'off-topic' humor to lighten the mood. Although our support measures across studies focused on practical "help" or "suggestions", our measure in Study 3 may have been more open to interpretation ("help/support") and captured emotional forms of support too. This may explain why we only observed gender differences in Study 3, given that some research suggests that women desire and provide greater emotional support compared to men (Burleson, 2003). Similarly, this may explain why the personal costs of visible support became nonsignificant when controlling for recipients' daily stress, or why visible support incurred lagged relationship benefits only in Study 3. Thus, exploring the impact of emotional invisible and visible support during daily life is an important area for future research.

Although we focused on the association between invisible support and relationship satisfaction, there may still be costs of subtle and invisible forms of support. For example, because invisible support is not perceived as "support" by recipients, it may signal that partners are not being responsive or helpful to recipients' needs and may undermine relationship

closeness and satisfaction (Maisel & Gable, 2009). Certain individuals might be more susceptible to partners' seeming lack of responsiveness, especially if it reinforces existing negative beliefs about intimate relationships. For example, invisible support might fail to provide evidence of partners' availability and care that helps avoidant or anxious individuals overcome their negative expectations of unavailable caregivers, and their beliefs about being unworthy of love (Collins & Feeney, 2000; Girme, Overall, Simpson, & Fletcher, 2015; Overall, Girme, & Simpson, 2016). Identifying when and for whom invisible support has relationship benefits or costs is an important avenue for future research.

Of course, wider close relationship dynamics and cultural contexts are also relevant. We examined the impact of invisible support in homogenous samples of White, middle-class, married couples within a Western cultural context. However, the provision and impact of invisible support might differ in nonromantic relationships or non-Western cultures. Invisible support may facilitate closeness within other types of relationships that require people to be sensitive to recipients' coping and efficacy, such as between teachers and students (Reeve, 2002) or friends (Deci, Guardia, Moller, Scheiner, & Ryan, 2006). Furthermore, people from EastAsian cultures tend to benefit from receiving indirect support that avoids drawing attention to personal stressors, just as invisible support does (Kim, Sherman, & Taylor, 2008). However, being part of an Eastern culture with communal norms might also undermine invisible supports' relational impact because invisible support acts might be seen as part of peoples' expected communal duties rather than interpersonal care (Miller, Akiyama, & Kapadia, 2017). Examining how invisible support might operate across different relationship and cultural contexts is another important avenue for future research.

Conclusions

In sum, we provide novel evidence that invisible support, although not perceived by recipients as "support," nevertheless promotes relationship satisfaction, as well as satisfaction with a range of partner behaviors and relationship interactions (e.g., household chores, time spent together, conversations) – effects that were evident only by taking an extended temporal perspective. Our findings suggest that support researchers may benefit from broadening their conceptualization by considering behaviors that may not be labeled explicitly as "support" and that may have delayed effects. Such a perspective seems likely to more fully and accurately describe the myriad ways in which relationship partners help each other cope with the demands of everyday life.

Notes

- 1) ¹ Data from Studies 1–3 are drawn from broader longitudinal studies. However, the measures and hypotheses reported here are completely novel. Details on published work using data from Studies 1–3 are available in the online supplementary materials.
- 2) ² Studies 1 and 2 also included emotional support items (e.g., "I reassured or consoled my partner about a problem he/she was having"). Specific effects of emotional support for Studies 1 and 2 are available in the online supplementary materials. Study 3 only assessed practical support.

- 3) ³ Our models included pseudo support days in order to control for the effect of perceiving support (similar to visible support days), but also not receiving support (similar to no support days). Pseudo support days demonstrated similar relationship benefits associated with visible support days (i.e., the relationship benefits of perceiving support) but were not associated with personal costs (i.e., bypassing the costs of enacted support). As expected, pseudo support days did not show the same pattern of results reported for invisible support days. Specific effects of pseudo support days across all three studies are available in online supplementary materials.
- 4) ⁴ The effect of support can be heterogeneous, so we re-ran our analyses and included the random effects of recipients' and providers' visible support, invisible support, and pseudo support days. These models failed to converge, but the effect of invisible support on next day relationship satisfaction (Studies 1–3: ts 1.94 to 2.51, ps .055 to .016) and all but one of the relationship behaviors (Study 3: ts 2.12 to 2.67, ps .04 to .01; household chores t 1.69, p .099) remained significant
- 5) ⁵ Due to the focus of this paper, we only report the effects of receiving visible and invisible support. However, the effects in Tables 2 to 4 all remained significant when removing provider outcomes from the model, except in Study 2 where the effect of receiving invisible support on relationship satisfaction the next day was reduced (B .06, t 1.45, p .146). Specific effects for providing support are available in online supplementary materials.

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