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The Journal of Positive Psychology

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ISSN: 1743-9760 (Print) 1743-9779 (Online) Journal homepage: www.tandfonline.com/journals/rpos20

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To cite this article: Tara Zahavi-Lupo, Gal Lazarus, Rony Pshedetzky-Shochat, Eran Bar-Kalifa, Elad Refoua, Marci E.J. Gleason & Eshkol Rafaeli (2023) His, hers, or theirs? Hope as a dyadic resource in early parenthood, The Journal of Positive Psychology, 18:4, 557-572, DOI: 10.1080/17439760.2022.2093780

To link to this article: https://doi.org/10.1080/17439760.2022.2093780

THE JOURNAL OF POSITIVE PSYCHOLOGY
2023, VOL. 18, NO. 4, 557–572
https://doi.org/10.1080/17439760.2022.2093780

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His, hers, or theirs? Hope as a dyadic resource in early parenthood

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ABSTRACT

Hope is a mental resource and a robust predictor of well-being, which allows individuals to better cope with hardship. Little is known about dyadic hope – i.e., hope serving as a joint resource within intimate relationships. We examined dyadic hope in a sample of 100 couples in early parenthood, a challenging though common phase in couples' lives. Three months after becoming parents, both partners completed daily diaries for 3 weeks, reporting their daily hope, stressors, and three types of outcomes: individual, relational, and parental. Using multilevel actor-partner interdependence models, we found that greater hope (both daily and person-level) was positively associated with better actor and partner outcomes of all three kinds. Additionally, hope buffered various daily stressors. Our results show that hope is a personal and shared resource for couples in this pivotal juncture, and thus may constitute a target for future interventions.

ARTICLE HISTORY
Received 25 February 2021
Accepted 12 April 2022

KEYWORDS
Hope; early parenthood; transition to parenthood; actor-partner interdependence model; daily diary

Becoming parents is an act of prospection, or future-directed thinking. Expectant mothers and fathers imagine themselves and their partners as parents, picture the world their child will live in, and fantasize about what their emerging family will be like. During the early months of parenthood, as these dreams meet reality, parents keep revising them and projecting themselves further into the future – with levels of hope that may differ between couples, within couples, but also within each parent. In the present work, we sought to examine the effects of new parents' hope on their own and their partners' adjustment to this phase of life.

Below, we briefly review the literature on the experience of hope, discuss its pertinence to early parenthood and suggest examining it as a dyadic (rather than an individual) phenomenon. We argue that hope may serve as a joint dyadic resource for couples within early parenthood, such that one partner's hope may be linked to both partners' adjustment to parenthood, as it is reflected in personal, relational, and parental functioning – directly, interactively, and as a buffer of relevant stressors.

Hope

Hope is often thought of as just one of several positive emotions or worse – as simply a form of positive, pollyannaish, or even Panglossian thinking (Milona & Stockdale, 2018). The ability to hope seems practically healthy: as Taylor and Brown (1988) stressed, mentally healthy people tend to demonstrate positive (even if illusory) expectations regarding their future, whereas depressed people or those with lower self-esteem lack this healthy hopeful outlook. Indeed, hope shares certain features with related constructs, such as optimism (e.g., desire for particular outcomes; Carver & Scheier, 2014). However, certain features set hope apart, and make it a particularly worthy target of investigation in early parenthood (as well as other major life transitions). First, hope actually implies the *absence* of full confidence, and second, hope incorporates desire into *actions*, engaging imagination, thoughts, feelings, and perception in the service of fulfilling the desire. Not surprisingly, there is considerable evidence that hope predicts beneficial psychological functioning where sheer optimism fails to do so (e.g., Kashdan et al., 2002; Rand et al., 2011).

Philosophers of hope (e.g., Bovens, 1999) note that our propensity to hope has a significant impact on our experiences and our functioning. As Bovens and others (e.g., Martin, 2013) note, the mental state of hoping differs from the mental state of desiring in that it includes a sense of agency – when we hope for something, we are motivated to promote it, and try to act towards its fulfillment, remaining engaged with our

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Supplemental data for this article can be accessed online at https://doi.org/10.1080/17439760.2022.2093780.

goals despite challenges and obstacles. Psychological theory and research on the phenomenon of hope (e.g., Snyder, 2002) concurs, and views hope as a positive motivational state comprising two interrelated cognitive components – agency (goal-directed determination) and pathways (plans to meet these goals).

Hope has been linked to various indices of psychological and physical well-being, including promotion of good physical health (e.g., Irving et al., 1998); prevention, detection, and treatment of illness (e.g., Seaton & Snyder, 2001); lower incidence of depression (Shorey et al., 2003); greater social competence and more satisfying relationships (Snyder et al., 1997); and improved coping with stressors (Tennen & Affleck, 1999). Indeed, a recent meta-analysis (Alarcon et al., 2013) using Snyder's conceptualization estimated that the associations between hope and well-being measures (e.g., happiness, lower depression, lower stress) are large in magnitude.

Much of the literature on hope has considered it to be a trait, viewing it as a dispositional and relatively enduring mind-set (e.g., Snyder, 1994). Over the years, however, hope researchers have begun to see state indices of hope as meaningful and interesting as well. Along these lines, Snyder et al. (1996) suggested the concept of State Hope which refers to the potentially dynamic nature of this virtue and argued that fluctuations in hope levels are mostly related to contextual factors and specific goal-related events in the moment.

Hope has also been referred to as a *mental resource* which can be used or activated to buffer difficult situations. Indeed, as Ong et al. (2006) suggested, hope is a significant source of resilience that can shape the meaning of daily stressors in ways that reduce their intensity and long-term impact. To date, this idea of hope as a mental resource has been demonstrated mostly in contexts of adversity such as illness or crises (e.g., Felder, 2004; Stanton et al., 2002). Even studies of hope in the context of parenting have typically considered it with respect to stress and coping (e.g., hope among parents of children with illnesses or disorders; e.g., Kashdan et al., 2002). Less is known about hope as a resource within relatively normative (though still challenging) parenting situations and circumstances, like early parenthood. However, several studies have provided some evidence for the relevance of hope (or of related constructs) in early parenthood. Rini et al. (1999) demonstrated that parents' optimism and sense of mastery leads to good infant physical outcomes (namely, higher birth weight and longer pregnancy); Keeton et al. (2008) provided prospective evidence that expectant mothers' and fathers' (pre-partum) sense of control (which resembles the agency component of hope) is tied to lower (post-partum) anxiety and depression; and finally, Thio and Elliott (2005) showed that more hopeful women experienced less post-partum depression. As these studies have shown, hope may be directly tied to salubrious outcomes, and moreover, like other positive resources (e.g., self-compassion: Bluth & Neff, 2018), it may serve as a buffer against stressors which typically lead to undesired outcomes.

Notably, most investigations of hope's effects have viewed the construct from the individual's perspective – inquiring how *one's* hope (trait or state) is linked to *one's* coping and well-being. However, as relationship researchers (e.g., Lazarus et al., 2021; Reid et al., 2018) have shown, and as interdependence theorists (e.g., Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003) have long argued, individuals in close dyadic relationships tend to affect one another in complex ways, and each partner's outcomes are often tied to the other's actions, emotions, or characteristics. Accordingly, we are curious to explore hope as both an individual and a dyadic phenomenon; by examining how one partner's hope is tied to both their own and their partner's functioning and well-being, and by considering the possibility that actor and partner hope may have a compensatory interactive effect (i.e., that individuals would benefit more from each of them when the other is low), we wish to provide evidence for hope's role as a *joint dyadic resource* for couples in early parenthood. Specifically, by using daily measures of state hope, we wish to capture both partners' fluctuations in the construct and to study their direct and interactive ties to day-to-day functioning in early parenthood, as well as the possibility that both may buffer the effects of personal, relational, or baby-related stressors on such functioning.

The challenges of early parenthood

In the current project, we focus on the role played by hope within early parenthood, i.e., on its role vis-à-vis new parents' experiences during early infancy, the period immediately following childbirth. In many ways – personal, relational, and coparental – this period involves the most radical changes from being partners to being parents (e.g., Belsky & Rovine, 1990; Rhoades et al., 2012; Sawyer et al., 2012).

Parents' *personal well-being* tends to decrease during early infancy, as their newborn's needs require intensive, round-the-clock care, and come replete with frequent prolonged crying, feeding problems, other hard-to-understand discomforts (e.g., Vanzetti & Duck, 1996), and sleep deprivation (Gay et al., 2004). Unfortunately, post-partum blues and depression are not rare during

this phase: A meta-analytic review indicated that by 3–6 months postpartum, as many as 41.6% of new mothers and 25.6% of new fathers report considerable depressive symptoms (Paulson & Bazemore, 2010). Moreover, these reductions in well-being often prove to be long-lasting (Luhmann et al., 2012).

With its depletion of resources and characteristic rise in stress and marital conflict, early infancy also brings declines in new parents' *relational well-being* (e.g., Doss & Rhoades, 2017; MacDermid et al., 1990; Nomaguchi & Milkie, 2020). An influential ten-year longitudinal study showed that almost one third of partners fall into the clinical range of marital distress during the first 18 months after birth (Cowan & Cowan, 2000); another longitudinal study showed a sudden deterioration of relationship functioning following birth, a deterioration which tended to persist over the following years (Doss et al., 2009); and as Luhmann et al.'s (2012) meta-analysis suggests, relationship satisfaction following child-birth appears to fall permanently below pre-birth levels.

Of course, not all couples go through early parenthood with that great a deal of difficulty. As Kluwer (2010) has argued, adaptive processes as well as personal or situational characteristics may moderate the effects of various stressors during this life stage; indeed, the majority of couples experience only moderate declines in satisfaction (Don & Mickelson, 2014), and some couples even report improvement in their relationship following this transition (Feeney et al., 2001; Nelson et al., 2013). However, it seems that in many cases parenthood hastens marital decline, even for relatively satisfied couples for whom this transition was a desired and planned occurrence (Lawrence et al., 2008).

Alongside personal and relational functioning, early infancy also lays the foundation for new parents' *parental* functioning. In particular, partners' ability to coparent is often shaped during this period as they establish coparenting routines and practices (Feinberg, 2003; Schoppe-Sullivan et al., 2004). The term 'coparenting' addresses parents' ability to function well together, cooperate and support each other within their parental bond, and includes both positive aspects (e.g., division of childcare and solidarity) and negative aspects of this bond (e.g., competition or undermining; Feinberg, 2003). The term emerged from the literature examining divorced parents, but has been gaining greater attention as relevant for intact families as well (e.g., Karreman et al., 2008; Schoppe-Sullivan & Mangelsdorf, 2013).

Given the joy and excitement intertwined with the myriad challenges faced by new parents, state hope may naturally fluctuate during this period. These fluctuations provide a unique opportunity for examining actor hope's and partner hope's direct and interactive effects – and more importantly, their buffering effects – on well-being and functioning. Thus, we sought to determine whether hope (considered as a personal and dyadic resource) is directly tied to better personal, relational, and coparental outcomes, and whether it buffers the effects of stressors on these outcomes.

Of course, men and women are likely to experience early parenthood differently, as the challenges they face typically diverge. Women's biological role in childbearing (pregnancy, childbirth, and lactation), together with the social expectations regarding motherhood, often thrust them into more intensive engagement with childcare, and thus greater salience of the new role (e.g., Katz-Wise et al., 2010; Kerig et al., 1993; Sanchez & Thomson, 1997). In contrast (or possibly *because of* the smaller day-to-day burden placed on them), new fathers' eudaimonic well-being rises more than new mothers' (Brandel et al., 2018); moreover, their hedonic well-being rises, whereas new mothers' falls (Nelson-Coffey et al., 2019).

Though much of the extant evidence suggests that new parenthood hits women harder than men, a growing number of studies document significant elevation in stress among new fathers (Genesoni & Tallandini, 2009; Paulson & Bazemore, 2010), and there is growing evidence of a 'new generation of fathers,' highly involved in daily caregiving and perceiving themselves as equally responsible for their children's well-being (Matta & Knudson-Martin, 2006; Singley & Edwards, 2015). Given this changing terrain of gender in new parenthood, we decided to examine our predictions separately for each gender but have no a priori hypotheses regarding gender differences.

The present study

Three aims guided the present study. First, we wanted to zero-in on the role of new parents' hope in early parenthood – i.e., shortly after the transition from being partners to being parents. Second, we wanted to focus on *state* hope (i.e., hope as a day-level predictor) and on its associations with daily outcomes, as well as on *mean* hope (i.e., hope as a person-level predictor) and on its associations with mean outcomes. Finally, we wanted to consider hope as more than an individualistic phenomenon, and instead, explore it as a dyadic resource. We do so by examining the potential of one partner's hope to engender *direct* positive effects on either partners' outcomes, and by determining whether actor and partner hope show a compensatory interactive pattern, wherein each matters more when the other is weaker. We also examine whether hope serves as a protective factor, weakening the association between respective stressors and both partners' outcomes. We chose to broadly

explore outcomes that reflect personal well-being (namely, parents' daily moods), relational well-being (namely, perceived partner responsiveness [PPR] and feelings within the relationship) as well parental functioning (namely, coparenting quality).

To examine the buffering role of hope vis-à-vis personal, relational, and parental outcomes, we chose to use domain-specific stressors – namely, personal stressors, marital conflict, and baby-related stressors, respectively. We did to limit the number of analyses by honing-in on the most relevant hardship in each domain. Though these domains (including both stressors and outcomes) are often interconnected (e.g., Christopher et al., 2015), each reflects a different and consequential 'part of the puzzle' of early parenthood, and all three may engender down-stream consequences (e.g., for the child's psychological development).

Method

Participants and recruitment

Heterosexual Israeli primiparous couples (N = 108) were recruited for a larger project on relational processes during the transition to parenthood using social media as well as advertisements on relevant internet forums. Participants were required to be cohabiting for at least one year, over 18 years old, and expecting their first child. Couples expecting twins were excluded from the study. Five couples left the study after completing the background questionnaires, one additional couple left before beginning the post-partum diary portion, and two completed less than six diary entries, leaving 100 couples with complete data through early infancy. Participants ranged in age from 19 to 46 years old. On average, women were 28.7 (*SD* = 4.3) years old and men were 30.3 (*SD* = 4.1) years old. The average relationship length was 4.9 years (SD = 2.9), and 96.3% were married.

Participants received a gift card (worth approx. 25 USD) for participating in a pre-partum meeting and completing a background questionnaire, and an additional remuneration (of approx. 150 USD) for taking part in a lab visit at 15-weeks post-partum, and then completing a 21-day daily diary at home. They also completed subsequent assessments at 6-months and 12-months, but these data will not be described here; for these subsequent phases, each couple received approx. 125 USD.

The recruited sample was economically diverse: 9.6% of the couples had monthly family income of less than $1350 a month; 21.1% earned $1350-$2700 a month; 34.2% earned $2700-$4050 a month; 15.8% earned $4050-$5400 a month; and 19.3% earned more than $5400 a month.

Measures

Daily (personal) stressors

Participants completed a daily stressors questionnaire (Bar-Kalifa & Rafaeli, 2013). Four items, rated on a 5-point scale, ranging from *not at all* to *extremely*, addressed problems with physical health, interpersonal relationships (though not with the partner), household chores, or 'other stressors'. These were averaged to create a daily personal stress score. To assess the reliability of this measure, we used the procedures recommended by Cranford et al. (2006). The between-person reliabilities were .45 and .67 for mothers and fathers, respectively, and the within-person reliabilities were .21 and .26, respectively. These low internal consistency indices are expected as the index combines stressors across different domains.

Daily relational conflict

Participants completed a daily dichotomous item inquiring whether they had any conflict with their partner. Conflict was defined as 'a situation in which partners disagree significantly and was expressed verbally or behaviorally'.

Daily parental (baby-related) stress

Participants completed a parental stress index, created by combining 3 items addressing problems with the baby's health, mood, or care (e.g., 'please note the extent to which you experienced problems or stress concerning baby care [e.g., feeding difficulties, crying baby, etc.] today'). Items were rated on a 5-point scale, ranging from *not at all* to *extremely*, and were averaged to create a daily personal stress score. The between-person reliabilities were .62 and .66 for mothers and fathers, respectively, and the within-person reliabilities were .71 and .59, respectively.

Daily state hope

Participants completed a daily state hope questionnaire (Snyder et al., 1996), which included 6 items: three assessing agency thinking, and three assessing pathways thinking. Items were rated on a 8-point scale, ranging from *not at all* to *very much*. All items were averaged into a total scale as the correlation between the agency and pathway subscales was very high ($r = .72$, $p < .001$). The between-person reliabilities were .94 and .96 for mothers and fathers, respectively, and the within-person reliabilities were .88 and .85, respectively.

Daily profile of mood states (POMS)

Participants completed an adapted and shortened daily diary version (Cranford et al., 2006) of Lorr and McNair's (1971) Profile of Mood States. We included 12 items which were rated on a 5-point scale ranging from *not at all* to *very much*. Three items each assessed the following four moods: vigor (e.g., *lively, energetic*), sadness (e.g., sad, hopeless), anxiety (tense, restless), and contentment (e.g., happy, satisfied). The vigor subscale and the reversed sadness subscale were averaged each day to create a *daily positive POMS* score, while the anxiety subscale and the reversed contentment subscale were averaged each day to create a *daily negative POMS* score. For the daily positive POMS, the between-person reliabilities were .74 and .78 and the within-person reliabilities were .79 and .74, for mothers and fathers, respectively. For the daily negative POMS, the between-person reliabilities were .78 and .86 and the within-person reliabilities were .80 and .74, for mothers and fathers, respectively.

Daily perceived partner responsiveness (PPR)

Participants' daily PPR was assessed using an adapted and shortened daily diary version (Maisel & Gable, 2009) of Reis's (2003) perceived partner responsiveness measure, which included 3 items rated on a 7-point scale, ranging from *not at all* to *very much*, which assess the degree to which one feels *understood, valued*, and *cared-for* (e.g., 'My partner makes me feel she/he cares about me.'). The three items were averaged. The between-person reliabilities were .91 and .92 and the within-person reliabilities were .87 and .86, for mothers and fathers, respectively.

Daily relationship feelings (RF)

Participants' daily positive and negative RF levels were assessed using an adapted version (Rafaeli et al., 2008) of the Emotional Tone Index (Berscheid et al., 1989) that included 12 items: six items assessing positive feelings within the relationship (e.g., Satisfied, Supported, Loved), and six items assessing negative feelings within the relationship (e.g., Hurt, Uninterested, Angry). Items were rated on a 5-point scale ranging from *not at all* to *very much*. The positive items were averaged each day to create a daily *positive* RF (PRF) score while the negative items were averaged each day to create a *negative* RF (NRF) score. The between-person reliabilities of the daily PRF were .89 and .91 and the within-person reliabilities were .86 and .84, for mothers and fathers, respectively. The between-person reliabilities of the daily NRF were .78 and .85 and the within-person reliabilities were .89 and .84, for mothers and fathers, respectively.

Daily coparenting relationship scale (CRS)

Participants' daily coparenting relationship was assessed using a shortened, adapted version of the CRS (Feinberg et al., 2012) that included 7 items, each rated on a 7-point scale, ranging from *not true* to *very true*. Each item represents one of the 7 subscales of the original CRS questionnaire: agreement, closeness, support, conflict, undermining, endorsement of partner parenting, and division of labor (e.g., 'Our parenthood made us closer to each other today', 'My partner undermined my parenting abilities today'). These items were averaged to create a daily coparenting score, reversing the two negative items (conflict and undermining). The between-person reliabilities were .71 and .78 and the within-person reliabilities were .69 and .65, for mothers and fathers, respectively.

Procedure

The diaries were administered using the Qualtrics online platform and were programmed to allow access to each day's diary every night at 7 p.m. Participants were asked to complete an individual daily diary nightly (an hour before going to sleep) for a three-week period beginning 15-weeks post-partum. The daily variables of interest are noted below, though the diary included additional measures as well (see https://osf.io/2fvp9/). Each participant received a unique subject ID to ensure privacy. Questions were asked in the same order each day and took approximately 5–10 minutes to complete.

Diary completion rates were quite high, with 63.5% of participants (N = 66 mothers, N = 61 fathers) completing all 21 days of diaries, and all but one participant (a father) completing at least 14 days of the diaries. Couples with full data did not differ from those with missing data on any variable of interest.[1] In all, mothers completed a total of 2042 days of diaries and fathers completed 2025 days of diaries. The study was approved by the research ethics committee of the Psychology Department of Bar-Ilan University, and all participants provided informed consent.

Analytic approach

Because our data have a multilevel structure (days nested within persons, and persons nested within couples), we used multilevel models (PROC MIXED; SAS

Institute, 9.4). As Bolger and Laurenceau (2013, p. 148) note, these data have three conceptual levels, but the absence of random variability at the within-dyad level (the third conceptual level) implies that it is saturated; as such, two-level models are recommended in this case. Thus, we used 2-level models (with a within-individual level and a between-couple level), which take into account the non-independence of days within persons. To address the non-independence inherent to dyadic data, we employed the Actor-Partner Interdependence Model (APIM, Kenny et al., 2006). APIM is a data-analytic approach designed specifically to test dyadic effects by simultaneously estimating actor effects (i.e., the effects of the actor's independent variable [e.g., their own levels of hope] on their own dependent variable score [e.g., their own PPR], as well as partner effects (i.e., the effects of their partner's independent variable [e.g., the partner's levels of hope] on their own dependent variable score [e.g., their own PPR]). Importantly, APIM takes into account the dependence in partners' residuals.

A series of models were estimated in which daily personal, relational, or parental variables served as outcomes (see, Figure 1 for the conceptual model). To test for the direct effects of hope, both actors' and partners' daily hope as well as their mean levels of hope across the diary period were included as predictors. To determine whether actor and partner hope show a compensatory interactive pattern, we included both day-level and person-level actor-by-partner hope interactions. To test for the protective effects of hope vis-à-vis daily stressors (with respect to the relevant outcome variables) we included the actors' stressors as well as their interactive effects with all hope indices (actor and partner; daily [level 1 interaction] and mean [cross level interaction]).

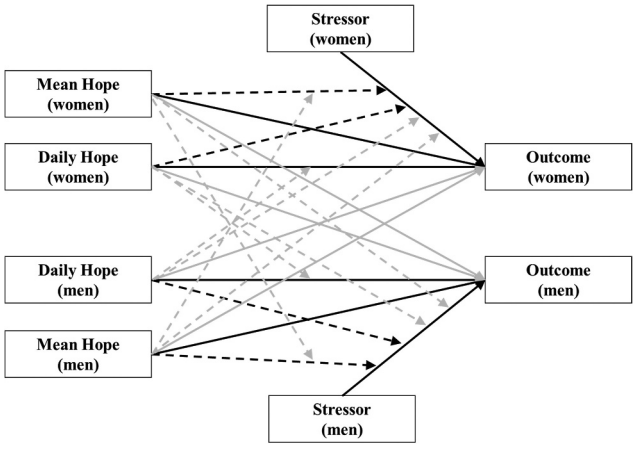

Figure 1. Conceptual moderation actor-partner-interdependence model for predicting personal, relational, and parental outcomes from both partners' daily and mean hope. Solid lines represent direct effects; dashed lines represent moderation effects; bold lines are actor effects; and gray lines are partner effects.

Day-level predictors were person mean centered to partition within and between person variance; person-level predictors were grand-mean centered to ease the interpretation of intercepts and interaction effects. All level 1 effects were allowed to vary among couples, partners' residuals were allowed to correlate, and an autoregressive structure was imposed on the level 1 residuals. To reduce concern about reverse causation, we included the lagged outcomes (i.e., the previous day's score). All models also included day-in-study and *weekend*[2] as covariates. Gender effects were explored by adding a gender variable (coded as 0.5 for men and −0.5 for women) as a main effect and in interaction with all predictors. The interactions between gender and all hope variables were examined; those found to be significant were probed, and their simple slopes were plotted. Significant (non-gender) interactions were probed by assessing the simple slopes of the predictors while the moderator was set to one standard deviation above and below its mean.

The generic level 1 equation was:

$$\begin{aligned}\text{Outcome}_{ijk} &= \beta_{0ij} + \beta_{1ij} * \text{Actor\_daily\_hope}_{ijk} + \beta_{2ij} \\ &* \text{Partner\_daily\_hope}_{ijk} + 1mu\beta_{3ij} * \text{Actor\_daily\_hope}_{ijk} \\ &* \text{Partner\_daily\_hope}_{ijk} + \beta_{4ij} * \text{Stressor}_{ijk} + 1mu\beta_{5ij} * \text{Actor\_daily\_} \\ &\text{hope}_{ijk} * \text{Stressor}_{ijk} + \beta_{6ij} * \text{Partner\_daily\_hope}_{ijk} * \text{Stressor}_{ijk} + \\ &1mu\beta_{7ij} * \text{Outcome}_{ij(k-1)} + \beta_{8ij} * \text{Weekend}_{ijk} + \beta_{9ij} * \text{Study\_day}_{ijk} + e_{ijk}\end{aligned}$$

where the outcome score of person *i* in couple *j* on day *k* was predicted by: (a) the intercept for this person (β_{0ij}); (b) the main effects of actor daily hope, partner daily hope (β_{1ij} and β_{2ij}, respectively), (c) their interaction term (β_{3ij}); the relevant stressor (β_{4ij}); (d) the level 1 interaction effects between actor/partner hope and the stressor (β_{5ij} and β_{6ij}, respectively); (e) the lagged outcome effect (β_{7ij}); (f) the effects of the covariates (β_{8ij} and β_{9ij}); and (g) a level-1 residual term (e_{ijk}) quantifying the day's deviation from these effects.

The generic level 2 equations were:

$$\begin{aligned}\beta_{0ij} &= \gamma_{00} + \gamma_{01} * \text{Actor\_mean\_hope}_{ij} + \gamma_{02} * \text{Partner\_mean\_hope}_{ij} + \\ &\gamma_{03} * \text{Actor\_mean\_hope}_{ij} * \text{Partner\_mean\_hope}_{ij} + u_{0ij}\end{aligned}$$

$$\beta_{1ij} = \gamma_{10} + u_{1ij}$$

$$\beta_{2ij} = \gamma_{20} + u_{2ij}$$

$$\beta_{3ij} = \gamma_{30}$$

$$\beta_{4ij}=\gamma_{40}+\gamma_{41}*\text{Actor\_mean\_hope}_{ij}+\gamma_{42}*\text{Partner\_mean\_hope}_{ij}+u_{4ij}$$

$$\beta_{5ij}=\gamma_{50}$$

$$\beta_{6ij}=\gamma_{60}$$

$$\beta_{7ij}=\gamma_{70}$$

$$\beta_{8ij}=\gamma_{80}$$

$$\beta_{9ij}=\gamma_{90}$$

where the intercept was predicted by an average intercept (γ_{00}), the mean of actors' hope (γ_{01}), the mean of the partners' hope (γ_{02}), their interaction term (γ_{03}), and a random intercept (u_{0ij}). The actors' and partners' hope slopes were predicted by the average slopes (γ_{10} and γ_{20}, respectively) and the person deviations from these slopes (u_{1ij} and u_{2ij}, respectively). The stressor's slope was predicted by the average slope (γ_{40}), the actor's mean hope (γ_{41}), the partner's mean hope (γ_{42}), and a random intercept (u_{4ij}). All the rest of the effects were predicted by their respective average slopes ($\gamma_{30,}$ γ_{50}- γ_{90}). The covariance structure of the level-2 random effects was determined based on model fit indices.[3]

Lastly, common methods to calculate local effect sizes in MLM generate indices which are hard to interpret since variance exists in more than one level of the model (Hoffman, 2015, p. 334). We therefore opted to use the standardized effects (i.e., Betas) as a proxy for effect sizes. These standardized effects were estimated in models parallel to the original ones but with person-standardized predictors and outcome measures. Notably, the standardized effects of the level-2 predictors were calculated in separate models where the outcome variables were sample-standardized (since person-standardization renders level-2 variance to zero).

Results

Means and standard deviations for the key study variables, as well as inter-correlations among these variables, are presented (separately for women and men) in Table 1.

Hope and personal stress as predictors of personal outcomes

As can be seen in Table 2 (see OSM Table S1 for all simple effects), actor daily personal stress predicted poorer positive mood. Additionally, both *actor* and *partner* hope, at both the day and the person levels, predicted higher actor positive mood. Notably, none of the hope indices (actor or partner) moderated the negative effect of actor daily personal stress. However, two of the interaction effects (actor stress by partner daily hope, and actor stress by actor mean hope) were qualified by gender differences. The day-level interaction between actor stress and *partner* hope was positive for men (b = 0.011, SE(b) = 0.005, t = 2.30, p = .022), but negative for women (b = −0.013, SE(b) = 0.006, t = −2.20, p = .022). Similarly, the person-level interaction between actor stress and *actor* hope was positive for men (b = 0.009, SE(b) = 0.004, t = 2.30, p = .022), but non-significant for women (b = −0.006, SE(b) = 0.004, t = −1.49, p = .137). Given these findings, we probed each of the significant interactions further (see, Figure 2).

We first examined the day-level interaction between actor stress and partner daily hope. For men, on days marked by greater partner hope, the deleterious effect of personal (actor) stress was lower (b = −0.143, SE(b) = 0.032, t = −4.50, p < .001) than on days marked by lower partner hope (b = −0.230, SE(b) = 0.031, t = −7.32, p < .001). Conversely, for women, on days marked by greater partner hope, the effect of personal (actor) stress was greater (b = −0.279, SE(b) = 0.035, t = −7.96, p < .001) than on days marked by lower partner hope (b = −0.172, SE(b) = 0.034, t = −5.11, p < .001).

Table 1. Descriptive statistics and zero-order correlations among the study's variables at the person level.

Variable	1	2	3	4	5	6	7	8
1. Actor hope		0.34***	−0.24*	−0.27**	−0.21*	0.63***	0.47***	0.41***
2. Partner hope	0.34***		−0.16	−0.22*	−0.30**	0.30**	0.36***	0.33***
3. Personal stress	−0.39***	−0.17		0.43***	0.45***	−0.34***	−0.23*	−0.24*
4. Relational stress (conflict)	−0.29**	−0.24*	0.42***		0.26**	−0.24*	−0.57***	−0.56***
5. Parental stress (baby-related)	−0.65***	−0.15	0.47***	0.30**		−0.31**	−0.11	−0.09
6. Positive mood	0.70***	0.41***	−0.40***	−0.30**	−0.54***		0.47***	0.41***
7. PPR	0.60***	0.27**	−0.37***	−0.60***	−0.37***	0.49***		0.77***
8. Coparenting Quality	0.56***	0.32**	−0.34***	−0.52***	−0.41***	0.61***	0.73***	
Women Mean	34.04	36.08	0.76	0.24	1.07	2.63	5.01	4.74
Women *SD*	6.70	6.99	0.37	0.18	0.48	0.41	0.91	0.70
Men Mean	36.08	34.04	0.70	0.21	0.99	2.73	4.91	4.72
Men *SD*	6.99	6.70	0.50	0.17	0.53	0.43	1.01	0.75

Note. N = 100 women/men. PPR = Perceived partner responsiveness. Women's correlations are above the diagonal; Men's correlations are below the diagonal.
$^{\dagger}p < .1$. $*p < .05$. $**p < .01$. $***p < .001$.

Table 2. Results of the multilevel model predicting positive mood as a personal outcome.

Var	B(*SE*)	t(*df*)	*p*	*E.S.*[a]	Gender[b]
(Intercept)	2.687 (0.031)	86.30(190)	<.001	0.011	−0.13
Actor Stress (AS)	−0.206 (0.019)	−10.97(71.7)	<.001	−0.185	−1.16
Actor Daily Hope (ADH)	0.054 (0.002)	22.36(79.1)	<.001	0.400	0.25
Partner Daily Hope (PDH)	0.011 (0.002)	5.04(101)	<.001	0.092	1.26
ADH*PDH	0.000 (0.000)	−0.45(1491)	.654	−0.039	−1.67
AS*ADH	0.005 (0.003)	1.65(2525)	.099	0.014	0.59
AS*PDH	−0.001 (0.004)	−0.33(2401)	.739	−0.010	−3.22**
Actor Mean Hope (AMH)	0.037 (0.003)	10.66(179)	<.001	0.407	0.08
Partner Mean Hope (PMH)	0.010 (0.003)	2.80(180)	.006	0.091	−1.24
AMH*PMH	−0.001 (0.000)	−1.47(95.9)	.145	−0.052	0.26
AS*AMH	0.002 (0.003)	0.60(259)	.550	0.011	−2.65**
AS*PMH	0.002 (0.003)	0.94(345)	.350	0.003	1.30
Lagged Positive Mood	−0.160 (0.014)	−11.56(3162)	<.001	−0.100	−0.37
Weekend	0.036 (0.016)	2.22(1819)	.026	0.044	1.21
Day-in-Diary	0.000 (0.002)	0.09(405)	.931	−0.006	−1.89

Notes. A = Actor; P = Partner; D = Daily; M = Mean.
*$p < .05$. **$p < .01$. ***$p < .001$.
[a]Standardized effects.
[b]t values (and significance) of the gender interaction effects.

Next, we examined the person-level interaction between actor stress and actor mean hope among men only. For men with higher mean hope, the deleterious effect of personal (actor) stress was lower (b = −0.126, SE(b) = 0.035, t = −3.56, p < .001) than for men with lower mean hope (b = −0.247, SE(b) = 0.038, t = −6.54, p < .001).

To summarize, daily and average actor and partner hope levels were tied to more positive actor mood but showed no compensatory (interactive) effects. Additionally, neither actor nor partner hope showed pooled moderation effects, but these null effects were qualified by gender differences showing men to be the main beneficiaries of hope. Probing these revealed that the effect of stress on men's positive mood was buffered by their partner daily hope and their own mean-level hope. Conversely, the effect of stress on women's positive mood was exacerbated by their partner's daily hope.

Hope and relational stress (conflict) as predictors of relational outcomes

As can be seen in Table 3 (see OSM Table S2 for all simple effects), actor daily relational stress (i.e., conflict) predicted poorer PPR. Additionally, both *actor* and *partner* hope, at both the day and person levels, predicted higher actor PPR. Importantly, the interactions between conflict and actor or partner daily hope as well as actor mean hope were significant and were thus probed (see, Figure 3).

We first probed the day-level interactions. The deleterious effect of actor conflict was smaller on days marked by either actor or partner high hope (b = −0.866, SE(b) = 0.060, t = −4.43, p < .001; b = −0.319, SE(b) = 0.059, t = −5.44, p < .001; respectively) than on days marked by either actor or partner low hope (b = −0.625, SE(b) = 0.057, t = −10.99, p < .001; b = −0.574, SE(b) = 0.054, t = −10.66, p < .001; respectively).

Next, we probed the person-level interaction between actor mean hope and actor conflict. For individuals with higher hope, the effect of conflict was lower (b = −0.323, SE(b) = 0.059, t = −5.51, p < .001) than for individuals with lower hope (b = −0.570, SE(b) = 0.054, t = −10.61, p < .001).

To summarize, daily and average actor and partner hope levels were tied to more positive PPR but showed no compensatory (interactive) effects. Additionally, actor and partner daily hope, as well as actor mean hope buffered the negative effects of relational conflict on PPR.

Hope and parental (baby-related) stress as predictors of parental outcomes

As can be seen in Table 4 (see OSM Table S3 for all simple effects), actor parental stress predicted poorer coparenting. Additionally, both *actor* and *partner* hope, at both the day and person levels, predicted better actor coparenting.

Importantly, the interaction of day-level actor and partner hope was significant. Probing it, we found that the effect of actor hope on actor coparenting was stronger (b = 0.052, SE(b) = 0.005, t = 10.09, p = <.001) on days marked by low partner hope than on days marked by high partner hope (b = 0.034, SE(b) = 0.05, t = 6.43, p = <.001). Similarly, the effect of partner hope on actor coparenting was stronger (b = 0.031, SE(b) = 0.04, t = 6.90, p = <.001) on days marked by low actor hope than on days marked by high actor hope (b = 0.014, SE(b) = 0.005, t = 2.90, p = .004).

The interaction between actor parental stress and actor daily hope was significant, but qualified by gender differences. Specifically, this interaction was significant for men (b = 0.019, SE(b) = 0.007, t = 2.90, p = .004) but not for women (b = 0.000, SE(b) = 0.005, t = 0.11, p = .916). Further probing the men's significant interaction (see, Figure 4), we found men's parental stress to be deleterious on days

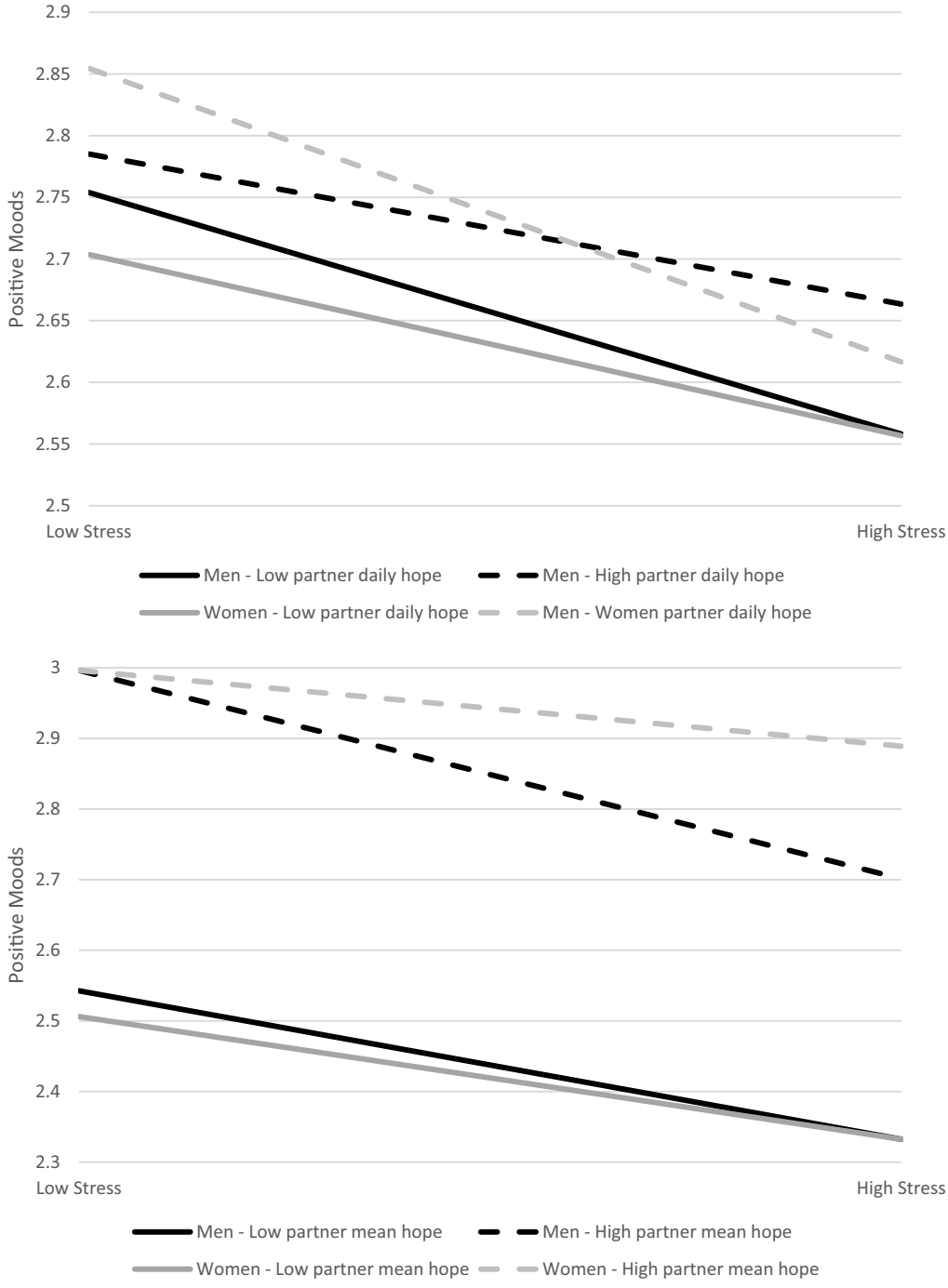

Figure 2. The interactive effects of daily personal stress and partner daily hope (top panel) and of daily personal stress and actor mean hope (bottom panel) on daily positive moods. Presented effects are gendered due to significant gender interactions.

marked by low actor hope (b = −0.178, SE(b) = 0.040, t = −4.48, p < .001) but to have a non-significant effect on days marked by high actor hope (b = −0.022, SE(b) = 0.040, t = −0.55, p = .582).

To summarize, daily and average actor and partner hope levels were tied to more positive coparenting experiences, and daily hope showed a compensatory effect, wherein the effects of either actor or partner daily hope were stronger when the other was lower. Lastly, the interaction effect between actor parental stress and actor daily hope was significant for men (but not for women), indicating that their own hope buffered the negative effects of their parental stress on their coparenting experience.

Table 3. Results of the multilevel model predicting perceived partner responsiveness (PPR) as a relational outcome.

Var	B(*SE*)	t(*df*)	*p*	*E.S.*[a]	Gender
(Intercept)	5.092 (0.077)	66.3(114)	<.001	0.276	2.20*
Actor Conflict (AC)	−0.446 (0.044)	−10.18 (86.5)	<.001	−0.217	−0.11
Actor Daily Hope (ADH)	0.051 (0.005)	9.87(109)	<.001	0.255	−1.38
Partner Daily Hope (PDH)	0.011 (0.004)	3.10(106)	.003	0.065	0.86
ADH*PDH	−0.001 (0.001)	−0.84(1746)	.399	0.004	−0.33
AC*ADH	0.044 (0.01)	4.58(78.3)	<.001	0.077	−0.47
AC*PDH	0.032 (0.009)	3.62(77.1)	.001	0.025	0.37
Actor Mean Hope (AMH)	0.060 (0.008)	7.66(189)	<.001	0.387	−1.12
Partner Mean Hope (PMH)	0.020 (0.008)	2.60(188)	.010	0.110	0.73
AMH*PMH	−0.001 (0.001)	−0.83(93.3)	.407	−0.046	0.81
AC*AMH	0.018 (0.005)	3.50(226)	.001	0.050	−1.25
AC*PMH	−0.006 (0.005)	−1.10(229)	.272	−0.018	0.07
Lagged PPR	0.074 (0.014)	5.38(2949)	<.001	−0.277	−2.26*
Weekend	−0.013 (0.025)	−0.52(1534)	.601	−0.004	−0.21
Day-in-Diary	−0.001 (0.002)	−0.38(315)	.704	0.032	−0.51

Notes. A = Actor; P = Partner; D = Daily; M = Mean; Conflict = Relational Stress.
[†]$p < .1$. *$p < .05$. **$p < .01$. ***$p < .001$.
[a]Standardized effects.
[b]t values (and significance) of the gender interaction effects.

Discussion

During early parenthood many new parents experience precipitous declines in their personal well-being and relational satisfaction, and these often translate into poor parental functioning. Inherently, this period is full of prospection – i.e., future oriented feelings and thoughts about the growing child, the emerging family, and the future in which they will be embedded. For many – namely, those suffering from post-partum depression – this prospection is profoundly negative, and may have dire consequences. This reality makes the search for adaptive processes that can strengthen new parents and buffer them from stressors particularly important.

With this motivation, the current study set out to explore hope as a joint, dyadic resource for couples in this special and challenging period of life. We predicted, and indeed found, that higher levels of hope experienced by *either* partner were associated with better personal well-being (i.e, greater positive mood and lower negative mood), relational well-being (i.e., greater perceived partner responsiveness and positive feelings regarding the relationship, and lower negative feelings regarding it), and parental functioning (i.e., coparenting) for *both* partners. Notably, this pattern of results was obtained both with daily hope and with mean hope as predictors.

Admittedly, the positive direct associations between actors' hope and *their own* outcomes may reflect the power of hope as a personal resource, but may also be explained, at least in part, by a mood congruent effect – i.e., happier respondents providing biased positive ratings across all questionnaires. However, the positive associations between partners' hope and actors' outcomes – i.e., associations between variables reported by two separate sources – help make a stronger case for the idea that hope is indeed a joint resource. The consistent finding – that individuals' well-being and functioning are linked to their partner's hope above and beyond their own hope – was found across all personal, relational, and parental outcomes (and, with one minor exception [a non-significant association between partners' daily hope and negative relationship feelings], across all additional personal and relational outcomes reported in the online supplementary materials [OSM]; see https://osf.io/2fvp9/).

Beyond the direct effects of actor or partner hope on both partners' well-being and functioning, our results demonstrate that – with coparenting as the outcome – the two interact in a compensatory way, with either partner's hope mattering more when the other's was weaker. It stands to reason that coparenting – which is inherently a joint effort focused outwards (i.e., towards the child) – would be a domain in which mutually compensatory effects of hope would be evident. Interestingly, for personal and relational outcomes, where we expected similar compensatory patterns, these actor-by-partner interactions did not reach significance. We wonder whether the inward-focused nature of these outcomes make them less amenable to such compensation.

Additionally, our results demonstrate that hope serves as a buffer of some stressors, though this buffering depended on the type of stress involved and was qualified by some interesting gender interactions. Below, we detail the obtained findings with respect to stress buffering, separately for each model.

With respect to personal well-being outcomes, neither partners' daily nor mean hope levels moderated the negative effect of personal stress. However, two of the null effects were moderated by gender interactions, both suggesting that men did benefit from their own (mean) or their partner's (daily) hope as stress buffers. Interestingly, for women, their partner's (daily) hope seemed to actually exacerbate the effect of stress. Similar findings were

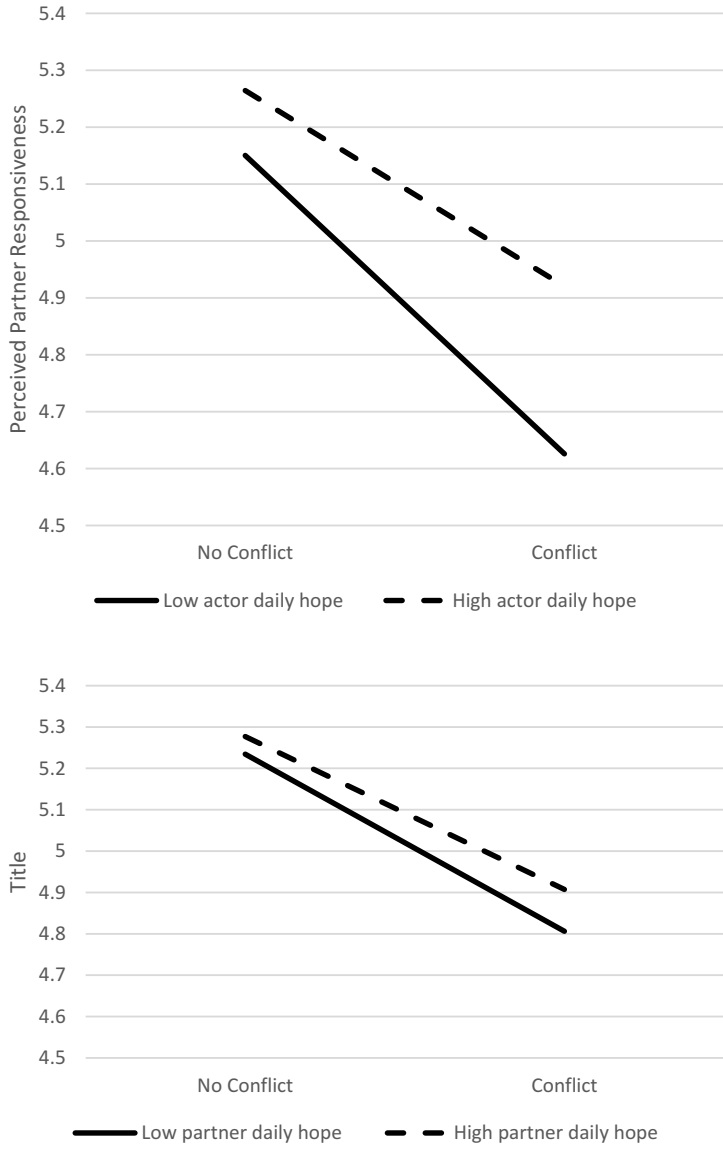

Figure 3. The interactive effects of daily relational conflict and actor daily hope (top panel) and of daily relational conflict and partner daily hope (bottom panel) on daily perceived partner responsiveness.

obtained with our additional personal outcome (namely, negative mood; see https://osf.io/2fvp9/): again, men (but not women) benefitted from their partners' daily hope and showed a stronger main effect for the own (mean) hope.

With respect to relational well-being outcomes, actors' daily and mean hope did moderate the negative effects of relational stress, as did partners' daily hope. Similar findings were obtained with our additional relational outcomes (namely, PRF and NRF; see https://osf.io/2fvp9/): again, actors' and partners' daily hope moderated the effects of relational stress on both outcomes, and though neither actor nor partner mean hope moderated the association between stress and PRF, both moderated it for NRF.

Finally, with respect to coparental functioning as an outcome, daily hope levels moderated the negative effect of (baby-related) parental stress, but only among men.

Taken together, the buffering results suggest that hope exerts the strongest moderation effect on the association between relational stress (i.e., conflict) and relational outcomes (PPR as well as positive or negative feelings within the relationship). With each of these outcomes, both actor hope and partner hope were tied to higher relational well-being. This finding may be best understood through the lens of the Intimacy Process Model (Reis & Shaver, 1988), with higher relational well-being (i.e., higher PPR, more positive and less negative

Table 4. Results of the multilevel model predicting coparenting functioning as a parental outcome.

Var	B(*SE*)	t(*df*)	*p*	*E.S.*[a]	Gender
(Intercept)	4.623 (0.065)	71.00(162)	<.001	0.001	1.15
Actor Parental Stress (APS)	−0.094 (0.024)	−3.93(81.2)	<.001	−0.077	0.39
Actor Daily Hope (ADH)	0.043 (0.004)	10.37(87.8)	<.001	0.210	0.38
Partner Daily Hope (PDH)	0.022 (0.003)	6.77(67)	<.001	0.110	0.06
ADH*PDH	−0.002 (0.001)	−2.71(1090)	.007	−0.024	0.19
APS*ADH	0.01 (0.005)	2.15(48.7)	.036	0.026	−2.31*
APS*PDH	−0.003 (0.005)	−0.52(33.7)	.604	−0.024	1.79
Actor Mean Hope (AMH)	0.046 (0.007)	7.00(193)	<.001	0.303	−0.98
Partner Mean Hope (PMH)	0.018 (0.007)	2.75(192)	.007	0.134	0.16
AMH*PMH	−0.001 (0.001)	−0.59(95.4)	.555	−0.006	0.19
APS*AMH	−0.001 (0.003)	−0.46(316)	.643	0.009	0.70
APS*PMH	0.004 (0.003)	1.20(336)	.231	0.011	−1.54
Lagged Coparenting	−0.127 (0.016)	−8.15(3234)	<.001	0.027	−0.50
Weekend	0.097 (0.029)	3.32(1827)	.001	0.083	0.41
Day-in-Diary	0.008 (0.003)	2.69(337)	.007	0.075	−1.22

Notes. A = Actor; P = Partner; D = Daily; M = Mean; Parental Stress = Baby related stress.
†$p < .1$. *$p < .05$. **$p < .01$. ***$p < .001$.
[a]Standardized effects.
[b]t values (and significance) of the gender interaction effects.

relationship feelings) reflecting higher levels of couples' intimacy. Hope may help couples maintain such intimacy by keeping open a 'channel' through which shared experiences, self-disclosure, responsiveness, and positivity continue to flow (Laurenceau et al., 2004; Reis, 2017), even when conflict occurs.

Contrary to our prediction, neither partner's hope levels served as consistent buffers of personal stress (and its association with personal affective outcomes) or of (baby-related) parental stress (and its association with coparenting experience). The absence of evidence for hope's stress-buffering effects in these domains merits further study. It may mean that, at least in the context of new parenthood, hope is most effective as an antidote to relational stressors (i.e., conflict) but is less effective as an antidote to external or baby-related stressors. To explore this idea, future studies should examine hope's putative down-stream consequences (e.g., intimacy and self-disclosure) which are most likely to serve as adaptive processes aiding couples cope with certain – though not all – stressors (Kluwer, 2010).

The most interesting unexpected finding with respect to stress-buffering was the cross-over interaction obtained between gender, partner hope, and daily stress – which suggests that stressed men's well-being is buffered by their (female) partner's high hope, whereas stressed women may actually be worse off when their (male) partner's hopes are high. This gender difference may reflect broader gender differences in how stress is handled within committed relationships (e.g., Bolger & Laurenceau, 2013; Doumas et al., 2003; Pittman & Blanchard, 1996). For example, as Bolger and Laurenceau (2013) demonstrated, men are much less

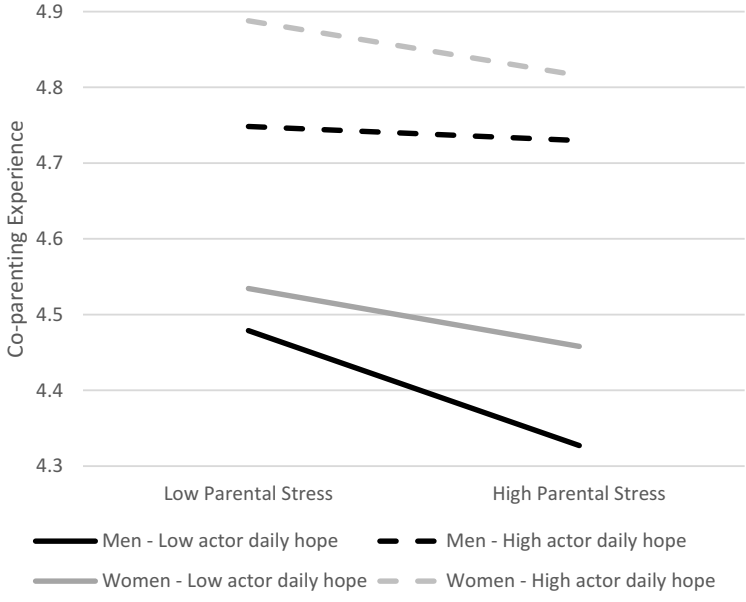

Figure 4. The interactive effects of daily parental stress and actor daily hope on daily coparenting functioning. Presented effects are gendered due to significant gender interactions.

likely than women to take on additional responsibilities when their partner is stressed. If this proves to be the case among new parents, a new father's high levels of hope may be experienced by his partner as somewhat detached from (or even unsympathetic towards) the considerable challenges she faces. Future research examining possible mediators (such as equity, stress contagion, stress spillover, and resentment) could shed more light on this interesting gender difference.

Limitations and future directions

By utilizing diary methods, the current study provides an opportunity to examine day-to-day processes in real life. It is important to acknowledge, however, that these methods continue to rely on self- (or partner-) reports, with their attendant strengths and weaknesses (Bolger et al., 2003). Combining diaries with other methods (such as behavioral observations) could strengthen the validity of our results; though hope might be hard to assess in any way that is not subjective, stressors and outcomes might be more amenable to such assessment.

Our diary methods allowed us to zoom in on (mean and daily) state hope within this juncture of life. A complementary macro longitudinal approach to studying trait hope at different points in time (e.g., pre- to postpartum, and across months rather than days) is certainly warranted, and could further illuminate hope's potential to serve as an individual and a dyadic mental resource.

We remain cautious with inferring any directionality from the obtained associations between hope and the outcomes examined here. Though our models always included the lagged outcome variables to reduce the likelihood of reverse causation, our results should (at most) be seen as suggestive of causality. This is especially important to remember with respect to the actor effects, which are based on a single source and may thus reflect mere mood congruence (e.g., Mayer et al., 1992) – i.e., individuals' tendency to generalize their positive (or negative) feeling across most or all evaluative targets (e.g., mood, responsiveness, and coparenting). Specifically, participants in better mood may simply wear rose-tinted glasses, and thus report higher hope alongside greater personal/relational well-being or parental functioning. Thankfully, this is less of a concern with partner effects, which require information from two sources, not one.

In examining hope's role vis-à-vis personal and relational well-being, we explored multiple outcomes and typically found very consistent results across them. In contrast, parental functioning was assessed with a single index – namely, coparenting experience. Future work, especially with this target population, would benefit from exploring other parenthood-related constructs (e.g., satisfaction or meaning derived from parenthood) which would paint a broader picture regarding hope and parental well-being.

Conclusion

Hope appears to be a personal and shared resource in early parenthood. As both a day-to-day within-person variable and an individual difference between-person variable, both actor and partner hope proved to be directly associated with actors' personal, relational, and parental outcomes. With respect to the latter outcome, actor and partner hope also interacted in a compensatory way, so that each mattered more when the other was weaker. Finally, hope was found to buffer some of the negative effects of relational conflict on relational outcomes. Taken together, these findings have direct relevance to couples undergoing this major life transition. If hope proves to be a malleable state, as we and others (e.g., Berg et al., 2008; Feldman & Dreher, 2012) believe it is, and if it has robust effects on both self and partner well-being, it may prove fruitful to intervene with it, and try to facilitate greater hope as a way of bettering down-stream consequences for new parents and their offspring.

Notes

1. We examined differences between participants who completed all diaries and those who did not in the initial measurements of all variables of interest (i.e., hope, personal stress, relational conflict, parental stress, PPR, PRF, NRF, positive POMS, negative POMS, and CRS) using a series of t-tests. We found no significant differences between the groups (all $|t's|<1.09$).
2. Previous studies have found mood to be systematically better on weekends than on weekdays; and couples are more likely to spend time together on weekends which may effect their relational outcomes (Gleason, Iida, Shrout, & Bolger, 2008).
3. In the personal model the random variances of the level-1 interaction effects were non-significant and were not included in the model; random slopes were allowed to correlate. In the relational model the random effects of the level-1 interactions were included in the model; random slopes were allowed to correlate. In the parental model the random effects of the level-1 interactions were included in the model; random slopes were not allowed to correlate due to convergence problems.

Acknowledgments

GL is grateful to the Azrieli Foundation for the award of an Azrieli Fellowship supporting his work.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the United States-Israel Binational Science Foundation grant [BSF 2013324] awarded to MG and ER. Additional funding was received from John Templeton Foundation and Hope and Optimism Initiative grants to ER.

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Data availability statement

The data described in this article are openly available in the Open Science Framework at https://doi.org/10.1080/17439760.2022.2093780.

Open Scholarship

This article has earned the Center for Open Science badge for Open Materials. The materials are openly accessible at https://doi.org/10.1080/17439760.2022.2093780.

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