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<u>Psychology</u>

IMPROVING GOAL OUTCOMES THROUGH RELATIONAL CATALYST

SUPPORT

by

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Thesis for the degree of <u>Doctor of Philosophy</u>

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Abstract

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Based on attachment theory, the theory of thriving through relationships describes the interpersonal process of relational catalyst (RC) support (i.e., emotional or practical support that is responsive to the recipient's needs) for life's opportunities in the absence of adversity. While existing literature is clear that partner support positively predicts goal outcomes overall, relatively little is known about by how much, for whom, in which kinds of relationships, and under what conditions partner support is beneficial for goal outcomes. I investigate these research questions in this six-paper thesis.

 I begin by evaluating the existing literature in a meta-analysis (Manuscript 1). I establish that partner support moderately and positively predicts goal outcomes. Responsive and practical support were equally effective providing support for the theory of thriving through relationships. In Manuscript 2, I use state-of-the-art machine learning techniques to identify the most important individual (attachment avoidance, well-being) and relational (relationship satisfaction, trust, commitment, empathy) predictors of partner support. Manuscript 3 focuses on the link between goal conflict and the RC support process (seeking, perceiving, and providing support as well as pursuing life's opportunities). In three studies, I show that high goal conflict is a strong negative predictor of all parts of the RC support process. The final three manuscripts extend the thriving through relationships framework by showing that RC support can still be beneficial even in the presence of adversity (COVID-19). Manuscript 4 shows that RC support is effective for goal outcomes during the pandemic. I also show that goal conflict is negatively associated and successful negotiation of goal conflict positively associated with partner support (Manuscript 5) and goal outcomes (Manuscript 6). Together these studies provide robust evidence for the importance of partner support for goal outcomes and highlight several individual, relational, and contextual factors that predict the effectiveness of the support.

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Research Thesis: Declaration of Authorship

Print name:	Laura Marika Vowels

Title of thesis:	Improving Goal Outcomes through Relational Catalyst Support

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;

2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

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Manuscript 1: Vowels, L. M. & Carnelley, K. B. (under review). Partner support and goal pursuit: A multilevel meta-analysis and a methodological critique.

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Chapter 1   Literature Review

1.1   Introduction

Decades of research has established the importance of close relationships throughout an individual's life from cradle to grave. For example, people with more supportive relationships have better mental and physical health, lower rates of mortality, and higher levels of subjective well-being (e.g., Cohen, 2004; House, Landis, & Umberson, 1988; Uchino, 2006). In fact, a meta-analytic review showed that lack of a supportive social network is a more important predictor of mortality compared to other traditional risk factors such as obesity and smoking (Holt-Lunstad et al., 2010). In relationships research, there has been an increasing interest in examining how close relationship partners can support each other not only in times of adversity but also through life's opportunities in order to enable each other to thrive (B. C. Feeney & Collins, 2015b). The Merriam-Webster Dictionary defines thriving as to grow vigorously (flourish), to gain in wealth and possessions (prosper), and to progress toward or realize a goal despite or because of circumstances (Thriving, 2013). Enabling individuals to not only exist without the presence of hardships but to realize their full potential and enlisting partners to help in this process are important next steps for psychology.

Attachment theory (Bowlby, 1969) as well as several recent theoretical models including thriving through relationships (B. C. Feeney & Collins, 2015a, 2015b), people as means to goals (Orehek, Forest, & Barbaro, 2018a; Orehek, Forest, & Wingrove, 2018), and transactive goal dynamics theory (Fitzsimons et al., 2015, 2016; Fitzsimons & Finkel, 2018) all suggest that one of the fundamental functions of close relationships is to enable goal pursuit. Previous research has shown that people who have supportive partners make more progress toward their goals (Brunstein et al., 1996; Overall et al., 2010; Rafaeli et al.,

2008). In romantic relationships, partners spend an increasing amount of time together and become increasingly interdependent as the relationship progresses. The interdependence creates an environment that enables both partners to influence one another's actions that will, at least in part, influence both individual and relational outcomes (Fitzsimons et al., 2015; Rusbult & Van Lange, 2003). Transactive goal dynamics theory, for example, suggests that over time, partners become a single self-regulatory system designed to accomplish personal and relational goals together and the better this unit functions together, the greater the outcomes will be for both partners and the relationship (Fitzsimons et al., 2015, 2016; Fitzsimons & Finkel, 2018). The purpose of the present thesis is to expand the existing literature by focusing on how close relationship partners can create an optimal (vs. suboptimal) environment for each other to thrive and by addressing how individual differences and contextual factors may influence partners' ability to create a supportive environment for exploration.

I will begin the literature review by discussing the theoretical background of attachment theory and thriving through relationships, and the evidence available to date to provide support for the theoretical assumptions. The thriving through relationships framework draws from a number of theories on partner support and incorporates the most recent research into its theoretical model. Therefore, it is an ideal overarching framework for the thesis. I will discuss and compare in other thesis chapters several relationship theories such as interdependence theory (Kelley & Thibaut, 1978) and self-determination theory (R. M. Ryan & Deci, 2000). After reviewing the theoretical basis, I will move on to discuss the individual differences and behaviors of both support providers and seekers that influence whether the environment provides an optimal catalyst for exploration and thriving. I will also discuss some of the contextual factors that may influence the

environment. At the end of the literature review, I will describe the studies that I have conducted to explore the optimal environment for thriving.

1.2   Attachment theory

Attachment theory (Bowlby, 1969) is one of the most influential theories of human bonding that has guided hundreds, if not thousands, of research studies in the past 50 years (for a comprehensive review, see Mikulincer & Shaver, 2016) and many psychological interventions, most notably emotionally-focused therapy (L. S. Greenberg & Johnson, 1988). Based on psychoanalytic theory, evolution, and cybernetics, Bowlby suggested that early life experiences with caregivers influence how people view and relate to themselves, others, and the world. He stated that support providing and seeking behaviors throughout the lifespan are regulated by behavioral systems that emerged during the course of primate evolution that evolved to maximize survival of a species that is born prematurely before it can take care of itself (Simpson & Belsky, 2008). These behavioral systems interact with one another and govern how humans interact with each other.

1.2.1   The Attachment and Caregiving Behavioral Systems

Attachment theory suggests that there are innate behavioral systems that govern different aspects of human behavior including the *attachment behavioral system* and *caregiving behavioral system* (Mikulincer & Shaver, 2009). The attachment behavioral system governs support-seeking behaviors (e.g., crying, hugging, clinging, smiling) as well as the selection, activation, and termination of these behaviors. The goal of the attachment behavioral system is to help infants survive in their environment. The system is most important in early childhood but remains active throughout an individual's life. Initially, the attachment behavioral system activation is generally directed at individuals who are

seen as wiser and stronger, usually primary caregivers such as a mother, who take the role of an attachment figure (Ainsworth et al., 1978). However, later on the behavior becomes directed at close friends and romantic partners who may take over the role as a primary attachment figure (Ainsworth, 1991). Additionally, other important figures such as therapists, spiritual leaders, supervisors, and teachers may also occupy important roles as support providers (Bowlby, 1988).

Infants with caregivers who automatically respond to proximity seeking behaviors are more likely to survive into adulthood. The caregiving behavioral system describes a system that governs humans' natural capacity to provide protection and support toward others in need (Collins & Ford, 2010). The goal of the system is to protect others from harm, reduce their suffering, and to enable growth and development (Collins et al., 2006; George & Solomon, 1999; Gillath et al., 2006). The caregiving behavioral system is likely to be activated when someone is in distress and requires or is seeking help and support; or when someone has an opportunity to explore or learn and needs help in taking an advantage of an opportunity (Gillath et al., 2006). According to attachment theory, a caregiver should be sensitive (i.e., being attuned to others' mental states and accurate in interpreting the needs of others) and responsive (i.e., validating and respecting others' needs and beliefs and behaving in a way that makes the support-seeker feel loved, understood, and cared for) to the needs of the support-seeker (Mikulincer & Shaver, 2009).

Throughout the lifespan, attachment figures can provide a *safe haven* (i.e., to provide reassurance, comfort, and assistance) to which people can turn in times of adversity and a *secure base* from which they can explore the environment and strive toward goals (Bowlby, 1988; Collins et al., 2000; B. C. Feeney, 2004, 2007; B. C. Feeney & Collins, 2015b; B. C. Feeney & Thrush, 2010; Hazan & Shaver, 1990). In other words, humans seek safety and reassurance when they feel threatened (i.e., safe haven), and

encouragement and support (i.e., secure base) when they see an exciting opportunity or challenge that could lead to development of new knowledge, skills, or attributes (Mikulincer & Shaver, 2009). Both safe haven and secure base are considered primary functions of attachment relationships alongside maintaining proximity. In childhood, children's attachment behavioral system is activated when they become scared or distressed and seek proximity. Caregivers' caregiving behavioral systems activate in response to children's proximity seeking behaviors leading the caregivers to respond. In adult romantic relationships, relationship partners have a dual function of acting as both a caregiver and a careseeker and therefore both behavioral systems can be activated simultaneously (B. C. Feeney & Collins, 2015b).

1.2.2 Individual Differences in Attachment

Bowlby (1973) posited that based on prior attachment experiences with caregivers, individuals form internal working models, conceptualized as mental representations that govern how individuals make sense of the world and their relationships with other people. The internal working models are mental constructs theorized to influence perception and, by extension, behavior. The internal working models are largely formed in the first few years of life and are based on the availability and responsiveness of caregivers (Bowlby, 1973). These models are fairly stable throughout life but can change somewhat over time and across different relationships (Arriaga et al., 2018; Chopik et al., 2019; Fraley et al., 2013).

Ainsworth (1967) was the first researcher to examine individual differences in internal working models. Ainsworth and her colleagues (1978) devised a famous experiment called *the Strange Situation* that was designed to uncover potential individual differences in infants' responses to their caregivers. The experimenters observed infants'

behaviors first when exploring the observation room with a parent present, then with a stranger present without the parent, and finally alone. The infants' behaviors toward a caregiver were observed when the caregiver re-entered the room. There were four aspects of the infants' behavior of interest: amount of exploration, reaction to a caregiver leaving, anxiety when alone with a stranger, and the child's reunion with a caregiver.

Based on infants' behaviors in the Strange Situation, Ainsworth et al. (1978) identified three primary attachment styles: *secure*, *anxious-ambivalent*, and *anxious-avoidant*. Secure infants were happy to explore their environment and to interact with a stranger with their caregiver present: The infant would happily greet the caregiver and the caregiver would be able to soothe the infant upon the caregiver's return. In other words, the infants were able to use their caregiver as a secure base from which to explore the environment and as a safe haven to which to return to when they became distressed. According to attachment theory, infants who become securely attached have caregivers who are consistently responsive to their needs and they can trust that the caregiver will be available when needed (Mikulincer & Shaver, 2012).

Both anxious-ambivalent and anxious-avoidant attachment are insecure attachment styles that arise when caregiving has not been consistent. In the Strange Situation, anxious-ambivalent infants often already show signs of distress before the caregiver leaves the room, are less likely to explore, and become clingy and difficult to comfort upon the caregiver's return (Ainsworth et al., 1978). As per attachment theory, caregivers of anxious-ambivalent infants were available only intermittently, and thus the infants constantly monitored their caregivers for signs of disapproval and attempted to gain attention from their caregivers. In contrast, the anxious-avoidant infants did not show many overt signs of distress, did not engage in much exploration of the environment, and often ignored the caregiver upon the caregiver's return (Ainsworth et al., 1978). Attachment

theory posits that infants with anxious-avoidant attachment styles have caregivers that have not been available or responsive to their needs and thus they have learnt to fend for themselves.

A minority of infants in the original experiment did not fit into any of the categories proposed by Ainsworth et al. (1978). These infants exhibited strange behaviors including "tense movements such as hunching the shoulders, putting the hands behind the neck and tensely cocking the head, and so on" (Ainsworth et al., 1978, p. 282). Ainsworth and her colleagues hypothesized that this behavior was due to these children trying to control crying, because the behavior occurred primarily in the separation episodes. Based on the infants exhibiting these behaviors, Main and Solomon (1990) created another category called *disorganized*. These children often sought support from their caregivers, but continued to exhibit the strange behaviors throughout the course of the experiment. Children that fit into this category have often been abused or have experienced some other trauma in their past (Main & Solomon, 1990).

The first study on attachment in adulthood, conducted by Hazan and Shaver (1987), showed that the prevalence of different attachment styles was similar in adulthood compared to infants: 56% were secure, 24% avoidant, and 20% anxious. Additionally, the conceptualization of love and mental models of self and others were different across the three attachment styles and consistent with attachment theory's predictions: secure individuals described their love experiences as happy, trusting, and friendly and viewed themselves as being able to support their partners; anxious individuals described their relationships as obsessive and jealous and wished for greater reciprocation and union; and avoidant individuals described turbulence, jealousy, and a fear of intimacy.

Shortly after the study was conducted, Bartholomew (1990; see also Bartholomew & Horowitz, 1991) criticized the avoidance category advocating two types of avoidant

adults: those who actively fear closeness (*fearful avoidant*) and those with defensive self-reliance who choose not to attach themselves to others (*dismissive avoidant*). Bartholomew devised a four-category model of adult attachment (see Figure 1), which suggests that internal working models influence the extent to which people view themselves and others positively or negatively and the extent to which they focus on dependency or avoidance. Today, adult attachment styles are most often viewed along two continua: anxiety and avoidance.

```
                    MODEL OF SELF
                    Positive         Low Avoidance            Negative

          Positive
   MODEL OF OTHER

                            Secure                  Anxious



 Low Anxiety ──────────────────────────────────────────────────▶ High Anxiety



                            Avoidant                Fearful
                                                    Avoidant



          Negative
                              High Avoidance
```
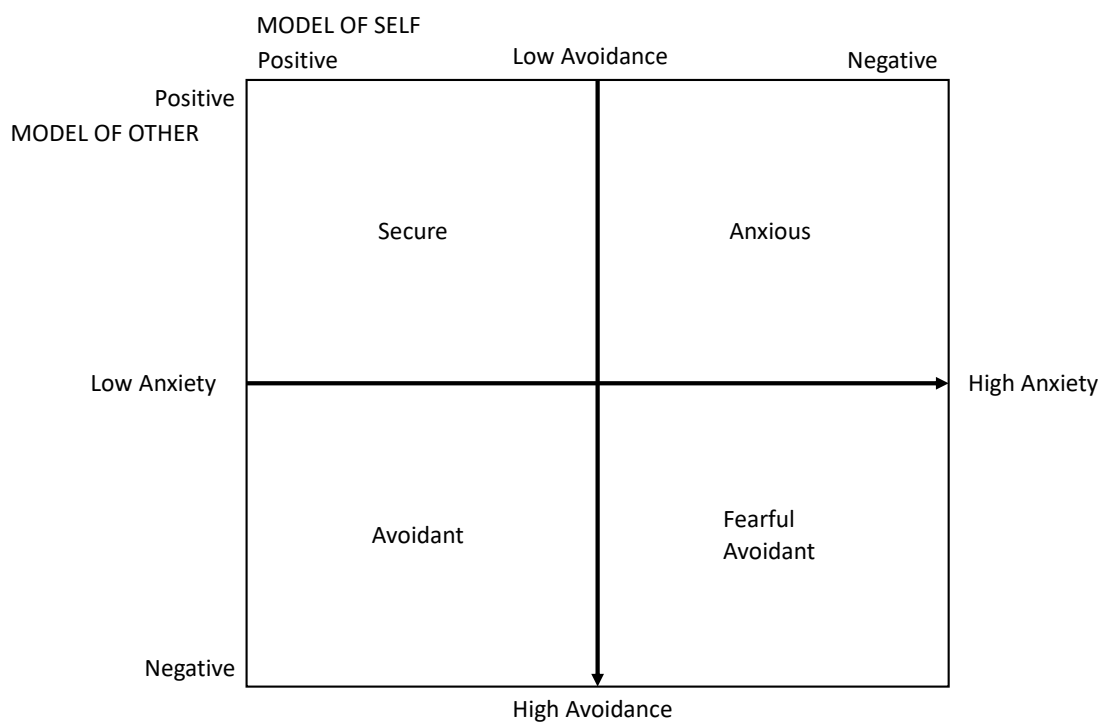
Figure 1. A graphical representation of the Bartholomew and Horowitz (1991) four-category model of attachment styles.

The anxiety dimension is analogous to dependence in Bartholomew's (1990) model and is primarily concerned with whether one has a negative or positive working model of self. Individuals higher in the anxiety dimension have a negative working model of self, do not view themselves as lovable or valuable, and view others as better than them (positive

working model of others). Individuals high in anxiety often experienced their caregivers as available only intermittently in early childhood and spent most of their resources trying to gain support from the caregivers instead of exploring the environment (Mikulincer & Shaver, 2009). In adulthood, anxious individuals are worried that their partners will not be available when needed making them more likely to continually seek closeness and support in relationships (Mikulincer & Shaver, 2012). Thus, they are preoccupied with fulfilling attachment needs and are often less likely to engage in autonomous exploration (Mikulincer & Shaver, 2007).

The avoidance dimension, in contrast, is concerned with avoidance or fear of intimacy and is linked to whether one has a positive or negative working model of others. Individuals higher on this dimension have a negative working model of others leading them to distrust their relationship partners' capacity to help and instead maintain a high level of independence and self-reliance (Mikulincer & Shaver, 2012). Individuals categorized as dismissing avoidant based on Bartholomew's categorical model have a negative working model of others but a positive working model of self. These individuals often had caregivers that rejected the child's needs for support and they learnt to become self-reliant and not seek support from others. They inhibit proximity seeking and may attempt to handle their distress on their own (Mikulincer & Shaver, 2007). Even though avoidant individuals have a positive working model of themselves, they are not able to optimally explore the environment, because their fundamental attachment needs have not been met and thus score lower on exploratory interests compared to secure individuals (Green & Campbell, 2000; Reich & Siegel, 2002).

Individuals who score low on both anxiety and avoidance dimensions have a positive working model of both themselves and others and can be viewed as securely attached (Fraley et al., 2000). In childhood, these individuals had caregivers who were

responsive to their needs and were available when support was needed. They also view both self and others as lovable and worthy. In adult relationships, securely attached individuals trust that their partners will be there if needed and can use their partners as both a secure base from which to explore the world and a safe haven to which to return to in times of distress. Given that their prior attachment needs are fulfilled, they are in a better position to also act as a supportive partner to others and engage in growth opportunities autonomously.

Finally, individuals who score high on both anxiety and avoidance dimensions have a negative working model of both themselves and other people. These individuals would be categorized as fearful avoidant by Bartholomew (1990; Bartholomew & Horowitz, 1991) and often as disorganized in childhood by Main and Solomon (1990). Most individuals high on both dimensions have a long history of interpersonal trauma and often at its most extreme are diagnosed with a borderline personality disorder (Johnson, 2009). Borderline personality disorder is characterized by instability in interpersonal relationships, marked efforts in avoiding real or imagined abandonment, and an unstable self-image (American Psychiatric Association, 2013). In relationships, individuals high on both dimensions exhibit behaviors of "push and pull" with simultaneously desiring and fearing intimacy and closeness (Paetzold et al., 2015). Therefore, they may let a partner in momentarily, but will pull away when the closeness gets too scary for them.

Although it is easier to discuss the dimensions at their extremes, most of the adult attachment research today measures attachment styles using a continuous scale. The most frequently used scale, the Experience in Close Relationships (ECR; Fraley et al., 2000), involves two subscales, one for attachment anxiety and one for avoidance. There are several validated versions of the scale with items varying from 12 (six for each subscale) to 36 (18 for each subscale). Generally, the correlation between the long and short versions of

the ECR scale is high, and both have been used in several studies. In the present thesis, all studies use a version of the ECR but, due to some of the studies using secondary data, the number of items may vary.

1.3   Attachment and Exploration in Adulthood: Thriving Through Relationships

In addition to the attachment and caregiving behavioral systems, Bowlby also proposed that humans have an innate exploration behavioral system, which drives the desire to explore and interact with one's environment (Martin et al., 2010). Exploration, in turn, promotes well-being through competence, control, and autonomy, and is facilitated by support from close others (Jakubiak & Feeney, 2016). Individuals need to feel that they are able to engage in exploration and pursue their goals while being able to go back to their partners and seek proximity and support when needed. This is often defined as secure base support (Ainsworth et al., 1978; B. C. Feeney, 2004). Providing secure base support includes creating conditions that enable the explorer to explore their environment but remain relatively passive: "in essence this role is one of being available, ready to respond when called upon to encourage and perhaps assist, but to intervene actively only when clearly necessary" (Bowlby, 1988, p. 11). In other words, partners who are able to provide effective support will be available if their partners need assistance, but will also let them accomplish their goals independently without unnecessary interference.

Attachment theory's proposition that feeling secure and supported leads to greater exploration of the environment has received support across studies on children, adolescents, and adults. For example, Ainsworth et al. (1978) observed that only when a caregiver was close by, emotionally available, or responsive, infants were likely to explore their environment. Similarly, when parents are accepting and responsive, children and adolescents receive better grades at school (for review, see Kanat-Maymon et al., 2012;

Pomerantz & Thompson, 2008) and are more optimistic about their career prospects and feel a sense of self-efficacy in choosing a career (for review, see Blustein, 2011; Whiston & Keller, 2004). In adulthood, a mixture of observational, experimental, and longitudinal studies have shown that, when one partner is rated as more supportive either by observers or the target, the target is more likely to discuss goals openly (B. C. Feeney, 2004); engage in more exploration and feel a greater sense of self-efficacy in achieving goals (B. C. Feeney, 2007); persist longer with a challenging activity (B. C. Feeney & Thrush, 2010); and experience greater self-improvement in the following year (Overall & Fletcher, 2010).

Recently, Feeney and Collins (2015a) argued that good support-providers must take an active role in facilitating thriving and help partners achieve their personal growth not only in the face of adversity but also by encouraging them to pursue opportunities. The authors identified two main types of social support: relational catalyst (RC) and source of strength (SOS; B. C. Feeney & Collins, 2015b). RC support expands attachment theory's notion of secure base and focuses on how close relationship partners can help each other thrive through life's opportunities in the absence of adversity (B. C. Feeney & Collins, 2015b). SOS support, on the other hand, expands the notion of safe haven and focuses on how close relationship partners can facilitate thriving, and not merely coping, in times of adversity. Due to the relative dearth in the literature on RC support (B. C. Feeney & Collins, 2015b), the present thesis will focus chiefly on RC support and how partners can create an optimal environment to pursue life's opportunities.

Relational catalyst support includes four components through which thriving can be achieved in relationships (Feeney & Collins, 2015). First, partners can nurture a desire to engage in opportunities for growth, which can include expressing enthusiasm and validation toward goals and encouraging one to get out of one's comfort zone and challenging oneself. Second, partners can provide assistance in perceiving and recognizing

life's opportunities such as framing opportunities positively instead of seeing them as a

threat. Third, partners can facilitate preparation of taking on life's opportunities including

assisting with gaining knowledge and skills to accomplish a goal, providing instrumental

and informational assistance, and encouraging setting achievable goals. Fourth, partners

can facilitate the implementation of plans to attain goals and help to fully engage in life's

opportunities through providing secure base support (B. C. Feeney, 2007; B. C. Feeney &

Thrush, 2010), supporting capitalization (i.e., celebrating successes; Gable et al., 2004,

2006, 2012; Logan & Cobb, 2013; Shorey & Lakey, 2011), and perceiving and behaving in

a manner that is consistent with the explorer's ideal self (Drigotas et al., 1999; Rusbult,

Finkel, et al., 2009). Thus, the relational catalyst support takes aspects of the secure base

support from attachment theory and integrates subsequent research on support for goal

pursuit into a comprehensive construct designed to predict optimal thriving through

relationships.

1.4   The Role of the Support Provider

A great deal of research has investigated the role partners play in providing support

for each other both in times of adversity and distress (S. Cohen, 2004; Collins & Feeney,

2004; Collins & Ford, 2010; House et al., 1988; Uchino, 2006; Volgin & Bates, 2016) and

times of opportunity and challenge (e.g., (Brunstein et al., 1996; B. C. Feeney, 2004; B. C.

Feeney & Collins, 2015b; Laurin et al., 2016; Overall et al., 2010; Rafaeli & Gleason,

2009; Rusbult, Finkel, et al., 2009). Research has shown that higher levels of partner

support is linked to greater subjective well-being, lower rates of mortality, and greater

mental and physical health (S. Cohen, 2004; House et al., 1988; Pietromonaco et al., 2013;

Uchino, 2006; Uchino et al., 2012). Similarly, perceiving one's partner as supportive and

responsive toward one's goal pursuit is associated with greater progress toward goals as

well as better individual and relational well-being (Drigotas et al., 1999; Fitzsimons & Finkel, 2015; Rusbult, Finkel, et al., 2009). However, while supportive relationships are important for well-being, not all social support is beneficial and not everyone is good at providing effective support. Therefore, it is important to identify ways in which support can be beneficial and how partners can provide the most effective support.

Studies have shown that providing secure base support (i.e., partner shows encouragement and acceptance and does not interfere unnecessarily) can promote engagement in challenging life opportunities (B. C. Feeney et al., 2017), daily goal progress (Jakubiak & Feeney, 2016), and greater likelihood of achieving goals (B. C. Feeney, 2004). The link between secure base support and better individual and dyadic-level outcomes has been shown across several studies using a wide range of methods including observations of dyads (B. C. Feeney, 2004; B. C. Feeney et al., 2013, 2017; B. C. Feeney & Thrush, 2010), daily diary methods (Jakubiak & Feeney, 2016), longitudinal studies (B. C. Feeney et al., 2017), and experimental studies (B. C. Feeney, 2004).

Another line of research using similar methodologies focuses on the Michelangelo phenomenon (Rusbult, Finkel, et al., 2009), which posits that, when a partner perceives and behaves in a way that is consistent with a recipient's ideal self, the recipient can experience movement toward their ideal self. This in turn has positive consequences for the recipient's individual and relational well-being. Several studies have provided support for the effectiveness of partner affirmation in movement toward ideal self-goals (Drigotas, 2002; Drigotas et al., 1999; Righetti et al., 2010; Rusbult, Kumashiro, et al., 2009). Results from these studies indicate that, even if the recipient does not experience movement toward the ideal self, the recipient can still experience greater individual and relational wellbeing if the partner is perceived as affirming (Rusbult, Kumashiro, et al., 2009).

Other forms of support have also been identified that may influence goal progress and subsequent satisfaction including partner instrumentality (Cappuzzello & Gere, 2018), capitalization support (providing support in response to positive events; Gable et al., 2006, 2012; Logan & Cobb, 2013; Shorey & Lakey, 2011), and partner responsiveness (Caprariello & Reis, 2011; Maisel & Gable, 2009; Reis et al., 2004). All of the aforementioned types of support have been integrated into Feeney and Collins' (2015a) notion of relational catalyst support aiming to provide a comprehensive model of partner support.

Although the majority of the literature shows that partner support positively predicts well-being and goal outcomes (e.g., Drigotas et al., 1999; Feeney, 2004; Feeney et al., 2017; Kumashiro, Rusbult, Finkenauer, & Stocker, 2007), some studies have also shown that providing support can be ineffective or even increase distress (Bolger et al., 2000; Gleason et al., 2008; Lee & Ybarra, 2017; Rafaeli & Gleason, 2009) and that providing social support can simultaneously increase closeness and negative mood (Gleason et al., 2008). Several explanations have been suggested. For example, receiving support may undermine a recipient's sense of self-efficacy or autonomy, recipients may feel indebted to the support provider, or support may focus a person's attention on their distress (Gleason et al., 2003; Rafaeli & Gleason, 2009).

A theoretical review by Rafaeli and Gleason (2009) indicated a four-factor model of support that render support either skillful or unskillful and thus either helpful or unhelpful: timing (when the support is provided), content (what type of support is provided; e.g., advice, empathy, or companionship), process (how the support is provided; e.g., visible, direct, indirect), or reciprocation (whether both partners provide support). Existing research provides support for the four-factor model of effective support. For example, previous research has shown that partners can provide several different types of

support (content) with most researchers dividing support provision into emotional and practical support (Berli et al., 2018; Morelli et al., 2015). Some studies suggest that emotional support is more beneficial for well-being (Morelli et al., 2015). However, there are times when instrumental support is also needed (B. C. Feeney & Collins, 2015b) and a part of being a good support provider is knowing what type of support is needed and when (Rafaeli & Gleason, 2009).

Other research also demonstrates that visible social support (i.e., support that is observed by the recipient) is less beneficial than invisible support (i.e., reported by the support provider but not perceived by the support recipient). Invisible support can mitigate some of the potential drawbacks to self-efficacy and feelings of indebtedness (Bolger et al., 2000; Bolger & Amarel, 2007; Howland & Simpson, 2010). However, recent research has found that visible support is more beneficial for goal pursuit than invisible support (Jakubiak et al., 2020).

Moreover, individual differences are likely to influence both perception of support provided by the partner as well as the actual support provision. Several studies have addressed the role of individual differences in partner support. For example, research into the Michelangelo Phenomenon has shown that assessment (associated with careful consideration of goals) is negatively and locomotion (associated with quick action) orientation is positively associated with partner's ability to provide and elicit partner support (Kumashiro et al., 2007). Promotion focus (regulatory focus on dreams and aspirations) (Righetti et al., 2010) has also been shown to predict partners' ability to provide and elicit partner support. Other studies have found that attachment styles also predict secure base support (B. C. Feeney et al., 2017; B. C. Feeney & Thrush, 2010; B. C. Feeney & Van Vleet, 2010) and perceived partner responsiveness (Rodriguez et al., 2018; Tougas et al., 2016). In this thesis, I will focus primarily on how individual differences in

attachment styles influence the association between partner support and goal pursuit and the relevant literature is reviewed below.

1.4.1 Attachment Styles and Actual Support for Thriving

The literature has indicated that individual differences in attachment styles influence people's ability to provide a safe haven in times of distress (Cohen, 2004; Collins & Feeney, 2004; Collins & Ford, 2010; House et al., 1988; Uchino, 2006; Volgin & Bates, 2016) and a secure base for their partner's exploration in the absence of adversity (B. C. Feeney et al., 2013; B. C. Feeney & Thrush, 2010). In social support situations, both partners influence the provision of support and can also have different perceptions of the support provided.

Theoretically, secure individuals should be better at responding to partners' support seeking behaviors compared to insecure individuals, because responsive caregiving is a function of the caregiving behavioral system, which cannot function without the need for security being met for the support provider (Collins & Ford, 2010; Mikulincer et al., 2005). Secure individuals have developed internal working models of others as trustworthy and themselves as lovable and capable based on the care they received in the past. Because of secure individuals' ability to trust and care for others, they have been shown to be more effective support providers and more altruistically motivated to provide support compared to individuals higher in insecure attachment (Crowell et al., 2002; B. C. Feeney, 2004; B. C. Feeney et al., 2013; B. C. Feeney & Thrush, 2010). Deficits in caregiving are seen to stem from self-focused worries in anxious individuals and from lack of empathic concern for others in avoidant individuals (Mikulincer & Shaver, 2016).

Individuals high in attachment anxiety worry about losing their partner's love and are vigilant to any signs of distance in the relationship (Mikulincer & Shaver, 2012). As

such, anxious individuals generally report being poorer at caregiving (Carnelley et al., 1996; Julal & Carnelley, 2012; Kunce & Shaver, 1994; Reizer et al., 2012) and have a particular difficulty in providing RC support as partners' exploration can pose a threat to the closeness in the relationship (B. C. Feeney & Collins, 2015b). Anxious individuals may report being supportive toward their partner, but they are also likely to become over-involved and intrusive (B. C. Feeney & Collins, 2003; B. C. Feeney & Thrush, 2010; Martin et al., 2010) or they may withhold support because of a fear of losing their partner (B. C. Feeney et al., 2013). Research has shown that anxious individuals provide less encouragement and are more interfering toward their partner's exploration in a conversation as reported by both recipient and partner as well as an independent observer (B. C. Feeney & Thrush, 2010). Therefore, I expect that, across studies, anxious individuals will provide less RC support toward partner's goal pursuit.

Avoidant individuals, in turn, emphasize self-reliance and independence and are less likely to recognize partner's verbal and non-verbal signs of distress and support seeking (Schachner et al., 2005). In stressful situations in which partners seek closeness and proximity, avoidant individuals have particular difficulty in providing support (B. C. Feeney & Collins, 2015b), and their narratives of caregiving are characterized by lack of support toward partner and negative experiences of providing support (J. A. Feeney & Hohaus, 2001). Literature has indicated that avoidant individuals are less available but no less encouraging or more interfering than secure individuals (B. C. Feeney & Thrush, 2010). Also, avoidant individuals are more likely to offer support, because they get something from it or feel obligated to do so (B. C. Feeney & Collins, 2003), and to avoid negative consequences (B. C. Feeney et al., 2013). They are also likely to avoid providing support when perceiving spouse as being unreceptive, difficult, or too dependent, because they find it too stressful, or because they do not know how to provide support (B. C.

Feeney et al., 2013). Overall, it is likely that avoidant individuals would struggle to provide effective support especially when their partners desire more support than simply non-interference.

1.4.2   Attachment Styles and Perception of Partner Support

In addition to attachment styles predicting actual support provision, many studies have found that attachment styles predict both partners' perceptions of the support provision (Besser et al., 2002; Besser & Neria, 2010; Collins & Feeney, 2004; Gallo & Smith, 2001; Kane et al., 2007; Stanton, 2015). Also, work on perceived partner support or perceived partner responsiveness (Reis et al., 2004) has shown that, as long as the recipient perceives their partner as supportive, the recipient experiences higher levels of goal progress as well as individual and relational well-being (Drigotas et al., 1999; Rusbult, Kumashiro, et al., 2009). Therefore, it is important to assess not only how attachment styles predict actual support, but also how it predicts the recipient's perception of the support.

According to attachment theory and evidence, secure individuals trust in their own abilities to cope but also trust that others will be available and responsive if needed (Martin et al., 2010; Mikulincer & Shaver, 2009). Therefore, they are likely to experience their partners as supportive (Collins & Feeney, 2004; Kane et al., 2007) and may even be positively biased and regard their partners as more supportive than they perhaps are (Overall et al., 2012; Stanton, 2015).

Conversely, individuals high in attachment anxiety feel insecure about their own abilities and thus will continually seek reassurance and support from their partner (Katz et al., 2009; Schachner et al., 2005), but may perceive that it is never enough (Martin et al., 2010) or their partners may grow weary of needing to continually provide support (B. C.

Feeney & Thrush, 2010). Literature has demonstrated that anxious individuals compared to their secure counterparts perceived their partner as less encouraging and more intrusive when they engaged in exploration (Martin et al., 2010), rated partners' support messages as less supportive even after controlling for independent ratings of support (Collins & Feeney, 2004), and perceived partners as well as other attachment figures (father, mother, and friends) as providing less emotional and instrumental support (Florian et al., 1995). Therefore, regardless of whether partners are actually supportive, anxious individuals are likely to not perceive them as providing enough support and thus perceive them as less supportive than they actually are.

On the other hand, avoidant individuals have a negative working model of others and do not trust in partners' ability to be supportive and there when needed (Kim Bartholomew, 1990). Prior findings have indicated that avoidant individuals perceived partners as intrusive rather than helpful (Martin et al., 2010), perceived partners' messages as less supportive even after controlling for independent ratings of the supportive messages (Collins & Feeney, 2004), and perceived them as providing less emotional and instrumental support (Florian et al., 1995). Overall, avoidant individuals are less accurate in perceiving their partners' thoughts, feelings, and behaviors compared both to secure and anxious individuals (Beck et al., 2014; Overall et al., 2012, 2015; Sadikaj et al., 2018; Simpson et al., 2011). Therefore, it is likely that avoidant individuals will also perceive their partners as less supportive but may perceive them as overly involved and intrusive.

1.5   Attachment Styles and Exploration

Attachment theory suggests that, when individuals feel safe and secure, they are able to turn their attention out to the environment and focus their resources on exploring the environment and life's opportunities (B. C. Feeney & Collins, 2015b). Secure

attachment can enable autonomous personal growth and self-actualization, increase the ability to take on challenges, dedicate resources toward promotion-focused goals, and increase confidence in availability of support if needed (Green & Campbell, 2000; Mikulincer & Shaver, 2007; Otway & Carnelley, 2013). Security has also been associated with endorsement of mastery goals and stronger need for achievement and lower levels of fear of failure and adoption of avoidance goals (Elliot & Reis, 2003; Learner & Kruger, 1997; F. G. Lopez et al., 1997). Hazan and Shaver (1990) proposed that work is adults' way of exploring the environment in a similar way as play is to children. In their landmark study, these authors found that secure individuals had more positive attitudes toward work and were more satisfied with their roles compared to insecure participants. In further studies, attachment security has also been associated with stronger feelings of self-efficacy in career exploration (N. E. Ryan et al., 1996), more commitment to career goals (Blustein et al., 1991; Felsman & Blustein, 1999; Mojgan et al., 2013; Scott & Church, 2001), and greater self-efficacy in career decision making and higher career aspirations over a five-year period (O'Brien et al., 2000). Therefore, attachment security enables exploration and engagement in life's opportunities.

In contrast, insecure individuals lack security. Instead of being able to explore the environment, they are often more focused on fulfilling their attachment needs. Anxious individuals focus on attaining support and love from their partners, and are unlikely to invest time and energy in goals that may interfere with attachment needs (Mikulincer & Shaver, 2007). Individuals higher in attachment anxiety report less exploratory interests (Aspelmeier & Ken, 2003; Green & Campbell, 2000) and experience less enjoyment and benefit from exploration (Mikulincer, 1997). They engage in exploration for anti-goal reasons (e.g., distracting self from negative mood and striving to avoid failure; Elliot &

Reis, 2003; Green & Campbell, 2000; Reich & Siegel, 2002), to gain proximity to their

partner (Martin et al., 2010) or to gain social acceptance (Hazan & Shaver, 1990).

A recent observational study found that anxious individuals engage in more

exploration (i.e., completing a puzzle) in the presence of a partner as opposed to when

alone (Coy et al., 2012). For specific goals, anxious individuals report lower engagement

in choosing a career (Blustein, 2011; Whiston & Keller, 2004), lower academic

achievement (Kanat-Maymon et al., 2012; Pomerantz & Thompson, 2008), and lower

exercise levels as well as failing to take necessary steps to lose weight (J. A. Feeney &

Ryan, 1994). Overall, anxious individuals are likely to pursue goals for reasons other than

opportunities and growth, and may forego opportunities for goal pursuit regardless of

whether their partners are supportive (B. C. Feeney & Collins, 2015b).

Furthermore, despite avoidant individuals focusing on independence and self-

reliance, they are less likely to engage in exploration (Green & Campbell, 2000; Hazan &

Shaver, 1990; Reich & Siegel, 2002) and are more likely to see exploration as a means of

achieving their attachment related needs of avoiding dependence and reliance on others

(Martin et al., 2010). Several studies have found an association between attachment

avoidance and lower levels of novelty seeking (Carnelley & Ruscher, 2000), trait curiosity

(Mikulincer, 1997), and exploratory interests (Aspelmeier & Ken, 2003; Green &

Campbell, 2000; Reich & Siegel, 2002). Avoidant individuals report lower need for

achievement and adoption of mastery goals compared to their more secure counterparts

(Elliot & Reis, 2003).

Avoidant individuals also feel detached from approach goals and discourage

investment in challenging goals, as these may activate the attachment behavioral system

due to frustration and humiliation (Mikulincer & Shaver, 2016). In fact, such individuals

are less likely to explore in the presence of a relationship partner than alone (Coy et al.,

2012). They also use work as an excuse to avoid social environments and are likely to struggle with maintaining a work-life balance (Hazan & Shaver, 1990). Avoidance is also associated with lower academic achievement (Aspelmeier & Ken, 2003; Reio et al., 2009) and lower levels of job engagement (Krpalek et al., 2014; Littman-Ovadia et al., 2013; Pines, 2004; Reizer, 2015; Richards & Schat, 2011). Together, these findings show that avoidant individuals are likely to experience less growth and are more likely to forego opportunities for engagement in life's opportunities compared to more secure individuals.

1.6   Goal Conflict

Effectiveness of support depends on the match between the support provided and the context in which it is enacted (Cutrona et al., 1990), and recipients and partners base their decision to provide support or take on opportunities on different factors (B. C. Feeney et al., 2017). There are several factors that influence the context in which partners make decisions to provide (or withhold) support toward each other's opportunities and whether or not recipients choose to engage in goal pursuit and seek support from their partner for their pursuits (B. C. Feeney & Collins, 2015b). These can include individual differences such as attachment style (B. C. Feeney, 2004; B. C. Feeney & Thrush, 2010; Orehek et al., 2017), self-esteem (Gomillion & Murray, 2014), and regulatory orientation (Righetti & Kumashiro, 2012), and relational factors such as relationship length, reciprocity (Bar-Kalifa et al., 2017; Gleason et al., 2003), and commitment (Hui et al., 2014). They can also include societal factors such as culture and available opportunities as well as factors related to the goals or opportunities themselves. Examples of factors related to the goals include type of goal (Fitzsimons et al., 2016), whether the goal would conflict with one's partner's or relationship's goals (Gere et al., 2011; Gere & Schimmack, 2013), and similarity of goals between partners (Rusbult, Kumashiro, et al., 2009). Goals that pose a threat to the

relationship are likely to be perceived more negatively and individuals may withhold support for goals that are problematic for the partner or the relationship. Similarly, individuals may forego opportunities for goal pursuit when they are problematic for the relationship.

Repeated exposure to goal conflict is likely to be harmful for relationships, because it continuously tests partners' commitment toward each other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003) and research into attachment theory has shown that remaining available and responsive toward one's romantic partner is important in creating safety and security in a relationship (Mikulincer & Shaver, 2012). Indeed, recent research has indicated that goal conflict is negatively associated with relationship quality and personal well-being (Gere et al., 2011; Gere & Impett, 2018; Gere & Schimmack, 2013; Righetti et al., 2016). Prior work has also shown that commitment drives individuals to support their partners only to the extent that the goals do not pose a threat to the relationship (Hui et al., 2014) and people are less likely to provide support when they feel goals might take their partner away from the relationship (B. C. Feeney et al., 2013). Therefore, I expect that individuals will be less likely to provide support toward the recipient's goal pursuit when they perceive that the goals conflict with their own or the relationship's interests.

Furthermore, the pursuit of goals that are conflicting for a partner or a relationship may be difficult to maintain (Gere & Schimmack, 2013) and a high level of goal conflict in a relationship also makes it more difficult to coordinate goal pursuit, as individuals are less likely to make progress toward goals that are problematic for the relationship (Gere et al., 2011; Gere & Schimmack, 2013). Recipients are more likely to stop pursuing or devalue a goal if it conflicts with their partner's goals (Gere & Impett, 2018). Over time, devaluing goals that were problematic for the partner predicted greater commitment toward the

relationship partner (Gere & Impett, 2018). Therefore, it is likely that individuals make less progress toward goals that are problematic for the partner and more likely to drop goals that are problematic.

Although partners may be motivated to minimize goal conflict, it is not possible to avoid it completely. Therefore, some level of willingness to sacrifice in relationships is needed and has been associated with better relational outcomes (Day & Impett, 2018; Kogan et al., 2010; Van Lange et al., 1997). It is possible for either partner to sacrifice: the recipient could give up the goal pursuit for the sake of the partner and the relationship or the partner could provide support toward the recipient's goals despite the goals conflicting with the partner's own or relationship goals. However, sacrifice by one partner may have negative consequences for the relationship, if the recipient's goal pursuit prevents the partner from meeting their needs or making progress toward their own goals (Impett & Gordon, 2008). Thus, relationships in which both partners are willing to sacrifice for the relationship and partners find a balance between independence and interdependence are likely to result in optimal levels of thriving (B. C. Feeney & Collins, 2015b).

1.6.1 Attachment Styles and Goal Conflict

Individual differences in attachment styles are likely to influence how partners manage goal conflict in relationships. I expect that, because anxious individuals are especially worried about maintaining closeness in relationships (Mikulincer & Shaver, 2012), they would experience goal conflict as a threat to the relationship. Anxious individuals are more likely to withhold support from their partner for fear of the goal taking partner away from the relationship or for fear of their partner changing compared to secure individuals (B. C. Feeney et al., 2013). Anxious individuals may also forego opportunities for goal pursuit for fear that these may interfere with attachment needs

(Mikulincer & Shaver, 2007). Furthermore, individuals high on interdependent self-construal (i.e., the extent to which one values social connections; Markus & Kitayama, 1991) are more likely to sacrifice to avoid negative consequences in the relationship and sacrifice even when the sacrifice is more costly (Day & Impett, 2018; Impett et al., 2013). Anxious individuals place a high value on connection and intimacy with others, and are likely to be high on interdependent self-construal. Therefore, I expect that anxious individuals are likely to sacrifice their own goals for the sake of the relationship, but to withhold support when they perceive their partner's goals as a threat to the relationship.

In contrast, because of their compulsive self-reliance (Kim Bartholomew, 1990), avoidant individuals are less likely to be concerned about goal conflict. As support providers, avoidant individuals are less concerned about the goals taking their partner away from the relationship and more concerned about partners being too dependent (B. C. Feeney et al., 2013). Therefore, I do not expect that goal conflict will influence avoidant individuals' support providing. I expect avoidant individuals to be less supportive compared to their secure counterparts regardless of whether the goals are conflicting or not. Similarly, I expect avoidant individuals to be less concerned about their own goals conflicting with the needs of the relationship and more likely to pursue goals despite them being problematic.

1.7   Thesis Overview

Through a series of studies, the present thesis sought to add to the present literature on partner support and goal outcomes by addressing a number of novel research questions: 1) How much does partner support contribute to goal outcomes (i.e., what is the average correlation)? 2) What type of support is the most beneficial for goal outcomes? 3) Which relationship theories are best supported by the current evidence? 4) For whom (individual

factors such as attachment style, self-esteem, gender), 5) in what kinds of relationships (relational factors), and 6) under which conditions (contextual factors) is partner support beneficial (or not) for goal outcomes?

Manuscript 1 aimed to answer the first three research questions in a multilevel meta-analysis. Because there was not enough research out there to examine potential individual and relationship-related variables as potential moderators of partner support and goal outcomes in the meta-analysis, I used machine learning (random forest with Shapley values) in Manuscript 2 to evaluate a large number of potential individual and relational variables across five dyadic datasets. The machine learning manuscript addressed questions 3-5. In the meta-analysis and the machine learning study, I also discussed and compared a number of relationship theories including attachment theory, interdependence theory, and self-determination theory (RQ3). The results from both manuscripts provided support for attachment theory and the thriving through relationships framework. The remaining manuscripts honed in on the conditions under which support is beneficial (research questions 4-6). I examined the role of goal conflict in predicting different stages of the RC support process (support seeking, support providing, perceived support, and goal outcomes) in Manuscript 3. I also examined whether individual differences in attachment styles moderated the association between goal conflict and the RC support processes.

The COVID-19 pandemic occurred half way through my PhD enabling me to examine the support processes during this unprecedented and highly uncertain time. Manuscripts 4-6 examine different elements of the support process during the pandemic and focus on answering research questions 4-6. Manuscript 4 included a mixed-methods study in which I examined whether partner support positively predicted goal outcomes during the pandemic and how support had changed during the pandemic. Manuscript 5 examined whether attachment styles, goal conflict, and negotiation of goal conflict

predicted partner support during the pandemic and Manuscript 6 examined whether goal conflict and negotiation of goal conflict predicted goal outcomes during the pandemic.

I, Laura Vowels, the author of the thesis, conceptualized and wrote each paper. I also analyzed the data in all papers apart from Manuscript 2 in which one of my co-authors, Matthew Vowels, analyzed the data. I collected the data in Studies 1 and 2 in Manuscript 3 and all data in Manuscripts 4-6. Manuscript 2 and Studies 3 and 4 in Manuscript 3 used secondary data. The meta-analysis did not involve any data collection. Below follows a brief synopsis of each paper and their contribution to the overall thesis.

1.7.1   Manuscript 1: Meta-Analysis and Methodological Critique

In Manuscript 1, *Partner Support and Goal Outcomes: A Multilevel Meta-analysis and a Methodological Critique* (Vowels & Carnelley, under review), I presented a systematic review and meta-analysis of the literature on partner support and goal outcomes. While researchers have become increasingly interested in understanding partner support in the context of pursuing life's opportunities (Brunstein et al., 1996; B. C. Feeney, 2004; B. C. Feeney & Collins, 2015b; Laurin et al., 2016; Overall et al., 2010; Rafaeli & Gleason, 2009; Rusbult, Finkel, et al., 2009), there has not been a systematic synthesis of the literature. Research into partner support and goal outcomes has evolved into several different research strands with different theoretical traditions. Therefore, in order to truly move the field forward, it was important to bring together these research strands to quantify the existing evidence and create a path toward a more coherent and comprehensive literature.

The purpose of the meta-analysis was to address the state of the evidence of the association between partner support (responsiveness, practical support, and negative support) and goal outcomes (commitment, self-efficacy, and progress) and to also examine

whether the correlation between these variables differed depending on the different conceptualizations of support or goal outcomes. The majority of the literature on partner support for goals has been conceptualized from one of three theories: interdependence theory (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003), attachment theory (Bowlby, 1969; B. C. Feeney & Collins, 2015b), or self-determination theory (R. M. Ryan & Deci, 2000). In addition to theory-based research, some studies have focused on testing support typologies rather than specific theories (Overall et al., 2010; Overall & Fletcher, 2010). While all of the theories highlight the importance of close relationships in the pursuit and achievement of goals, their view of how the support is achieved and what the support looks like differs. I aimed to compare these theories to determine which are the most consistent with the current empirical evidence. Finally, I also provided a methodological critique of the existing research and provided suggestions for improving the research.

I conducted a comprehensive literature search and included all published and unpublished samples in the meta-analysis. The final sample included 195 effect sizes from 36 samples with a total of 10,130 participants in romantic relationships. I coded and tested for both theoretical and methodological moderators in order to test current theories and to provide a methodological critique of the current literature. The results were analyzed using a random-effects multilevel model and the overall effect size was $r = .25$. This is similar in size to a strong intention to accomplish a goal (Ajzen & Kruglanski, 2019) highlighting the importance of close relationships for thriving. There was substantial heterogeneity across studies but the credibility intervals indicated that most future studies are likely to produce positive correlations between partner support and goal outcomes.

The effect size was similar for responsiveness ($r = .27$) and practical support ($r = .22$) but negative support ($r = -.14$) was significantly different. Responsiveness predicted all three goal outcomes equally whereas practical support was less predictive of self-

efficacy compared to progress and commitment. Negative support had the most negative association with commitment. The results provide support for the thriving through relationships framework (B. C. Feeney & Collins, 2015b) which suggests that both emotional and practical support are needed for thriving. Furthermore, the theory suggests that negative support will hinder thriving. The findings also suggest that while practical support can be beneficial for other goal outcomes, there may be some people for whom practical support hinders self-efficacy.

Most of the studies that were included in the present meta-analysis were overall relatively well-conducted and adequately powered. Many studies included data from both members of the couple, some also included observer-reports, and some had a combination of cross-sectional, observational, experimental, and/or longitudinal data. However, one of the major weaknesses in existing research was the lack of psychometrically validated measures. This is important because measurement is a crucial component in producing replicable findings but many psychological constructs fail crucial validity tests (Flake & Fried, 2020). Very few studies included in the meta-analysis used measures that had been previously validated, many measures were made up for the specific study or modified from previous research, and nearly half of the effect sizes relied on a single-item measure of goal outcomes. Furthermore, most studies used different measures making it difficult to compare effect sizes across studies. Therefore, one of the major tasks for the future is to develop and thoroughly validate measures, and test our theories using measures that are replicable and generalizable.

In summary, the meta-analysis added a synthesis of the present literature and provided guidance for future research. The results showed that partner support is moderately associated with goal outcomes and that both emotional and practical support are needed. It was not possible to investigate any individual (e.g., attachment style, self-

esteem, gender) or relational (e.g., relationship length, relationship satisfaction, conflict) predictors or moderators in the meta-analysis because of lack of research in this area. Therefore, the rest of the thesis focused on understanding under which conditions support can be optimized (relational and contextual factors) and for whom (individual factors).

1.7.2   Manuscript 2: Machine Learning Study to Identify Individual and Relational Predictors of Support and Self-Efficacy

In Manuscript 2, *A Machine Learning Approach to Predicting Partner Support and Self-Efficacy from Individual and Relational Variables* (Vowels et al., under review), my aim was to examine which factors are the most predictive of perceived partner RC support (responsiveness and affirmation), whether support predicts self-efficacy while including other factors in the model, and whether any individual or relational variables moderate the association between partner support and self-efficacy. It is not clear from the present literature whether having a supportive relationship is due to individual or relational factors, or some combination of the two. It has not been possible to compare a large number of variables previously due to limitations with existing methods relying on traditional linear models. In this manuscript, I use state-of-the-art machine learning methods to advance our understanding of which factors help create a supportive environment for goal pursuit.

Most relationship theories (such as attachment theory, interdependence theory, self-determination theory, thriving through relationships) agree that relationships characterized as well-functioning with high satisfaction, commitment, trust, and intimacy provide a more supportive environment for growth (B. C. Feeney & Collins, 2015b; Kelley & Thibaut, 1978; Mikulincer & Shaver, 2009; Rusbult & Van Lange, 2003; R. M. Ryan & Deci, 2000). Most theories, apart from attachment theory, do not postulate which individual factors may be particularly crucial in creating an optimal environment for thriving. A number of studies, however, have examined different individual differences variables

including, for example, promotion orientation (i.e., regulatory focus on dreams and aspirations; Righetti & Kumashiro, 2012), adult attachment styles (B. C. Feeney & Thrush, 2010; Jakubiak & Feeney, 2016), and the Big-5 personality traits (Burleson & Gilstrap, 2002).

Because traditional linear models are ill-equipped to handle a large number of predictors simultaneously and are prone to unreliable estimates (Breiman, 2001a; Lundberg et al., 2020; Luque-Fernandez et al., 2018; Orben & Przybylski, 2019; J. Peters et al., 2017), I chose to employ modern machine learning techniques (random forest with Shapley values) to identify the most salient individual and relational predictors of perceived partner support and self-efficacy. I analyzed data from five dyadic datasets ($N = 550$ couples) enabling us to have greater confidence in the findings and ensure generalizability. The results predicted 35-55% of the variance in perceived partner support and 24-30% of the variance in self-efficacy, gaining significant insight into these variables.

My novel results advanced the literature by showing that relational variables (trust, relationship satisfaction, empathy) and attachment avoidance were the most important predictors in creating a supportive environment which in turn predicted self-efficacy. Goal conflict was also an important predictor reducing support. The results supported tenets of several relationship theories, such as attachment theory and interdependence theory, and can be used to inform future theory development as well as future relationship research.

1.7.3 Manuscript 3: Contextual Factors Affecting Support and Taking on Life's Opportunities

In Manuscript 3, *When Goals Conflict: The Impact of Goal Conflict on Relational Catalyst Support*, I further investigated the impact of goal conflict on the various stages of the RC support process: support seeking, perceiving partner as supportive, providing support, and movement toward goals. Goal conflict is particularly important in the support

process because a high degree of goal conflict continually tests partners' commitment toward each other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). This paper aimed to add to the literature by examining novel outcomes of goal conflict and also addressed novel hypotheses regarding attachment styles and goal conflict. Specifically, I hypothesized that goal conflict would be negatively associated with all stages of the RC support process. Furthermore, I expected that individual differences in attachment styles would moderate the association between goal conflict and stages of the relational catalyst support process. Specifically, I expected that individuals high in attachment anxiety would experience goal conflict as a threat to the relationship and therefore be less supportive and be less likely to engage in goal opportunities if the goals threaten the relationship. In contrast, I expected that avoidant individuals would be unaffected by goal conflict. I examined these hypotheses across three studies: two experimental studies ($n_1 = 296$, $n_2 = 117$) and one dyadic daily diary study ($n_3 = 267$).

In Studies 1 and 2, I used a multiple segment factorial vignette design (MSFV; Ganong & Coleman, 2006) to experimentally manipulate levels of goal conflict. MSFV involves creating a series of vignettes which provide further information to participants to gauge whether their attitudes change as a result of changes in the vignettes. This was a novel way of examining goal conflict in relationships. In Study 1, participants were presented a scenario of a hypothetical couple in which one member of the dyad received an opportunity that was either problematic (i.e., far away) or not problematic (i.e., nearby) for the relationship. In later segments, participants were told the partner took (or did not take) the opportunity and in the final segment the participants were told that the second partner now got the opportunity. After each segment, participants were asked whether or not one of the partners should take the opportunity and other be supportive. The results showed that participants in the high goal conflict condition were significantly less likely to state

that the partner should be supportive or the recipient should take the opportunity compared to participants in the low goal conflict condition.

Study 2 sought to replicate the findings from Study 1 but this time participants were asked to think about their own relationship in the future and I also asked participants to provide reasons for their responses. The manipulation of the vignettes was similar except there were three goal conflict conditions: low, medium, and high. The results showed that in the high goal conflict condition, participants rated that they or their partner should be up to 40% less likely to take on the opportunity and 33% less supportive compared to the low goal conflict condition. The qualitative results provided further insight into how participants made their decisions on providing support or taking on opportunities. Many participants endorsed unconditional support toward goals and also evaluated the pros and cons of an opportunity when making decisions. Interestingly, when deciding whether one should take an opportunity or not, participants were likely to consider goal-, recipient-, or relationship-related factors. However, hardly any participants considered the partner.

While Studies 1 and 2 provided experimental evidence to establish a causal link between goal conflict and support and goal outcomes, they lacked ecological validity because participants were rating a hypothetical scenario. Therefore, I sought to investigate whether naturally occurring goal conflict predicted goal outcomes in a dyadic diary study. This study sought to provide converging evidence for the negative effect of goal conflict on support and goal outcomes. There are no previous studies that have examined goal conflict on a daily level. This is important, however, as frequent instances of goal conflict can test partners' commitment toward each other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). The results showed that daily goal conflict predicted seeking support, perceived support, provided support, as well as daily movement toward goals.

The results across the three studies showed converging evidence that goal conflict is detrimental to goal pursuit with partners less likely to seek and provide support, perceive their partners as supportive, and feel less committed toward their goals. In the experimental studies, the results showed that support and taking on opportunities were up to 40% lower in the high goal conflict condition highlighting the strength of the effect. Attachment styles, however, did not interact with goal conflict. The results highlight the importance of understanding goal conflict and finding ways of managing instances of goal conflict in relationships.

1.7.4   Manuscript 4: Partner Support and Goal Outcomes during COVID-19

During my PhD, the COVID-19 pandemic presented a unique opportunity to understand how support and goal pursuit processes function during a highly uncertain, and potentially stressful, time without a clear end date. Because of the timing of the pandemic, the last three papers present data from a larger longitudinal study of goal conflict, support, and goal outcomes during the pandemic. In Manuscript 4, *Partner Support and Goal Outcomes during COVID-19: A Mixed Methods Study* (Vowels et al., in press), I presented the findings from a mixed-methods study on partner support and goal outcomes during the pandemic. The paper aimed to add to the existing literature by investigating whether RC and anti-RC support predicted goal outcomes during the pandemic and understanding how partner support had changed during the early stages of the pandemic.

Two hundred individuals completed a daily diary during the first week of April 2020 with three further weekly follow-ups resulting in a seven-day daily diary and five-weekly follow-ups. Furthermore, I also interviewed 48 participants with a subsample ($n = 19$) interviewed again a month later. I used a short version of the Relational Catalyst Support Survey (B. C. Feeney & Collins, 2014) which I validated as part of the paper. This

was particularly important because the meta-analysis showed that there is a lack of studies using validated questionnaires making results across studies difficult to compare. Future research can use the validated short-version of the questionnaire for daily diary research.

The quantitative results showed that higher relational catalyst support predicted better goal outcomes; qualitative analyses revealed partners use direct and indirect forms of emotional and instrumental support toward goal pursuit. This is important because I am not aware of any studies to date that have differentiated between direct and indirect forms of support. Most participants did not report changes in partner support during the early pandemic but some participants said they or their partner was more supportive and some reported less support. Overall, the findings suggest that having a supportive partner is important for not only surviving, but also thriving through the pandemic.

This study added to the existing literature by providing evidence that partner support for goal pursuit is important even during such an uncertain, and potentially stressful, period as the pandemic. The qualitative results also highlighted that there are both direct (e.g., providing help or reassurance) and indirect (e.g., taking care of children to enable a partner to get on with their goals) forms of support which should be further investigated in quantitative studies. The study also provided evidence for what support looked like during the early stages of the COVID-19 pandemic.

1.7.5   Manuscript 5: Negotiation of Goal Conflict and Partner Support during COVID-19

Manuscript 5, *Attachment Styles, Negotiation of Goal Conflict, and Perceived Partner Support During COVID-19* (Vowels & Carnelley, 2021), presented another study using the data collected during the COVID-19 pandemic. This study aimed to replicate findings of goal conflict negatively predicting partner support and also hypothesized that negotiation of goal conflict would be positively associated with partner support (a novel

hypothesis). In this study, I only used the quantitative results and examined whether goal conflict and successful negotiation of goal conflict predicted partner support. The results showed that higher goal conflict predicted perceiving partner as providing less relational catalyst (RC) support and more anti-RC support (i.e., providing support that is intrusive and not responsive). More successful negotiation of goal conflict, however, predicted higher RC support and lower anti-RC support.

Furthermore, I also examined whether individual differences in attachment styles moderated the association between goal conflict and partner support. In line with previous research (Florian et al., 1995), we found that individuals higher in attachment avoidance perceived their partner as less supportive toward their goals overall. This finding is important because during social distancing restrictions, support from outside sources may not be accessible and a partner may be the most important source of support. Yet, avoidant individuals are viewing their partners as less supportive of goal pursuits. This may leave avoidant individuals especially vulnerable and lacking support during the pandemic. In contrast, attachment anxiety did not predict perceptions of support which is contrary to the prediction by Feeney and Collins (2015). Attachment anxiety was, however, a moderator of goal conflict in the weekly longitudinal data. Contrary to our hypothesis, however, individuals high in attachment anxiety actually perceived their partners as more supportive compared to more secure individuals when goal conflict was high. Given this finding was not found in Manuscript 3, it warrants further investigation.

This paper added to the thesis by replicating the findings from Manuscript 3 on goal conflict and support and added to the thesis and literature by investigating whether successful negotiation of goal conflict predicted better partner support. If we know that goal conflict has a detrimental effect on relationships, understanding ways in which to mitigate potential negative impacts can be used to inform both theory and clinical practice.

1.7.6   Manuscript 6: Negotiation of Goal Conflict and Goal Outcomes during COVID-19

Manuscript 6, *Successful Negotiation of Goal Conflict between Romantic Partners Predicts Better Goal Outcomes During COVID-19: A Mixed Methods Study* (Vowels et al., under review), presented a third manuscript using the data collected during the COVID-19 pandemic. In this paper, I focused on understanding whether goal conflict (replication) and negotiation of goal conflict (novel hypothesis) predicted goal outcomes during the pandemic. I also used the qualitative data to more fully understand how partners negotiated instances of goal conflict during the pandemic which has not been examined in previous literature. As mentioned in the previous section, understanding how to negotiate instances of goal conflict can buffer against the potential negative impact of goal conflict on relationships.

The results showed that higher goal conflict was associated with lower goal outcomes, and successful negotiation of goal conflict was associated with better goal outcomes. Qualitative analyses identified three main goal conflict negotiating strategies (compromise, integration, concession). Conversations also focused on both practical and emotional needs and included respectful communication and space from conflict (timeout or avoidance). The mixed-methods results suggest that goal conflict was relatively low during the pandemic and participants were often able to negotiate goal conflict resulting in better goal outcomes despite the circumstances.

This study added the final piece to the thesis by replicating the findings from Manuscript 3 in a unique situation showing that goal conflict predicts goal outcomes and also adding to the literature by showing that successful negotiation of goal conflict predicts better goal outcomes. The study also added to the literature and the thesis by providing a better understanding of how partners negotiate instances of goal conflict in general as well

as during the COVID-19 pandemic. Together Manuscripts 5-6 replicated the findings from

Manuscript 3 and also added an investigation in a new context and showed that negotiating

instances of goal conflict predicts better support and goal outcomes.

Chapter 2   **Manuscript 1: Partner Support and Goal Outcomes: A Multilevel Meta-analysis and a Methodological Critique**

2.1   Abstract

Previous research has shown that romantic partners can play an important role in each other's achievements. In the present meta-analysis, we combined evidence across studies from different theoretical perspectives addressing the association between partner support (responsive, practical, and negative support) and goal outcomes (self-efficacy, commitment, and progress). The sample included 195 effect sizes from 36 samples with 10,130 participants in romantic relationships. The results were analyzed using a random-effects multilevel model and the overall effect size was $r = .25$. This was similar in size to having a strong intention to achieve a goal, highlighting the importance of close relationships in goal pursuit. In line with the theory of thriving through relationships, the findings suggested that both responsiveness and practical support are helpful for goal outcomes whereas negative support can hinder goal pursuit. Responsiveness predicted all three goal outcomes equally, whereas practical support was less predictive of self-efficacy compared to progress and commitment. Practical support may be less helpful for increasing confidence because it is easier to attribute any progress made to the partner's help. Negative support had a stronger negative association with commitment than self-efficacy and progress. Existing studies have strong methods but lack validated measures. Results have implications for a wide range of areas including changing health behaviors and improving occupational, educational, and therapy outcomes.

Keywords: Partner support; Goals; Attachment Theory; Interdependence Theory; Close relationships

2.2   Introduction

Throughout time, people have acknowledged the role others play in their achievements; most people will thank those who were instrumental in the achievement of goals in, for example, award speeches, interviews, dissertations, and books. In the past two decades, researchers have become increasingly interested in studying whether the perceived support from close others actually predicts goal outcomes (Brunstein et al., 1996; B. C. Feeney, 2004; B. C. Feeney & Collins, 2015b; Laurin et al., 2016; Overall et al., 2010; Rafaeli & Gleason, 2009; Rusbult, Finkel, et al., 2009). Even though theoretically speaking, social support should be beneficial for both goal progress and well-being, the research evidence for the benefits of social support on goal outcomes is mixed (Gleason et al., 2008). For example, research has shown that perceiving one's partner as supportive and responsive toward one's goal pursuit is associated with greater individual and relational wellbeing (Drigotas et al., 1999; Fitzsimons & Finkel, 2015; Rusbult, Finkel, et al., 2009) and greater progress toward these goals (Brunstein et al., 1996; Drigotas et al., 1999; B. C. Feeney, 2004; Kumashiro et al., 2007). However, other studies have shown that support is either unrelated to positive outcomes or can even at times be associated with negative outcomes (Barrera, 1986; Bolger et al., 2000). Several reasons have been examined as potential explanations for the discrepancy in the literature including support visibility (Bolger & Amarel, 2007; Girme et al., 2013b; Jakubiak et al., 2020) and support type (Bar-Kalifa et al., 2016; Girme et al., 2015; Jakubiak et al., 2020; Rafaeli & Gleason, 2009). However, even these findings tend to be mixed with results not replicating across studies (Bolger et al., 2000; Jakubiak et al., 2020; Morelli et al., 2015).

Over time, research into partner support toward goal pursuit has evolved into several different research strands with separate definitions and therefore measures, and types, of support, with little overlap. Therefore, in order to truly move the field forward, it

is important to bring together these research strands to quantify the existing evidence and create a path toward a more coherent and comprehensive literature. The purpose of the present meta-analysis is to address the state of the evidence of the association between partner support and goal outcomes and to also examine whether the correlation between these variables differs depending on the different conceptualizations of support or goal outcomes. Further, we aim to compare existing theories to determine which theories are most consistent with the current empirical evidence. Finally, we also provide a methodological critique of the existing research and provide suggestions for improving the research.

2.2.1   Theoretical Underpinnings of Partner Support and Goal Outcomes

The majority of the literature on partner support for goals has been conceptualized from one of three theories: interdependence theory (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003), attachment theory (Bowlby, 1969; B. C. Feeney & Collins, 2015b), or self-determination theory (R. M. Ryan & Deci, 2000). In addition to theory-based research, some studies have focused on testing support typologies rather than specific theories (Overall et al., 2010; Overall & Fletcher, 2010). While all of the theories highlight the importance of close relationships in the pursuit and achievement of goals, their view of how the support is achieved and what the support looks like differs. In the meta-analysis, we used the following broad definition of partner support a recipient or observer's perception that the recipient's partner was attempting to provide support and assistance of any kind in the service of the recipient's goals, regardless of whether that support was asked for, wanted, or appropriate for the situation. We begin by a brief description of each theory and potential predictors of partner support based on the theory.

2.2.1.1   Types of Support

Researchers have long been interested in categorizing different types of support as there are several terms that have been used in the literature to refer to different support types. However, support can generally be categorized into two types of support: emotional (e.g., reassurance, encouragement, or understanding) and instrumental/practical (e.g., advice, assistance, or information) support (Morelli et al., 2015). Many researchers also acknowledge that negative forms of support (e.g., control, coercion, or interference) are qualitatively different from emotional and practical support which are both seen as generally positive (Overall et al., 2010). Researchers disagree on the degree to which emotional and practical support may be beneficial for a range of outcomes with some researchers finding that both forms of support predict better outcomes (Jakubiak et al., 2020; Overall et al., 2010) whilst others have found that emotional support is more beneficial than practical support, at least for well-being (Morelli et al., 2015). Negative support, however, has generally been found to predict negative outcomes (B. C. Feeney et al., 2017; Overall et al., 2010; Vowels et al., 2021). Therefore, based on previous research, we would expect that both emotional and practical support will be positively, and negative support negatively, associated with goal outcomes.

2.2.1.2   Interdependence Theory

Interdependence theory's (Kelley & Thibaut, 1978) basic assumption is that individuals influence one another: each behavior one person makes affects others around them and the state of the dyad. The Michelangelo phenomenon has been the primary way of testing the interdependence theory in relation to partner support for goals (Drigotas et al., 1999; Rusbult, Finkel, et al., 2009). The Michelangelo phenomenon explains the process of partners affirmation (i.e., perceiving and behaving in a manner that is consistent with the recipient's ideal self) and how successful affirmation can lead to movement

toward the ideal self. A number of studies have provided support for the model (Drigotas, 2002; Drigotas et al., 1999; Righetti et al., 2010; Rusbult, Kumashiro, et al., 2009). The model suggests that individuals experience more movement toward their goals when their partner sees them in a way that is consistent with their ideal self-goals, and behaves in a manner that elicits ideal self-related behaviors. In contrast, if a partner behaves in a manner that is inconsistent with the recipients' ideal-related goals, the recipient is likely to experience movement away from their ideal self. Partner affirmation, as a type of support, is more akin to emotional than practical support.

2.2.1.3 Attachment Theory

Attachment theory (Bowlby, 1969) suggests that when partners provide secure base support (i.e., they are available and encouraging but not interfering unless absolutely necessary), individuals explore more and experience more growth and progress toward their goals (B. C. Feeney, 2004, 2007; B. C. Feeney & Thrush, 2010). The notion of secure base support suggests that emotional support is beneficial for goal outcomes whereas practical and negative forms of support may hinder independent exploration. However, Feeney and Collins (2015) expanded the notion of secure base to relational catalyst (RC) support. RC support is defined as partners being available and responsive to each other's needs but also taking an active role in supporting each other to thrive. In a sense, the partner becomes an active catalyst for the exploration.

The primary difference between RC support and secure base support, therefore, is that in RC support, partners may need to take a more active role. In essence, this type of support may involve both emotional support (i.e., being available and encouraging) as well as practical support (i.e., intervening and providing tangible assistance if necessary). Furthermore, the theory suggests that partners can become overly involved and intrusive instead of giving each other the space to thrive, which is negatively associated with goal

progress and satisfaction (B. C. Feeney et al., 2017). Therefore, if the results of the meta-analysis showed that responsiveness and practical support did not differently predict goal outcomes, this would support the RC support framework, whereas if responsiveness was more predictive of goal outcomes than practical support, this would be more in line with attachment theory.

2.2.1.4 Self-Determination Theory

Self-determination theory (R. M. Ryan & Deci, 2000) provides another perspective into interpersonal support and goal-related behaviors. The theory suggests that motivation for any behavior can be experienced as autonomous (self-determined) or controlled. When partners provide autonomy support (i.e., support that is encouraging and affirming but not excessively controlling or intrusive) the recipients are more likely to experience progress toward their goals. Autonomy support, in essence, is similar to both affirmation and responsiveness. Therefore, if responsiveness was more predictive of goal outcomes compared to practical support, this would provide support for self-determination theory. Furthermore, the theory also suggests that when individuals pursue autonomous goals rather than controlled goals, they are more likely to make progress toward those goals. Some researchers let participants determine their own goals (Brunstein et al., 1996; Drigotas et al., 1999; Girme et al., 2013a; Koestner et al., 2012; Overall et al., 2010) whereas other researchers assign goals to participants (B. C. Feeney et al., 2017; B. C. Feeney & Thrush, 2010) or only ask about certain types of goals (e.g., health, weight loss, career; Dailey, 2018a, 2018b; Dailey et al., 2016). Therefore, we differentiated between participant-chosen (autonomous) and experimenter-chosen (controlled) goals and expected goal type to moderate the association between partner support and goal outcomes.

2.2.1.5   Types of Goal Outcomes

Goal progress is typically defined as the degree of progress made toward attaining a goal in a given time span whereas attainment refers to actually accomplishing a goal. While the majority of studies that examine partner support and goal outcomes have focused on goal progress (Brunstein et al., 1996; Dailey, 2018a; Drigotas et al., 1999; B. C. Feeney & Thrush, 2010; Hofmann et al., 2015; Tomlinson et al., 2016), some researchers have also examined whether partner support is associated with greater motivation, commitment, or effort toward goal pursuit (Brunstein et al., 1996; B. C. Feeney, 2004; Overall et al., 2010), as well as one's confidence in their own abilities to accomplish a goal (self-efficacy; Feeney, 2004; Hammond & Overall, 2015; Tomlinson et al., 2016). In the present meta-analysis, we included progress, commitment, and self-efficacy as goal outcomes.

Although not explicitly compared in the previous literature, support may benefit certain goal outcomes more than others. For example, some researchers have suggested that while support can be beneficial for making progress toward goals, it can also hinder self-efficacy (Bolger et al., 2000; Bolger & Amarel, 2007; B. C. Feeney, 2004; Rafaeli & Gleason, 2009). We would expect that more practical forms of support would be more likely to hinder a recipient's sense of self-efficacy as it may signal that the support recipient would not be able to achieve the goal themselves. Furthermore, because self-determination theory suggests that individuals have a need for autonomy and competence (R. M. Ryan & Deci, 2000), we would expect that support which does not enhance autonomy (practical and negative) would be especially likely to be associated with less commitment and self-efficacy.

2.2.2 **Theoretical and Methodological Moderators**

We examined two types of moderators: theoretical and methodological. We tested four theoretical moderators discussed above: type of support (responsiveness, practical, negative support), goal outcome (progress, commitment, self-efficacy), goal type (autonomous vs. controlled), and whether the hypothesis on partner support and goal outcome was based on an established theory (yes or no). Furthermore, several researchers have hypothesized that goal progress is likely higher in early adulthood (Bühler et al., 2018; Jakubiak et al., 2020). Support is also likely to be more important in early stages of the relationship with the importance of support declining over time. The results for age and relationship length to date, however, is mixed (Bühler et al., 2018; Jakubiak et al., 2020). Therefore, we chose to examine whether average age and relationship length across the samples were significant moderators potentially adding to theories of partner support for goals.

We also examined the methodological rigor across studies that may have had an impact on the results. There has been a great deal of criticism toward research practices within psychology since the replication crisis began (Open Science Collaboration, 2015). Several issues have been suggested to have contributed to the replication crisis including, for example, insufficient power and relatedly small sample sizes, measurement issues, and publication bias (Laraway et al., 2019). Therefore, we examined a number of methodological moderators and provided a summary of the overall methodological quality of the studies based on the following variables: scale (prior scale validation, reliability of the scale, number of scale items, number of scale points, self-/observer-report), cross-sectional/longitudinal/diary, sample size, publication status, student/community, and dyadic/individual.

2.2.3   The Present Meta-Analysis

Several meta-analyses have been conducted on the effectiveness of partner support for specific outcomes such as quitting smoking (Park et al., 2004), perinatal depression and anxiety (Pilkington et al., 2015), and chronic illness (Martire et al., 2010); these have found at least a small overall effect of partner support. However, in the last two decades of research into partner support and goal outcomes, there has not been a systematic review or a meta-analysis to evaluate the literature overall. Studying partner support for goals is a relatively new – but potentially fruitful – area for research. Herein, we focus on several different strands of research with separate theoretical underpinnings that are rarely evaluated together.

The present meta-analysis had three novel objectives. Our first objective was to measure the range and average correlation between partner support and goal outcomes in the existing literature. We also addressed whether the type of support (responsiveness, practical, negative) and goal outcomes (progress, commitment, self-efficacy) moderated the overall effect size. Our second objective was to compare existing theories to understand how well they could explain the findings. Our final objective was to examine the methodological rigor across studies that may have had an impact on the results. We included all studies in which both partner support and goal outcomes were measured at least from the support recipient's perspective.

2.3   Method

We used the American Psychological Association's Meta-Analysis Reporting Standards (MARS) and PRISMA guidelines to complete our meta-analysis and we registered the protocol in advance on the Open Science Framework: https://osf.io/wtn6u/?view_only=b5769678972f440db7c53edf58282ecf. We updated the

protocol once after all data were collected but not analyzed to reflect any changes made to the protocol and once after receiving feedback for the manuscript. All data, code, and materials can be found on the OSF project page:

https://osf.io/p3287/?view_only=55d1afe0ac0d4802b5043c04f163ed37.

2.3.1   Literature Search and Study Selection

Prior to the full literature search, we completed scoping searches to refine our search criteria and piloted the data table. We conducted an electronic literature search using Web of Science (Web of Science Core) and PsychINFO (EBSCO) databases using the following search criteria: (("secure base" OR caregiving OR affirm* OR encourage* OR responsiv* OR "relational catalyst" OR support*) AND (goal* OR striv* OR "possible sel*" OR "ideal sel*") AND (progress OR pursu* OR attain* OR achiev*) AND (partner* OR close* OR intima* OR romantic OR adult* dyad* OR couple*)). Additionally, for the PsychINFO database, we included specific categories "Goals" and "Interpersonal Relationships" in the search. We included all studies that were completed before 31st December 2020.

We also completed searches on social psychology journals and performed backward and forward searches on relevant review articles (B. C. Feeney & Collins, 2015b; Fitzsimons et al., 2015; Orehek & Forest, 2016). In order to identify any grey literature, we completed a search on PsyArXiv using "support" AND "goals" as search criteria; went through conference abstracts and published calls to request any unpublished research on listservs for relevant scientific organizations; and contacted prominent authors in the field.

The first author completed the literature searches on the databases and exported the titles and abstracts on to a citation manager (Mendeley) removing duplicates. Two

independent undergraduate research assistants then read through the titles and abstracts for eligibility and excluded the ones that were not relevant. The first author and another undergraduate research assistant completed searches on journal articles and grey literature. All research assistants received training prior to assessing eligibility and coding the manuscripts. Any discrepancies were resolved by a discussion between the research assistants and the first author. If there was any doubt about eligibility of an article, the article was included in the next stage. Full-texts of all articles passing the screening stage were downloaded and read by two research assistants and the first author to determine eligibility. Any discrepancies were discussed and if any discrepancies remained, the first author decided whether to include the study in the meta-analysis based on eligibility criteria. A flow diagram capturing our literature searching and subsequent screening process is presented in Figure 1.

2.3.2   Inclusion Criteria

We included studies for which an effect size was available for the association between partner support and goal outcomes based on self- or observer-report. The sample effect sizes were required to meet the following inclusion criteria:

2.3.2.1   Predictor variables

We accepted several types of support measures; two independent coders coded the measures into three categories: responsiveness, practical, and negative support. The inter-rater reliability indicated substantial agreement ($\kappa = .78$).

2.3.2.2   Outcome variables

The goal pursuit measure had to be about working toward a goal (e.g., an attempt to lose weight, get a new job, or do well in exams) but could either be a goal decided by participant (autonomous) or researcher (controlled). We accepted several goal outcomes

which were divided into three broad categories by two independent coders: progress, commitment, and self-efficacy. The inter-rater reliability indicated near perfect agreement ($\kappa = .86$).

2.3.2.3 Additional inclusion criteria

We required studies to report a correlation coefficient. If it was unavailable, we contacted the authors to obtain an effect size and were able to obtain all correlation coefficients for relevant studies. We accepted studies that only included data from one partner but they had to be currently in a romantic relationship and reporting about their romantic partner. Participants also had to be 18 or over. We included both cross-sectional and longitudinal studies.

2.3.3 Coding of Studies

We followed specific established meta-analytic procedures for data preparation, management, and analysis (Borenstein et al., 2009). We initially developed a codebook which was piloted alongside scoping searches. After all relevant articles were identified, two research assistants completed an Excel spreadsheet based on the codebook, each going through half the papers. The first author then went through their coding checking for any mistakes and completed any information that had not been included by the two research assistants. We coded for several moderator variables, which can be found in Table 2. Some studies included in the meta-analysis had used the same sample; the effect sizes for these studies were nested within a single sample.

2.3.4   Measures

Almost none of the studies included in the meta-analysis used a validated questionnaire for partner support or goal progress. Most studies either used a measure that had been used in previous studies, but not validated, or created measures for their study.

2.3.4.1   Responsiveness

We included items in this category that broadly asked participants about whether their partner was available, encouraging, and responsive to their needs. These included autonomy support (Dailey, 2018a, 2018b; based in Williams et al., 2006), secure base support (B. C. Feeney & Thrush, 2010), affirmation (Drigotas et al., 1999), and responsiveness (Reis et al., 2004). Furthermore, we included several studies that employed observational coding schemes of responsiveness, such as coding for secure base support (B. C. Feeney & Thrush, 2010) or relational catalyst support (B. C. Feeney et al., 2017; Tomlinson et al., 2016).

2.3.4.2   Practical support

We coded measures that only focused on practical support, which involved actually providing something tangible or directive into this category. Examples of measures coded into this category include instrumental influence (Cappuzzello & Gere, 2018; Dailey, 2018a, 2018b), directive support (Koestner et al., 2012), and observer-coded dependency-oriented support (Hammond & Overall, 2015).

2.3.4.3   Negative support

We coded support measures that focused on being intrusive, interfering, or providing coercive support into negative support. These included both self-reported and observer-coded intrusiveness/interference (B. C. Feeney & Thrush, 2010), observer-coded

anti-RC support (B. C. Feeney et al., 2017), and negative direct and indirect support
(Overall & Fletcher, 2010).

2.3.4.4   Goal progress

Goal progress was defined as moving toward goals. Most studies used a single-item
measure simply asking participants whether they had made progress or moved toward their
goals. Many studies included multiple goals and asked the same question around goal
progress for each goal and used an average across the responses.

2.3.4.5   Goal commitment

Goal commitment was defined as commitment, motivation, or effort toward goals.
None of the studies used a validated measure but more studies used several items to
measure goal commitment compared to goal progress.

2.3.4.6   Self-efficacy

Self-efficacy was defined as one's belief in their ability to succeed and feeling
competent and capable in achieving one's goals. Some studies used a validated measure of
self-efficacy, for example, the Self-Efficacy Scale (Sherer et al., 1982, e.g., Feeney, 2004,
2007), whereas other studies asked participants about how confident or competent they
felt.

2.3.5   Moderator Variables

2.3.5.1   Theoretical moderators

Theoretical moderators included support type (responsiveness, practical, negative),
goal outcome (progress, commitment, motivation), goal type (autonomous vs. controlled),
and theoretical (yes/no). We also included age and relationship length as moderators.

2.3.5.2 Methodological moderators

We collected data for the following methodological moderators. Prior scale validation was divided into single item, adhoc (created for the study, only reliability reported), reasonable (validated within the study or has been used in previous research), and strong (prior validation study). We also included Chronbach's alpha, number of scale items within each scale, number of scale points in Likert scales, whether the measure was self- or observer-report, cross-sectional/longitudinal/diary study, sample size, publication status, student/community, and dyadic/individual.

2.3.6 Risk of Bias in Individual Studies

Risk of bias is more likely to occur with low quality studies and therefore assessment of the quality of individual studies is usually included in meta-analyses (Shamseer et al., 2015). We are aware of no standardized protocol tool to assess quality specifically in social psychology and thus we use criteria that have been used in other meta-analyses in the field (e.g., Molloy et al., 2013). We included several items that assessed the quality of the study measures. Research assistants coded quality of the studies based on six criteria. Each criterion was worth 0.5 points and the results were rounded up to the nearest integer.

1. Sufficient sample size (below 85 or above 85).

2. Questionnaire for partner support: the study used either a well-established questionnaire or the authors reported how the questionnaire was devised and Cronbach's alpha of the scale was at least .70. No point was given if the study used a single-item measure.

3. Questionnaire for goal outcome: either a well-established questionnaire or the authors reported how the questionnaire was devised and Cronbach's alpha of at least .70. No point was given if the study used a single-item measure.

4. Prospective design (longitudinal or daily diary).

5. Multiple reporters (e.g., both partners, observer).

6. Community vs. student[1].

2.3.7   Meta-Analytic Procedures

We used the *R* package *metafor* (Viechtbauer & Cheung, 2010) to analyze the results and followed the guidance by Quintana (2015) and a recent meta-analytic review by Sakaluk et al. (2020). Given that we expected the effect sizes to vary across studies instead of having a single true effect size, we used a random effects model in which each standardized zero-order correlation coefficient was weighted by its inverse variance weight (Borenstein et al., 2009). Most of the studies used a different measure of partner support and goal pursuit and there are currently no established measures for either construct, which is why a fixed-effects model would not be appropriate. The study and participant characteristics also varied across studies making a random-effects model more appropriate.

Because the majority of the studies reported multiple effect sizes, we used a multilevel meta-analysis (Cheung, 2014) where effect sizes were nested within a sample (intra-class correlation between the two levels was .44). Using a multilevel model enabled us to: account for the dependency among effect sizes resulting in less biased estimates and more powerful tests of meta-analytic and moderator effects (López-López et al., 2017; Moeyaert et al., 2017); partition heterogeneity into between- (τ^2_3) and within-sample (τ^2_2)

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[1] Previous research has shown that generalizing research from students to the general public can be problematic (Hanel & Vione, 2016).

levels giving us greater insight into the relative amounts (I^2_2 *and* I^2_3) and systemic factors

driving variation (R^2_2 and R^2_3) in effects; and provided greater flexibility because it does

not require the researchers to know all correlations between dependent effect sizes

(Becker, 2000). We also reported 95% confidence and credibility intervals for the

multilevel estimates. Credibility intervals provide a more straightforward interpretation as

the future correlations from the same population would be expected to fall within its range

95% of the time (Borenstein et al., 2017).

We addressed publication bias in studies by providing both an uncorrected and

bias-corrected (PET-PEESE; Stanley & Doucouliagos, 2014)) estimate of the effect size,

using the funnel plot, and using the Egger's regression tests (Egger et al., 1997). We

conducted moderator tests for theoretical and methodological moderators on our

uncorrected estimates. Theoretical variables were included in the model all at once but

given the large number of methodological variables, we conducted three models: support-

related scale variables, goal-related scale variables, and other methodological variables.

We have also provided the average effect for each of the support measures and used goal

outcome as a moderator.

2.4   Results

2.4.1   Meta-Analytic Estimates for the Total Effect

Our final sample included a total of 36 studies with 195 effect sizes from 10,130

participants (see Table 1 for sample characteristics and Table 2 for estimates). Effect sizes

for negative support were all reverse scored for the total effect. The effect sizes ranged

between $r = -.11$ ($Z_r = -0.11$) to $r = .60$ ($Z_r = 0.69$). We used a caterpillar plot (see Figure 2)

to illustrate the effect sizes from largest to the smallest because the effect size estimates

would not have fit into a more traditional forest plot. Examining distribution of leverage

(i.e., hat values) indicated that none of the effect sizes were influential outliers (Viechtbauer & Cheung, 2010). The overall naïve and PET/PEESE effect between partner support and goal outcomes was medium ($r = .25$ and $r = .24$, respectively). The effect sizes were extremely heterogeneous with the 95% credibility interval suggesting that correlations in future studies would most likely be positive but with a possibility of some null effects.

The association between both responsiveness and practical support and goal outcomes was moderate ($r = .27$ and $r = .22$, respectively) whereas negative support had a small negative association ($r = -.14$) with goal outcomes. For responsiveness, the heterogeneity was evenly located in between- and within-sample whereas for practical and negative support, the heterogeneity was higher in within-sample than between-sample. For responsiveness and practical support, the credibility interval suggested a positive effect with a small possibility of a null effect whereas the credibility interval for negative support ranged from a medium negative effect to a small positive effect. With the exception of negative support, the bias-corrected effect sizes were similar for the total effect as well as responsiveness and practical support. However, the bias-corrected value for negative support was more negative ($r = -.26$) than the uncorrected estimate.

We also examined whether the effect for the various goal outcomes differed across any of the support categories. There was no difference between goal outcome categories for responsiveness. However, practical support had a significantly smaller correlation with self-efficacy ($Z_r = .05$) compared to progress ($Z_r = .25$; $b = -.20$** [-.34, -.06]) and commitment ($Z_r = .25$; $b = -.20$** [-.34, -.06]), but commitment and progress did not significantly differ ($b = .004$ [-.09, .10]). Negative support had a significantly larger negative correlation with commitment ($Z_r = -.14$) compared to progress ($Z_r = -.11$; $b =$

-.10** [-.18, -.03]) and self-efficacy (Z_r = -.06; b = -.15** [-.25, -.06]), but self-efficacy

and progress did not significantly differ (b = .05 [-.05, .15]).

2.4.2   Theoretical Moderator Analyses

The majority of the theoretically-driven moderator analyses (see Table 3 for the full

results) were significant and explained most of the heterogeneity in the meta-analysis; QM

(8) = 201.31, $p < .001$. The moderations by support and goal type are already discussed

above. Additionally, the results showed that when a study presented a theoretical

foundation for the research, the effect size was greater than when there was no explicit

theoretical basis for the research. Samples with older participants had a significantly

smaller effect size compared to samples with younger participants. In contrast, samples in

which participants had been in their relationship longer had a significantly higher effect

size.

2.4.3   Overall Measurement Quality

The majority of both support and goal outcome scales had adequate reliability

(above .70), but only 26.7% and 16.9% of the support and goal outcome scales,

respectively, had been validated in a previous study. Most goal outcomes were measured

using a single item (59.5%) whereas partner support was more likely to be measured using

a scale which had been adapted from a previous study but not validated either in the

current or previous study. On average, the support scales had 6.24 items and 6.97 scale

points whereas the goal outcome scale had an average of 2.47 items and 10.37 scale points.

For goal outcome, the mean was not meaningful because the majority of goal progress

items were single items whereas most studies measured self-efficacy using a multi-item

validated questionnaire. Some studies also measured progress on a scale from 0-100 whereas most other goal outcomes were scored on maximum of 0-10 scale.

2.4.4 Methodological Moderator Analyses

We evaluated the different methodological moderators in three different models: variables related to 1) support scale, 2) goal outcome scale, and 3) other methodological considerations (see Table 4 for the full results). We also assessed publication bias and study quality. The majority of the methodological moderators were non-significant. Higher number of scale items in the goal outcomes predicted a smaller effect size compared to using a smaller number of items. Additionally, both daily diary and longitudinal correlations were significantly smaller compared to cross-sectional estimates. Finally, the effect sizes were larger in dyadic compared to individual samples.

2.4.4.1 Publication Bias

Publication status did not significantly moderate the correlation between partner support and goal outcomes. In order to further evaluate potential evidence for publication bias, we used funnel plots and the Egger's regression test. Funnel plots are often used to visually identify any asymmetry in meta-analyses (Light & Pillemer, 1984). Studies should be equally distributed around the center of the funnel plot. A visual inspection of the funnel plot (Figure 3) in the present meta-analysis did not suggest any publication bias. Consistent with the funnel plot, the Egger's regression test (Egger et al., 1997) also did not show any publication bias ($b = 2.07$ [-7.72, 11.86], $p = .679$).

2.4.4.2 Study Quality

We divided studies into three categories based on six quality criteria. Category 1 indicated the lowest quality studies and category 3 highest quality studies. Most studies were medium quality (58%) and only four of the 36 studies were low quality. Study quality

was not a significant moderator of the association between partner support and goal

outcomes (b = -0.05 [-0.18, 0.02], p = .144; QM [1] = 2.14, p = .144).

2.5   Discussion

Our meta-analysis suggests that partner support is moderately and positively

associated with goal outcomes. Responsiveness and practical support were both positively

associated with goal outcomes and did not differ significantly, whereas negative support

was negatively associated with goal outcomes and was significantly different from

responsiveness and practical support. While the results were consistently and considerably

heterogeneous, the results showed that we would expect a small to moderate positive

correlation in most future studies. Some of the theoretical moderator variables were

significant and explained substantial amount of heterogeneity. The majority of the

methodological variables were not significant moderators.

2.5.1   Evaluating Current Theories of Partner Support and Goal Outcomes

All major theories that address partner support (interdependence, attachment, and

self-determination theories), while conceptualizing partner support slightly differently,

agree that responsiveness is positively and negative support negatively associated with

goal outcomes. The results from the meta-analytic synthesis showed that overall, and in

most studies, this was the case. However, the theories differ in their view on whether

practical support is beneficial for goal outcomes. Attachment theory suggests that partners

should not interfere unless absolutely necessary (B. C. Feeney, 2004, 2007; B. C. Feeney

& Thrush, 2010) and self-determination theory suggests that support should be aimed to

increase autonomy (R. M. Ryan & Deci, 2000). Thus, it can be inferred from these theories

that practical support would either be less effective or may even hinder goal pursuit.

Relational catalyst support, on the other hand, involves partners taking an active role in providing support and this can involve practical support (B. C. Feeney & Collins, 2015b). The meta-analysis showed that responsiveness and practical support had a similar effect size thus supporting the RC support framework.

However, while responsiveness predicted progress, commitment, and self-efficacy equally, the association was different for practical support depending on the goal outcome. Practical support similarly predicted progress and commitment but the association was significantly smaller for self-efficacy. Some researchers have suggested that partner support can at times have negative consequences because it can hinder self-efficacy (Bolger et al., 2000; Bolger & Amarel, 2007; B. C. Feeney, 2004; Rafaeli & Gleason, 2009). Our results provide no support for this hypothesis for responsiveness but the results are more mixed for practical support. While we did not find that practical support hindered self-efficacy, the effect size was much smaller suggesting that practical support may hinder self-efficacy for some people. Future research should examine potential individual differences to understand for whom practical support may hinder self-efficacy.

As expected, negative support was negatively associated with all goal outcomes. Interestingly negative support seemed to be particularly dampening of commitment toward goals. This may be because negative support signals to the recipient that their partner does not wish them to pursue the goal. Indeed, previous research has shown that goal conflict in relationships predicts less commitment toward goals (Gere & Impett, 2018); and partners are more likely to withhold or provide negative support when goals may take the partner away from the relationship (B. C. Feeney et al., 2013).

Practical and negative support may share some common elements. For example, providing advice can be seen as helpful if it is welcomed, whereas it can be seen as interfering or even coercive if the recipient does not wish to receive advice. Separating

positive practical support from negative support that is seen as interfering or coercive can provide further insight into when and for what types of outcomes different types of support are beneficial in future studies. Indeed, one study found that practical support was beneficial for well-being only when support providers were emotionally engaged while providing support (Morelli et al., 2015). Therefore, for the best goal outcomes, practical support may need to be combined with support that is responsive to the needs of the recipient.

Furthermore, because self-determination theory suggests that individuals feel more motivated to pursue autonomous rather than controlled goals, we also examined whether goal type moderated the association between partner support and goal outcomes. We did not find that goal type was a significant moderator suggesting that individuals can benefit from support regardless of whether the support is toward autonomous or controlled goals.

We also examined the role of age and relationship length in moderating the association. Several researchers have suggested that goal progress is likely higher in early adulthood and support is likely to be more important in early stages of the relationship but the importance may decline over time (Bühler et al., 2018; Jakubiak et al., 2020). In line with this suggestion, we found that older individuals benefited significantly less from partner support toward goal outcomes. While longer relationship length, when examined alone, was also predictive of a smaller association, when both relationship length and age were accounted for simultaneously, the moderation by relationship length switched direction to positive. This is likely to be because age explained all of the variance in the outcome given age and relationship length are highly positively correlated.

2.5.2 Methodological Critique

Most of the studies that were included in the present meta-analysis were overall relatively well-conducted and adequately powered. Many studies included data from both members of the couple, some also included observer-reports, and some had a combination of cross-sectional, observational, experimental, and/or longitudinal data. However, one of the major weaknesses in existing research was the lack of psychometrically validated measures. This is important because measurement is a crucial component in producing replicable findings but many psychological constructs fail crucial validity tests (Flake & Fried, 2020). A recent analysis of popular measures in social and personality psychology showed that only 60% of the measures indicated good validity and only 33% had a replicable factor structure (Hussey & Hughes, 2020). Very few studies included in the present meta-analysis used measures that had been previously validated, many measures were made up for the specific study or modified from previous research, and nearly half of the effect sizes relied on a single-item measure of goal outcomes. Furthermore, most studies used different measures making it difficult to compare effect sizes across studies. Therefore, one of the major tasks for the future is to develop and thoroughly validate measures, and test our theories using measures that are replicable and generalizable.

Only a minority of the methodological moderators were significant, however. Cross-sectional effect sizes were generally larger compared to both diary and longitudinal effect sizes which would be expected given that most effects tend to decline over time. We would not necessarily expect these methodological moderators to be significant given the large amount of heterogeneity already present in the data. Additionally, better designed studies usually provide a more accurate estimate of an effect compared to less well-designed studies. However, this does not necessarily mean that the effect is smaller or larger only that the effect has less uncertainty associated with it.

2.5.3   Limitations and Directions for Future Research and Theory Building

While meta-analyses are generally considered better evidence for a phenomenon than any single study (Borenstein et al., 2009), the results can only be as good as the studies that are included in the review. While the majority of the studies were well-conducted, the use of unvalidated measures is a concern for the validity of the results. The present meta-analysis itself had several strengths including preregistration of the protocol, combining a range of different research strands from different theoretical perspectives, using multilevel modeling enabling us to account for the non-independence of effect sizes in a given study, being able to obtain all relevant correlations from study authors, and being able to obtain some unpublished studies.

Many of the studies have not included different types of support or goal outcomes in the same study, making most of the comparisons between- rather than within-studies. This makes it more problematic to directly compare the support and goal outcomes across studies as they may reflect differences in the study design rather than true differences in the constructs themselves. However, the few studies that have assessed responsiveness, practical support, and negative support together have found similar results to the present meta-analysis suggesting that the differences across support measures cannot be explained by differences across studies alone (see Dailey, 2018b; Feeney, 2007; Overall et al., 2010).

Additionally, some of the variables had only been used in a small number of studies and therefore the confidence in these findings is limited until further research especially regarding commitment and self-efficacy is conducted. Therefore, future research is needed to further investigate the differences across practical and negative support and self-efficacy and commitment as there were fewer studies including these types support and goal outcomes. For example, it would be interesting to look at the long-term outcomes of repeated provision of practical support for self-efficacy and goal progress to see if self-

efficacy and feelings of autonomy are eroded over time and whether or not goal progress shows a similar decline or is worsened by eroded self-efficacy. It may be that practical support is helpful to goal progress in the short-term but not in the long-term, especially if practical support erodes self-efficacy. Furthermore, practical support that is directed toward the goal (e.g., providing advice) may be different from practical support that is designed to remove obstacles (e.g., taking care of children while the other partner goes for a run).

It is also important to note that large scale collaborative projects that involve multiple researchers and teams working together (e.g., Reproducibility Project: Psychology, Social Sciences Replication Project, and The Many Labs 1 and 2) generally find effect sizes that are only about a third of what is found in meta-analyses (Kvarven et al., 2020). We included both grey literature and studies in which the primary purpose of the study was not to address the association between partner support and goal outcomes which should, at least in theory, be less plagued by bias. The results also did not suggest any publication bias. However, due to the amount of heterogeneity across studies, large scale collaborative projects to address the overall effect size using validated measures could potentially provide a more accurate estimate of the effect than what is possible in a meta-analysis.

Additionally, while we tested for several different moderators, it was not possible to examine potential individual difference variables beyond demographics due to the small number of studies assessing these variables. However, many of the studies included in the present meta-analysis examined different variables that could potentially affect participants' perception of support, ability to provide support, and their goal outcomes. These variables included, for example, attachment patterns (Jakubiak & Feeney, 2016; Vowels, 2018), regulatory focus (Righetti et al., 2010; Winterheld & Simpson, 2016), ideal

similarity (Rusbult, Kumashiro, et al., 2009), and benevolent sexism (Hammond & Overall, 2015). Future research is needed to directly compare the relative importance of these variables given that most researchers have only focused on one variable at a time even though they may have collected data on a number of other variables in a single study. Machine learning, such as Random Forests (Breiman, 2001b; Joel et al., 2017), can be used to examine a large number of predictor variables at the same time which could provide a better understanding of which variables may moderate the association between partner support and goal outcomes that were not addressed in the present meta-analysis.

2.5.4   Implications for theory and practice

There are several theoretical implications that arise from the results of the meta-analysis. Overall, the findings provide support for relational models of goal pursuit (attachment theory, interdependence theory, self-determination theory) suggesting that close others can play an active role in the pursuit of opportunities and have a function beyond simple social pressure advocated by the more traditional goal pursuit models (such as the theory of reasoned goal pursuit). Furthermore, we found that, in line with the theory of thriving through relationships, responsiveness and practical support had a similar sized effect for commitment and goal progress. It appears that, at least as long as the practical support does not interfere or is not experienced as coercive and controlling, practical support is equally important for optimal thriving, at least in the short-term. However, responsive support may have additional benefits in also bolstering confidence in the recipient's own ability to pursue goals. Practical support may be less helpful for increasing confidence possibly because it is easier to attribute any progress made to partner's help.

Prior meta-analyses on goal outcomes have found that intention to implement a goal was moderately ($d = .65$) associated with goal attainment (Gollwitzer & Sheeran,

2006) and goal setting predicted behavior change with a small effect size (d = .34; Epton et al., 2017). The association between partner support and goal outcomes in the present meta-analysis (converted effect size of d = .52) was similar in size to having a strong intention to achieve a goal. This is particularly interesting given intentions are one of the largest predictors of behaviors (Ajzen, 1985, 1991). The meta-analysis suggests that support from close relationship partners can be just as important for goal outcomes as individual characteristics highlighting the importance of considering partner support when addressing goal outcomes or attempting to change individual's behavior. This can have implications for theory as well as a wide range of applications such as changing health behaviors, improving performance in the workplace or in education, or improving attendance and motivation toward therapy.

Humans spend much of their lives working toward various goals (e.g., health, education, career, relationships) that have important implications for their overall well-being. Therefore, it is important to address factors that can contribute to an optimal environment for individuals to thrive. One way of contributing to this environment is to ensure that partners are aware of each other's goals and know how to provide effective and responsive support toward these goals. Therapists working with individuals and couples should, therefore, address each partners' and the relationship's goals and how each partner can be supportive toward these goals.

2.5.5   Conclusion

In conclusion, we found that the average association between partner support and goal outcomes was moderate. Responsiveness and practical support had similar outcomes overall with negative support being negatively associated with goal outcomes. There were also differences in these support types across goal outcomes. We have discussed the

implications of the findings in relation to most relevant relationship theories. The findings are especially in line with the recent Theory of thriving through relationships framework (B. C. Feeney & Collins, 2015b) which incorporates these different types of support. While the majority of the studies included in the meta-analysis were high quality overall, very few of them included validated measures of the constructs and tended to use different definitions of support making comparisons between studies difficult. Future research is needed to establish how much and when support is the most beneficial for goal outcomes and to develop validated questionnaires to measure the constructs.

2.6 Tables

Table 1

Study Characteristics

Study ID	Authors	Year	N	Mean age	Rel length (months)	Study design	Measures	Unit	Published	Country	Quality
1	Avivi	2009	240	27.19	29.06	prospective	target only	dyadic	no	USA	3
2	Brunstein et al.	1996.1	60	23	32.88	prospective	target only	individual	yes	Germany	1
3	Buhler et al.[a]	2018	505	47.2	242.4	cross-sectional	target only	individual	yes	Switzerland	2
4	Cappuzzello & Gere	2018	594	21.2	2.95	prospective	target only	dyadic	yes	Canada	2
5	Cazzell	2017	1680	NA	132	cross-sectional	target only	dyadic	no	USA	2
6	Dailey et al.	2016	53	34.28	105.96	daily diary	target only	individual	yes	USA	2
7	Dailey	2018a.2	298	35.57	118.44	cross-sectional	target only	individual	yes	USA	2
8	Dailey	2018b	389	34.6	103.56	cross-sectional	target only	individual	yes	USA	2
9	Drigotas et al.	1999.1	106	19.94	19.17	prospective	target only	dyadic	yes	USA	2
10	Drigotas et al.	1999.2	218	18.83	19.17	prospective	target only	individual	yes	USA	2
11	Drigotas	2002	63	19.1	18.1	cross-sectional	target only	individual	yes	USA	1
12	Feeney[b]	2004	232	27.5	52.8	cross-sectional	observer	dyadic	yes	USA	2
13	Feeney[c]	2007.2	334	39.2	122.4	prospective	observer	dyadic	yes	USA	2
14	Feeney et al.	2017	226	38.26	144	prospective	observer	dyadic	yes	USA	3
15	Hammond & Overall	2015	200	22.5	39.36	cross-sectional	target only	dyadic	yes	New Zealand	2
16	Hofmann et al.	2015.1	224	24.03	31.32	daily diary	target only	dyadic	yes	USA	2
17	Jakubiak & Feeney	2016.1	394	27.4	4.6	daily diary	target only	dyadic	yes	USA	3
18	Jakubiak & Feeney	2016.2	476	70	480	daily diary	target only	dyadic	yes	USA	3

19	Koestner et al.	2012.1	116	21.52	NA	prospective	target only	dyadic	yes	Canada	3
20	Kumashiro et al.[d]	2007	374	26.97	38	prospective	target only	dyadic	yes	USA	3
21	Low et al.	2017.1	146	21.71	36	prospective	target only	individual	yes	New Zealand	2
22	Low et al.	2017.2	200	23.31	39.36	prospective	target only	dyadic	yes	New Zealand	3
23	Mitchell	2007.1	69	18	13.05	prospective	target only	individual	no	USA	1
24	Overall & Fletcher	2010	202	21.9	24	prospective	target only	individual	yes	New Zealand	2
25	Overall et al.	2010.1	150	22.09	23.1	cross-sectional	target only	individual	yes	New Zealand	1
26	Overall et al.[e]	2010.2	122	23.38	33.67	prospective	observer	dyadic	yes	New Zealand	2
27	Ruvolo & Brennan	1997	322	19.85	15.8	prospective	target only	dyadic	yes	USA	2
28	Sadikaj et al.	2015	186	29.09	50.69	prospective	target only	dyadic	yes	USA	3
29	Tomlinson et al.	2016.1	406	39.08	150.24	prospective	observer	dyadic	yes	USA	3
30	Tomlinson et al.	2016.2	458	27.04	4.6	prospective	observer	dyadic	yes	USA	3
31	Vowels	2018.2	183	22.05	22	prospective	target only	dyadic	no	USA	2
32	Vowels	2018.3	152	33.88	72	prospective	target only	dyadic	no	USA	3
33	Vowels et al.	2021a	200	36.50	133.20	prospective	target only	individual	yes	UK	3
34	Vowels et al.	2021b.1	148	20.50	16.90	cross-sectional	target only	dyadic	no	USA	2
35	Vowels et al.	2021b.2	374	39.65	165.49	cross-sectional	target only	dyadic	no	USA	2
36	Winterheld & Simpson	2016	190	23.21	31.22	cross-sectional	observer	dyadic	yes	USA	2

Note. If a report included more than one sample, the sample is denoted numerically after the year. If the same authors completed multiple studies in the same year, these are denoted in alphabetic letters. The sample size for each study may not reflect the number of participants reported in the manuscript as the sample size is based on the sample size used for the correlations. In studies that use the same sample, the largest available n is reported here but the earliest manuscript is used for citation.

a.   Sample also used in Bühler et al. (2020)

b.   Sample also used in Feeney (2007, Study 1)

c.   Sample also used in Feeney & Thrush (2010)

d.   This sample is also used in Righetti, Kumashiro, & Campbell (2014); Righetti et al. (2010); Rusbult, Kumashiro, et al. (2009; Studies 1, 2, and 4b); and Vowels (2018, Study 1).

e.   The same sample is also used in Girme et al. (2013)

Table 2

Meta-analytic Sample Description, Estimates, and Heterogeneity for Entire Sample and for

Each Support Type

	Partner support (all effects)	Responsiveness	Practical	Negative
Meta-analytic sample				
# of samples	36	34	11	11
# of effects	195	129	30	36
# of participants	10130	9310	2720	2707
Meta-analytic estimates				
Uncorrected	.25	.27	.22	-.14
Confidence interval	(.21, .29)	(.22, .31)	(.16, .28)	(-.20, -.08)
Credibility interval	(-.05, .54)	(-.03, .56)	(-.03, .47)	(-.38, .11)
Bias-corrected	.24	.27	.20	-.26
Heterogeneity				
Between-sample: τ^2_3/I^2_3	.010/.37	.011/.41	.003/.14	.005/.29
Within-sample: τ^2_2/I^2_2	.012/.48	.012/.45	.013/.66	.010/.50

Table 3

Theoretical Moderator Tests for Correlations between Partner Support and Goal

Outcomes

Moderator	b	95% CI	p
Support type (responsiveness)			
Practical	-0.028	(-0.089, 0.033)	.365
Negative	-0.340	(-0.395, -0.285)	<.001
Goal outcome (progress)			
Self-efficacy	-0.040	(-0.092, 0.013)	.137
Goal commitment	-0.007	(-0.059, 0.045)	.802
Goal type (controlled)	0.006	(-0.048, 0.059)	.839
Theory (yes)	0.090	(0.027, 0.152)	.005
Age (years)	-0.016	(-0.023, -0.009)	<.001
Relationship length (months)	0.001	(0.000, 0.002)	.003

Note. The total R^2 for the model compared against the uncorrected meta-analytic estimate on the same (reduced) sample of effects where moderator data was present was .98. The values represent unstandardized meta-regression coefficients.

Table 4

Methodological Moderator Tests for Correlations between Partner Support and Goal Outcomes

Moderator	Total	%	b	95% CI	p
Support scales ($R^2 = .24$)					
Reliability ($M = 0.87$, $SD = .07$, .62-.97)	148	76.0	0.294	(-0.251, 0.840)	.290
Number of scale items ($M = 6.24$, $SD = 4.30$, 1-20)	193	99.0	-0.007	(-0.019, 0.006)	.291
Number of scale points ($M = 6.94$, $SD = 1.87$, 5-11)	193	99.0	0.019	(-0.008, 0.046)	.159
Scale development (single item)	23	11.8			
Adhoc	42	21.5	-0.043	(-0.209, 0.123)	.610
Reasonable	78	40.0	-0.112	(-0.273, 0.050)	.175
Strong	52	26.7	-0.093	(-0.235, 0.049)	.200
Goal outcome scales ($R^2 = .06$)					
Reliability ($M = 0.83$, $SD = .09$, .56-.95)	92	47.0	-0.044	(-0.595, 0.506)	.874
Number of scale items ($M = 2.47$, $SD = 3.95$, 1-23)	195	100.0	-0.013	(-0.023, -0.002)	.017
Number of scale points ($M = 10.37$, $SD = 17.58$, 2-101)	195	100.0	0.008	(-0.200, 0.173)	.630
Scale development (single item)	116	59.5			
Adhoc	27	13.8	-0.068	(-0.173, 0.036)	.200
Reasonable	19	9.7	-0.080	(-0.211, 0.051)	.230
Strong	33	16.9	0.005	(-0.161, 0.171)	.955
Other Moderators ($R^2 = .40$)					
Correlation type (cross-sectional)	135	69.2			
Diary	16	8.2	-0.100	(-0.199, -0.001)	.048
Longitudinal	44	30.8	-0.105	(-0.161, -0.049)	<.001
Observer	50	25.6	-0.059	(-0.119, 0.002)	.056
Sample size ($M = 261.82$, $SD = 155.27$, 53-1680)	195	100.0	0.000	(-0.000, 0.000)	.119
Unpublished	12	6.2	0.034	(-0.077, 0.144)	.550
Community sample	142	7.3	-0.075	(-0.156, 0.006)	.070
Dyadic sample	118	60.5	0.081	(0.003, 0.158)	.042

Note. The mean, standard deviation, and range are presented for continuous variables along with the total number of effect size estimates as well as percentage of the overall effect size estimates. The total R^2 for the model compared against the uncorrected meta-analytic estimate on the same (reduced) sample of effects where moderator data was present. The values represent unstandardized meta-regression coefficients.

2.7   Figures

Figure 1

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Systematic Review Checklist
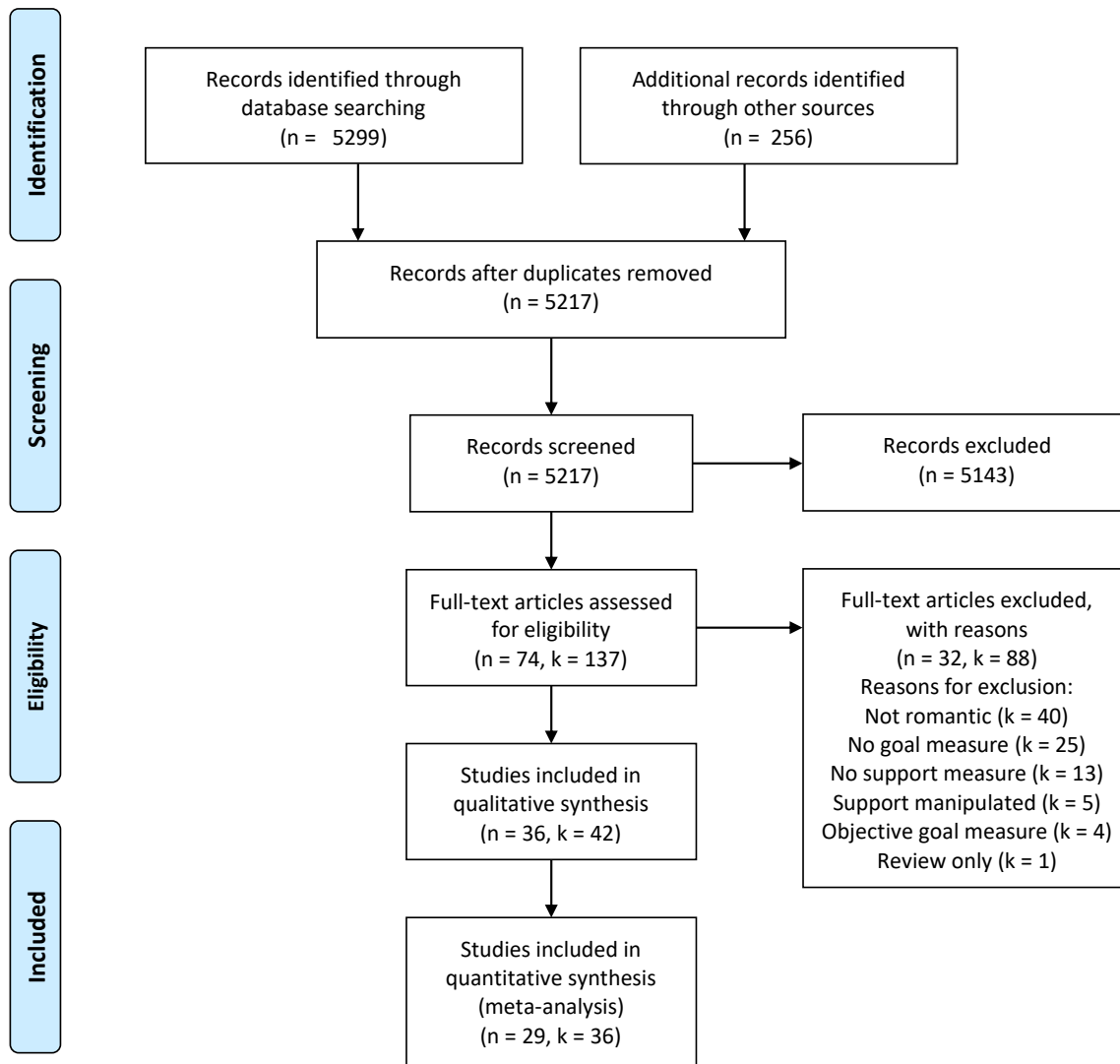
Figure 2

Caterpillar Plot of All Fisher-Transformed Correlations and Their 95% Confidence

Intervals
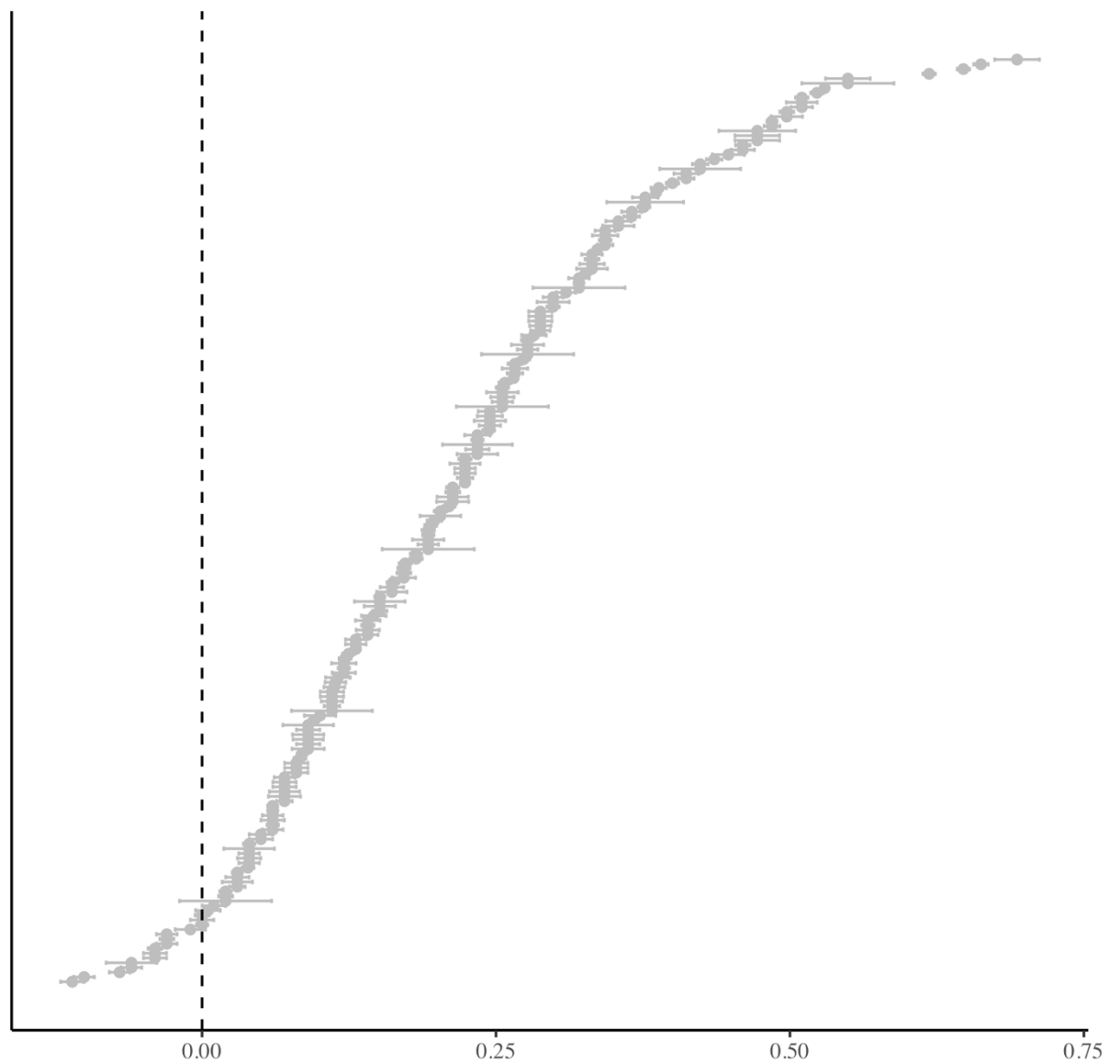
Note. Effect sizes are arranged from most positive to most negative. Vertical dashed line corresponds to correlation of 0. Negative support is reverse-scored.

Figure 3

Funnel Plot to Identify Potential Publication Bias.
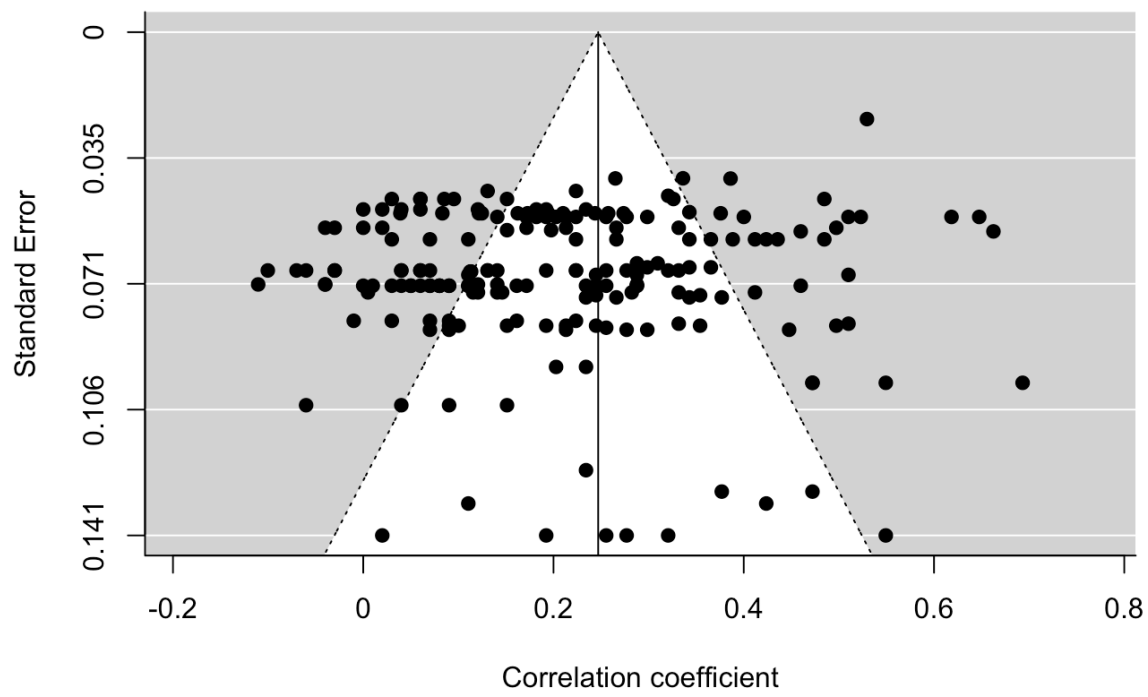
Chapter 3   Manuscript 2: A Machine Learning Approach to Predicting

Partner Support and Self-Efficacy from Individual and Relational Variables

3.1   Abstract

Romantic relationship partners are increasingly expected to provide support for each other's personal growth activities and to promote confidence in achieving personal goals. Traditional statistical techniques are ill-equipped to compare a large number of potential predictors that have been proposed over the years that are associated with fostering supportive, nurturing environments within romantic relationships. The current research used machine learning analysis (random forest with Shapley values) to identify the most salient individual and relational predictors of perceived partner support and self-efficacy. We analyzed data from five dyadic datasets (N = 550 couples) enabling us to have greater confidence in the findings and ensure generalizability. We predicted 35-55% of the variance in perceived partner support and 24-30% of the variance in self-efficacy, gaining significant insight into these variables. Our novel results advanced the literature by showing that relational variables (trust, relationship satisfaction, empathy) and attachment avoidance are the most important predictors in creating a supportive environment which in turn predicted self-efficacy. The results support tenets of several relationship theories such as attachment theory and interdependence theory.

Keywords: close relationships; partner support; self-efficacy; machine learning; Shapley values; random forest

3.2   Introduction

Finkel (2017) suggests that one of the purposes of contemporary romantic relationships is to promote self-discovery, self-esteem, and personal growth. Indeed, previous research has shown that relationships that are not supportive are less fulfilling and satisfying (Overall et al., 2010), partners make less progress toward their goals (for a review see Vowels & Carnelley, 2020), and the lack of support can lead to relationship dissolution (Orehek, Forest, & Barbaro, 2018b). Because of the important role romantic relationships play in supporting personal growth, it is important to understand factors that may contribute to an optimal relationship environment for growth for both partners. A recent theoretical model, thriving through relationships, describes the interpersonal process of how partners can create an optimal environment for goals by providing Relational Catalyst (RC) support (Feeney & Collins, 2015). RC support is an extension upon attachment theory's (Bowlby, 1969) notion of a secure base from which partners can explore the environment and pursue life's opportunities (Feeney & Collins, 2015). RC support is provided through partners being an active catalyst during the process of achieving goals.

In the present study, we examined two types of relational catalyst (RC) support (B. C. Feeney & Collins, 2015b): partner responsiveness (i.e., being available, sensitive, and responsive to the partner's needs, and understanding and validating one's overall self; Reis et al., 2004) and affirmation of the ideal self (i.e., perceiving and behaving in a manner that is consistent with the partner's ideal self or long-term goals; Drigotas et al., 1999). The purpose of the present study was to identify which individual (e.g., attachment style, self-esteem, gender) and/or relational (e.g., trust, commitment, relationship length) factors are the most likely to contribute to perceiving one's partner as providing RC support. Furthermore, we examined whether perceived RC support in turn predicted greater

confidence in pursuing growth opportunities (i.e., self-efficacy) and whether any individual and/or relational factors moderated the association between support and self-efficacy. Determining the most important predictors of support and self-efficacy is important because it helps relationship researchers to test theory and explain relationship processes, allows researchers to predict future relationship behaviors, helps direct future research, and the findings can inform interventions or influence policy to improve relationship functioning, goal progress, and well-being.

3.2.1 Theoretical Background

A recent theoretical model, thriving through relationships, describes the interpersonal process of how partners can create an optimal environment for goals. Feeney and Collins (2015) argued that good support-providers must take an active role in facilitating thriving and help partners achieve their personal growth not only in the face of adversity but also by encouraging them to pursue opportunities. The authors identified two main types of social support: relational catalyst (RC) and source of strength (SOS) support (B. C. Feeney & Collins, 2015b). RC support expands the attachment theory's (Bowlby, 1969) notion of *secure base* and focuses on how close relationship partners can help each other thrive through life's opportunities in the absence of adversity (B. C. Feeney & Collins, 2015b). SOS support, on the other hand, expands the notion of *safe haven* and focuses on how close relationship partners can facilitate thriving, and not merely coping, in times of adversity. Due to the relative dearth in the literature on thriving in the absence of adversity (B. C. Feeney & Collins, 2015b), the present study focused chiefly on RC support and how partners can create an optimal environment to pursue life's opportunities.

RC support includes four components through which thriving can be achieved in relationships (B. C. Feeney & Collins, 2015b). First, partners can nurture a desire to

engage in opportunities for growth, which can include expressing enthusiasm and validation toward goals and encouraging one to get out of one's comfort zone and challenging oneself. Second, partners can provide assistance in perceiving and recognizing life's opportunities such as framing opportunities positively instead of seeing them as a threat. Third, partners can facilitate preparation of taking on life's opportunities including assisting with gaining knowledge and skills to accomplish a goal, providing instrumental and informational assistance, and encouraging setting achievable goals. Fourth, partners can facilitate the implementation of plans to attain goals and help to fully engage in life's opportunities through providing secure base support (B. C. Feeney, 2007; B. C. Feeney & Thrush, 2010), supporting capitalization (Gable et al., 2004, 2006, 2012; Logan & Cobb, 2013; Shorey & Lakey, 2011), and perceiving and behaving in a manner that is consistent with the explorer's ideal self (Drigotas et al., 1999; Rusbult, Finkel, et al., 2009). Thus, the RC support takes aspects of the secure base support from attachment theory and integrates subsequent research on support for goal pursuit into a comprehensive construct designed to predict optimal thriving through relationships.

3.2.2 Established Individual and Relational Predictors of Partner Support

While it is well-established in the literature that supportive relationships can act as catalysts for personal growth (B. C. Feeney & Collins, 2015b) and increase one's confidence in their abilities to pursue growth opportunities (Low et al., 2017; Tomlinson et al., 2016), it is less clear what kind of relationships create an optimal environment to foster self-efficacy. It is also not clear from the present literature whether having a supportive relationship is due to individual or relational factors, or some combination of the two. Most relationship theories (such as attachment theory, interdependence theory, self-determination theory, thriving through relationships) agree that relationships characterized

as well-functioning with high satisfaction, commitment, trust, and intimacy provide a more supportive environment for growth (B. C. Feeney & Collins, 2015b; Kelley & Thibaut, 1978; Mikulincer & Shaver, 2009; Rusbult & Van Lange, 2003; R. M. Ryan & Deci, 2000).

Indeed, support and overall relationship quality tend to be highly correlated (Canevello & Crocker, 2010), whereas goal conflict has been shown to be negatively associated with support (Gere & Schimmack, 2013). Self-expansion theory (Aron et al., 1991) also suggests that inclusion of other in the self enables greater shared intimacy, which in turn leads partners to share resources and to be more supportive toward one another. Therefore, based on these theories, we would expect relational variables to be important for perceiving partners as supportive but it is not clear whether there are specific aspects of relationships that contribute more to support (e.g., trust, commitment, or satisfaction).

Interestingly, very few theories on partner support have explicitly discussed which individual differences variables are the most likely to explain why some partners are better at providing support than others (see attachment theory for an exception; Mikulincer & Shaver, 2009). Similarly, there is limited discussion of which variables may moderate the association between support and confidence in pursuing growth opportunities. A number of studies have examined different individual differences variables that may contribute to support or moderate the association between support and self-efficacy. These variables include, for example, promotion orientation (i.e., regulatory focus on dreams and aspirations; Righetti & Kumashiro, 2012), adult attachment styles (B. C. Feeney & Thrush, 2010; Jakubiak & Feeney, 2016), partner goal conflict (Gere & Schimmack, 2013), and the Big-5 personality traits (Burleson & Gilstrap, 2002). However, existing studies have only focused on one, or a small number of, predictors making it difficult to draw inferences

about which factors are the *most* predictive of perceiving one's partner as supportive, and whether individual or relational factors are more important predictors.

3.2.3   Using Machine Learning to Predict Partner Support

The prevailing use of linear statistical methods makes it difficult to answer these questions because it is not possible to examine a large number of predictors simultaneously due to issues with multicollinearity and suppression and cancellation effects (Lundberg et al., 2020; Yarkoni & Westfall, 2017). Furthermore, the reliability of the estimated linear model coefficients are highly sensitive to choice of control variables, meaning that the findings may not only change in effect size but also direction depending on which variables are controlled for (Breiman, 2001a; Lundberg et al., 2020; Luque-Fernandez et al., 2018; Orben & Przybylski, 2019; J. Peters et al., 2017). Further, existing models are not designed to handle non-linearity or non-normal distributions, which often occur in nature; any corrections to these tend to overfit data making the results non-generalizable to other datasets (Yarkoni & Westfall, 2017). Indeed, in the Open Science Collaboration replication project, only 25% of 57 social psychology studies were successfully replicated with the replicated effect sizes much smaller than in the original studies (Aartz et al., 2015); preregistered larger scale collaborative projects are needed to produce highly powered and replicable research. Furthermore, psychology has been traditionally more focused on theory development than prediction which has led to many psychological theories being unable to predict future behaviors with reasonable accuracy (Yarkoni & Westfall, 2017).

Recently relationships researchers have begun to address some of these limitations by incorporating powerful machine learning tools such as random forests to analyze data. Random forest is a form of a decision tree which can estimate a large number of predictor

variables and highly non-linear relationships while minimizing overfitting to the data thus aiding generalizability of the results beyond a single sample (Breiman, 2001b). Joel et al.'s (2020) study is one of only two projects in relationships research that have used random forests. Across 43 dyadic datasets, the study provided the most rigorous and reliable evidence of which individual and relational factors were associated with satisfaction and commitment to date showing that existing studies could predict around 40% of variance in satisfaction and commitment with relational factors being more predictive than individual factors overall.

The random forest algorithm, however, does not readily provide estimates of effect size or the direction of the effect of each predictor variable on the outcome. Therefore, previous studies have been limited in their ability to explain the results of their model beyond how much variance the entire model predicts (Joel et al., 2017) or which variables predict the outcome by some non-trivial amount (Joel et al., 2020). Lundberg and colleagues (2017, 2019, 2020) have recently developed a way to make machine learning models more informative using Shapley values which evaluate how different predictors contribute to changes in model output. In the present study, we take advantage of this new development to estimate the size and direction of the effect of each predictor variable on the outcome.

3.2.4   The Current Research

In the present study, our aim was to examine which factors are the most predictive of perceived partner RC support (responsiveness and affirmation), whether support predicts self-efficacy while including other factors in the model, and whether any individual or relational variables moderate the association between partner support and self-efficacy. The variable selection for the present study was guided by existing

theoretical frameworks to test the explanatory power of different relationship theories. The selection was somewhat limited by the availability of variables across the datasets. Furthermore, because there are (at least) two people in romantic relationships, it is important to understand whether one person's outcome is only determined by their own variables (actor effects) or whether their partner's reports also predict the actor's outcomes (partner effects). If providing partner support toward personal growth is one of the most important functions of romantic relationships, then being able to understand which variables reliably predict support in relationships is imperative. Our hope is to add to the current understanding of the factors that are the most likely to contribute to an optimal relationship environment to foster support and, in turn, self-efficacy.

We used data from five dyadic datasets that have a large number of common predictor variables and addressed the following research questions: 1) How much variance in the overall outcomes (partner responsiveness, affirmation, and self-efficacy) can we explain? 2) Are relational or individual variables more important for predicting partner support and self-efficacy? 3) Do partner effects explain additional variance in outcomes above actor effects? 4) What are the individual and relational variables that are most strongly associated with support and self-efficacy? And 5) are there variables that moderate the association between perceived support and self-efficacy?

3.3   Method

3.3.1   Participants and Procedure

The preregistration for the project is on the Open Science Framework: https://osf.io/z8mej/?view_only=1c095db1c8cf4471b5493100d35cf3fa. Five dyadic datasets were combined in this project to create a large dataset of couples. All datasets included cross-sectional (time 1) self-reported data collected from both dyad members in

romantic relationships. Two of the datasets included only dating couples ($n_1 = 74$, $n_4 = 92$), one dataset included newly committed couples (e.g., engaged, married, moving in together; $n_3 = 178$), and two datasets included married couples ($n_2 = 120$, $n_5 = 77$). The final sample consisted of 550 couples (1,100 individuals).

On average, participants were 28.32 years old ($SD = 10.90$, range = 18-79) and had been in a relationship for 5.59 years (SD = 8.13, range = 0.08 – 61.50). The majority of the participants were white (n = 876, 80%) with a minority being African American (n = 83, 8%), Hispanic (n = 35, 3%), or Asian (n = 72, 7%). The sample was primarily well-educated: 196 (18%) participants had a graduate degree (M.S./PhD), 466 (42%) a Bachelors degree, 379 (34%) at least some college, and 60 (5%) had no college courses. The couples were either married (n = 266, 48%), cohabiting (n = 127, 23%), or dating and not living with each other (n = 220, 40%) and the majority of the couples did not have any children (n = 462, 84%). All data were collected in the United States.

3.3.2   Measures

The outcome variable, perceived partner support was measured using the 18-item responsiveness scale ($M = 6.79$, $SD = 0.98$; e.g., *"My partner is responsive to my needs.";* Reis et al., 2004) in four datasets and the partner affirmation scale ($M = 5.89$, $SD = 1.33$; e.g., *"My partner behaves in ways that help me become who I most want to be."*; Drigotas et al., 1999) in three datasets. Self-efficacy toward long-term goals was measured using a single item from the self-control scale ($M = 5.86$, $SD = 1.65$; *"I am able to work effectively toward long-term goals";* Tangney et al., 2004) in all datasets.

The rest of the variables from each dataset were included in the final dataset if the variable appeared in at least three of the five datasets. These variables were divided into individual and relational predictors. There were a total of 16 individual variables in the

datasets. Sex (male, female), ethnicity (African American, Asian, white, Hispanic), and education (no college, some college, bachelors, graduate) were all dummy coded and each dummy code was entered into the analyses. Age was measured in years.

We also measured a number of continuous individual variables. Self-control (Tangney et al., 2004) indicates the extent to which one is able to control their emotions and desires and was measured using 12 items in Samples 1-2 and 10 items in Samples 3-5 (e.g., "I'm lazy") from the same scale. Self-esteem (Rosenberg, 1965) was measured using a 10-item Likert scale (e.g., "At times I think I'm not good at all"). Self-respect was measured using the 10-item self-respect scale (Kumashiro et al., 2002) in Samples 1-3 and 5 and with a single item from the scale in Sample 4 (e.g., "I have a lot of respect for myself"). Attachment style was measured using the Experience in Close Relationships (Brennan et al., 1998) scale in Samples 1 and 2 and the Experience in Close Relationships – revised (Fraley et al., 2000) scale in Samples 3-5. Both include 36 items with two subscales: attachment anxiety (18 items; e.g., "I worry about being abandoned" and attachment avoidance (18 items; e.g., "I prefer not to show my partner how I feel deep down"). Participants' regulatory focus (i.e., whether one is concerned with promotion of dreams and goals or prevention of negative outcomes) was measured using the 11-item Regulatory Focus Questionnaire (Higgins et al., 2001) in Samples 1 and 2. The scale included six items for promotion (e.g., "I often do well at different things that I try") and five items for prevention orientation (e.g., "Growing up, I typically obeyed rules and regulations that were established by my parents"). In Samples 3-5, regulatory focus was measured using the 18-item General Regulatory Focus Measure (Lockwood et al., 2002). The scale has nine items for promotion (e.g., "I frequently imagine how I will achieve my dreams and aspirations.") and nine items for prevention (e.g., "In general, I am focused on preventing negative events in my life."). Socially desirable responding was measured using

the two-component model (Paulhus, 1984) including social desirability (ten items; e.g., "I have not always been honest with myself") and impression management (ten items; e.g., I'm a completely rational person").

There were also a number of physical and psychological well-being related variables that were included in the study. Subjective well-being was measured using the Satisfaction with Life scale (Diener et al., 1985), which includes five items (e.g., "In most ways, my life is close to ideal"). Symptoms of depression were measured using the 8-item depressive symptoms subscale of the Personal and Relationships Profile (e.g., "I feel sad quite often"; Straus et al., 1999) in Samples 1 and 2 and with a 13-item depression subscale from the Psychological Adjustment to Illness Scale (e.g., "Feeling blue"; Derogatis & Lopez, 1983) in Samples 3-5. Physical health was measured using a single item ("In general would you say your health is?") rated from poor to excellent in Samples 1 and 2. In Samples 3-5, physical health was measured using a 33-item Cohen-Hoberman Inventory of Physical Health (Allen et al., 2017) which includes a checklist of symptoms such as back pain, weight change, and poor appetite.

There were a total of 11 relational variables in the datasets. Relationship status (dating, cohabiting, married) and children (yes, no) were dummy coded. Relationship length was measured in years. Trust was measured using the 3-item (e.g., "How much do you trust your partner?") trust subscale of the Perceived Relationship Quality Components Inventory (Fletcher et al., 2011) in Samples 1 and 2. In Samples 3-5, trust was measured using a 12-item (e.g., "I can rely on my partner to keep the promises he/she makes to me.") Trust in Close Relationships scale (Rempel et al., 1985). Relationship commitment was measured using the 7-item (e.g., "I want our relationship to last forever") commitment subscale of The Investment Model Scale (Rusbult et al., 1998). Relationship satisfaction was measured using the 5-item (e.g., "I feel satisfied with our relationship") subscale from

the Investment Model Scale (Rusbult et al., 1998) in Samples 1, 2, and 5. Satisfaction was not explicitly measured in Samples 3 and 4 so we used a single item from the Dyadic Adjustment Scale: "The dots on the following line represent different degrees of happiness in your relationship. The middle point "happy" represents the degree of happiness of most relationships. Please circle the dot that best describes the degree of happiness – all things considered – of your relationship" rated from extremely unhappy to perfect[2]. The degree to which partners' experienced their identities to be interlinked was measured using the Inclusion of the Other in the Self (Aron et al., 1991) measure in which participants were asked to select from Venn diagrams with increasing levels of overlap according to how much they felt the other was included in the self. Empathy toward partner was measured using 8-item (e.g., "I feel terribly sorry when things aren't going well for my partner".) partner subscale of the Interpersonal Reactivity Index (Davis, 1980).

Three further measures were also included but were only available in a subset of samples. General relationship conflict was measured in Samples 1-3 and 5 using the conflict subscale of the Personal and Relationships Profile (Straus et al., 1999). The scale asks about disagreement on various topics such as money, friends, or sex (e.g., "My partner and I disagree about when to have sex"). Willingness to sacrifice (Van Lange et al., 1997) was measured in Samples 1-3 and involved participants first rating four of their most important activities and then they were asked about each activity: "Imagine that it was not possible for you to engage in Activity and maintain your relationship (impossible for reasons that are not your fault). To what extent would you consider giving up the activity?"

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[2] Due to the differences in satisfaction measures across the samples, sample moderated the association between satisfaction and the different outcomes but the nature of the effect remained the same. This was the only variable that sample moderated despite some differences in other measures across the samples. However, because of the importance of relationship satisfaction in predicting support and because random forest can fit complex non-linear interactions (Breiman, 2001b) we retained this variable in the model.

A measure of goal compatibility (i.e., how problematic one partner's goals were for the other partner) was available in Samples 1-4 and was measured using five items in Samples 1 and 2 (e.g., "Sometimes I feel like my goals are incompatible with my partner's goals") and nine items in Samples 3 and 4 (e.g., "My partner does not completely approve of my goals"). The majority of the scales used across the samples were well-established and have good reliability and validity. The final list of variables differed somewhat from the preregistration upon discovering that some of the variables were not available across at least three datasets at baseline and therefore it was not possible to include them.

3.3.3   Data Analysis

3.3.3.1   Data Preparation

Any missing variables in each dataset were included in the combined dataset and designated as missing. All continuous variables were scaled to be between 0 and 8 with higher numbers indicating higher levels of the variable (e.g., higher number in self-esteem would indicate higher self-esteem). All categorical variables were dummy coded to be 0 or 1 with each category included in the analyses. A maximum of 0.05% of the data for each variable were missing, and any missing data points were imputed using the *scikit-learn* package *Iterative Imputer* (Pedregosa et al., 2011) with a Bayesian ridge estimator. If the variable was missing from an entire subsample, it was not included in an analysis in which the subsample was used.

3.3.3.2   Analyses

The results were analyzed using Python 3.7 and the code can be found here: https://github.com/matthewvowels1/Shap_Dyads. Each dataset was analyzed using a random forest regressor (Breiman, 2001b). A random forest is a type of decision tree that trains on bootstrapped sub-samples of the data in order to avoid overfitting. The tree can

model highly non-linear relationships in the data, and therefore represents a significantly more flexible model than a linear regressor. In general, random forest models are sensitive to hyperparameter settings (such as the number of estimators, or the maximum depth of the decision tree). However, tuning hyperparameters requires a separate validation data split which reduces the effective sample size available for training and testing. Therefore, we used the default "scikit learn" random forest regressor with k-fold cross-validation (Pedregosa et al., 2011). The out-of-bag error is a built-in metric frequently used to estimate the performance of random forests (Joel et al., 2017, 2020), but in some circumstances this metric has been shown to be biased above the true error (Janitza & Hornung, 2018; M. W. Mitchell, 2011). By using a k-fold cross-validation approach, instead of the out-of-bag error, we were able to test the model over the entire dataset, and to acquire estimates for the standard error (see below).

A ten-fold cross-validation scheme was used to train and test the model. This meant the total dataset was randomly split into ten equally sized folds. The model was trained on nine out of ten folds, tested on the tenth, and the test fold performance was recorded. This was repeated until all ten folds had been used as a test set. The average performance, as well as the standard error across the ten folds, provided an estimate of model performance on unseen data. The metrics for test data model performance used were the mean-squared error (which is the averaged squared difference between the prediction and the observed value), the R^2, and the variance explained. The last model trained was then saved, and explained using the "SHapley Additive exPlanations" package (SHAP) (Lundberg et al., 2017, 2019, 2020).

The SHAP is a unified framework for undertaking model explanation, and derives from the seminal game theoretic work of Lloyd Shapley (1952). The framework conceives of predictors as collaborating agents seeking to maximize a common goal (i.e., the

regressor performance). The approach involves systematically evaluating changes in model performance in response to including or restricting the influence from different combinations of predictors. For example, the SHAP *TreeExplainer* function from the SHAP software implementation provides estimations of the per-datapoint, per-predictor impact on model output, as well as the average predictor impacts. These estimations are called 'explanations' because they explain why a particular regressor performs the way it does. For the analysis the default settings of the SHAP package *TreeExplainer* were used, and the entire dataset was fed to the model for explanation. The combination of the powerful function approximation capabilities of random forests with the consistent and meaningful estimations of per-datapoint, per-predictor impact on model output enables a reliable and informative exploration of predictor importance, as well as a means to identify key predictor interactions.

The analyses were conducted separately by first including as many participants as possible in each analysis and then by including as many variables as possible. This resulted in a total of eight analyses (three for perceived partner responsiveness, one for affirmation, and four for self-efficacy) which were conducted twice: once including only actor effects and once including both actor and partner effects. Details of which samples and/or variables were excluded from each analysis can be found on the OSF project page.

3.4 Results

3.4.1 Total Variance Explained (Research Questions 1-3)

Table 1 presents the overall prediction results for each outcome variable for each model for individual and relational variables as well as for models including actor effects only and for models including both actor and partner effects. In the actor only models, we were able to explain the most variance in responsiveness overall (48.2 – 55.3%) with

relational variables generally predicting the largest percentage of the variance (57.1% - 69.2%). Individual variables predicted a total of between 30.8% – 42.9% of the variance. Partner effects did not improve the predictive power of the models, if anything, partner effects contributed noise to the data and made prediction less accurate. However, in the models with partner effects included, partner's individual variables predicted between 11.6% and 13.4% of the variance. In contrast, partner's relational variables predicted very little variance (3.2% - 5.5%).

For affirmation, the model with actor effects was able to predict 34.5% of the variance with relational and individual variables predicting similar amounts of variance (48.2% and 51.8%, respectively). In the models with both actor and partner effects included, actor's relational variables predicted the most variance (40.8%) followed by actor's individual variables (31.3%). Partner's individual variables contributed 22.3% of the variance whereas partner's relational variables contributed very little (4.9%).

The models with actor effects only were less able to predict self-efficacy with between 23.6% and 28.8% of the variance explained. For self-efficacy, individual variables (72.4% - 73.6%) were more important predictors compared to relational variables (23.0% - 27.6%). Partner effects contributed between 0.6% and 1.9% additional variance in the models for self-efficacy. Partner's individual variables contributed between 16.9% and 19.3% of the variance and partner's relational variables contributed between 4.7% and 8.0% of the variance in the models with both actor and partner effects.

3.4.2   Most Predictive Variables (Research Question 4)

In the majority of the models, the predictive importance of the variables decreased after only a small number of predictors. The rest of the predictors contributed only a small amount of variance into the model individually. Therefore, we only present the top-10

variables for each outcome in the figures. In the figures, the left side provides the average effect of each variable on the model outcome. The right side of the figure provides the estimates for each individual participant. Red indicates a higher value of the predictor variable and blue indicates a lower value. For example, red is equal to 1 and blue is equal to 0 for binary variables. The Shapley values are additive, and can be interpreted similarly to an average effect from a linear model. For example, one unit increase in relationship satisfaction predicted a corresponding average increase of 0.33 units in responsiveness. The individual effects show that a low relationship satisfaction predicted up to a -3.0 unit change in responsiveness compared to average relationship satisfaction whereas a high relationship satisfaction score predicted up to 0.5 unit increase in responsiveness compared to average relationship satisfaction. This result also shows that the association between relationship satisfaction and responsiveness is non-linear: low relationship satisfaction has a much higher negative effect on the model outcome compared to high relationship satisfaction.

Perceived partner support was measured using two variables: responsiveness and affirmation. There were four relational (relationship satisfaction, empathy toward partner, trust, commitment) predictors that were consistently in the top-10 most important predictors for perceived responsiveness (see Figure 1) and affirmation (see Figure 2). All were predictive of higher perceived responsiveness and affirmation. Having more conflicting goals with one's partner or experiencing higher conflict in the relationship in general also predicted lower perceived responsiveness but these variables were not important for perceived affirmation.

In line with how much variance individual vs. relational variables explained, there were less individual variables in the top-10 most important predictor variables. There were several individual actor variables in the most important predictors. However, only higher

actor attachment avoidance consistently predicted lower perceived partner responsiveness and affirmation. Better physical health also predicted higher perceived responsiveness whereas greater life satisfaction and higher depression predicted higher perceived affirmation. Higher self-esteem also predicted higher perceived responsiveness but not affirmation. Furthermore, there were several variables that explained very little variance in the outcomes: relationship status, children, inclusion of self in the other, gender, race, education, self-respect, attachment anxiety, and prevention orientation. There were no consistent partner variables that predicted perceived responsiveness and affirmation.

In addition to identifying the most important factors for perceived partner support, we also examined which predictors alongside perceived partner support were the most important predictors of self-efficacy. Affirmation was in the top-10 predictors of self-efficacy with higher perceived partner affirmation predicting greater self-efficacy. Perceived partner responsiveness was also positively associated with self-efficacy; however, it was only in the top-10 most important predictors once out of four models that it was included in. Self-control was the highest predictor of self-efficacy with higher self-control predicting higher self-efficacy.

Other consistently predictive individual variables were self-esteem and life satisfaction with higher scores in both predicting higher self-efficacy. Self-respect was also in the top-10 predictors in six out of eight analyses and higher scores in self-respect predicted higher scores in self-efficacy. There were several individual actor variables that predicted very little variance in self-efficacy including gender, age, education, attachment anxiety or avoidance, prevention orientation, and physical health. There were only two relational variables that consistently predicted self-efficacy: relationship length and commitment. Individuals who had been in their relationship for longer and were more committed in their relationship reported higher levels of self-efficacy. Promotion

orientation was among the top-10 predictors in the model it was included in with higher scores predicting higher self-efficacy. Relationship satisfaction was in the top-10 variables in six of the eight models apart from the model with affirmation also included in the model. Higher relationship satisfaction predicted higher self-efficacy. The only consistent partner variable was attachment avoidance: higher partner attachment avoidance predicted lower actor self-efficacy.

3.4.3   Moderator Variables (Research Question 5)

The random forest algorithm automatically tests for any potential moderations between different predictor variables and the outcome. Therefore, we also examined whether there were any individual or relational variables that moderated the association between support and self-efficacy. However, there were no important moderators across any of the models. Supplemental figures with all possible interactions can be found on the OSF project page for each analysis. In the figures, purple indicates no interaction and yellow indicates the strongest interaction.

3.5   Discussion

In recent years, relationships researchers have become increasingly interested in understanding how relationships can act as a catalyst for individual thriving and personal growth (B. C. Feeney & Collins, 2015b). The purpose of the present study was to add to this growing body of literature and to address some of the limitations of the existing research by using explainable machine learning to compare a large number of predictors to predict perceived partner support and self-efficacy. Specifically, we investigated whether we could predict perceived partner support and whether perceived partner support in turn predicted confidence in one's abilities to achieve long-term goals (self-efficacy) when

compared against a large number of other predictors.

Overall, we were able to predict between 35% and 55% of the variance in perceived partner support (50% of the variance in responsiveness and 35% in affirmation on average). The amount of variance predicted is similar in size to Joel et al.'s (2020) findings on predictability of relationship satisfaction and commitment. We also found that relational variables were more predictive of partner support compared to individual variables, at least for partner responsiveness. Also in line with previous research (Joel et al., 2017, 2020), we found that while partner-reports explained some variance across outcomes, they did not explain any variance over and above actor-reports. When partner effects were included in the models, the additional amount of variance explained by partners' perception of the relationship was negligible (3-5%) whereas actors' relationship variables explained the most variance in both responsiveness (51-47%) and affirmation (41%). Partners' individual variables explained some variance in responsiveness (12-13%) and affirmation (22%) but actor variables were again more predictive (27-32% for responsiveness and 31% for affirmation).

Further analyses revealed that the most predictive relational variables were actors' relationship satisfaction, empathy toward partner, trust, and commitment. High goal conflict or overall relationship conflict also predicted lower scores in perceived responsiveness. Unsurprisingly, these findings showed that when actors perceived their relationship quality as high overall, they were also more likely to perceive their partner as supportive. This finding provides support for close relationship theories (e.g., attachment, thriving through relationships, interdependence theory, self-determination theory) suggesting that better relationship functioning predicts higher levels of perceived support (B. C. Feeney & Collins, 2015b; Kelley & Thibaut, 1978; Mikulincer & Shaver, 2009; Rusbult & Van Lange, 2003; R. M. Ryan & Deci, 2000). However, while self-expansion

theory (Aron et al., 1991; Aron & Fraley, 1999) suggests that the blending of identity between partners enables greater shared intimacy leading partners to share resources and to be more supportive toward one another, inclusion of other in the self was not an important predictor of perceived support. This suggests that a good quality relationship does not necessarily need to involve inclusion of other in the self in order for partners to perceive each other as supportive.

In addition to the relational variables, we also included a number of individual difference variables in the models to test whether any of these variables were important in predicting perception of support. Actors' attachment avoidance was the only consistent individual predictor of partner support: highly avoidant people perceived their partners as less responsive and affirming. This finding is theoretically consistent given that individuals high in attachment avoidance are theorized to have a negative model of others and do not trust others' capacity to be there when needed (Kim Bartholomew, 1990). Previous research has also found avoidance to be associated with perceiving partners as less supportive (Collins & Feeney, 2004; Florian et al., 1995; Martin et al., 2010). Our findings go beyond this research to show that attachment avoidance is an important predictor of support even after including a large number of individual and relational predictors in the model.

Attachment anxiety, however, was not among the top-10 predictors of support. Attachment theory suggests that attachment-anxious individuals see themselves as unworthy of love but others as generally good (Kim Bartholomew, 1990). It is theoretically less clear whether anxious individuals would perceive their partners as less supportive. Some studies have reported that anxious individuals perceive their partners as less supportive (Collins & Feeney, 2004; Martin et al., 2010). The present study was the first to examine this association in a large dyadic sample from multiple labs using more advanced

methods. Our findings suggest that while attachment anxiety may predict some variance in support, perception of partner support may be more influenced by other factors.

In addition to attachment avoidance, physical and psychological well-being were also important predictors of perceived partner support. We found that participants who reported poorer physical health experienced their partner as less responsive to their needs and less affirming, whereas those who reported poorer psychological well-being experienced their partners as less affirming. Indeed, the Michelangelo phenomenon (Drigotas et al., 1999; Rusbult, Finkel, et al., 2009) suggests, and has been supported by research (Drigotas, 2002), that affirmation predicts higher psychological well-being. It is may also be that individuals with poorer health require more support from their partners making it more difficult for partners to meet each other's needs or that partners in better relationships experience greater physical health (Stanton & Campbell, 2014). Furthermore, promotion orientation (Higgins, 1998) was only included in one of the models but also predicted perceiving partner as more supportive, which is in line with previous research (Righetti et al., 2010). The majority of other individual difference variables were less important indicating that individual differences are less important for perceiving partner as supportive compared to overall perceived relationship quality.

We also examined whether perceived partner support was predictive of self-efficacy when compared with a number of other predictors. Overall, while the effect size was large (J. Cohen, 1988), we were able to predict less variance in self-efficacy (24-30% of variance) compared to perceived partner support. Affirmation was among the top predictors for self-efficacy: perceiving partner as highly affirming predicted higher levels of self-efficacy. Responsiveness also positively predicted self-efficacy but its impact was small compared to other predictors. This may be because affirmation is more directly related to pursuit of long-term, ideal self-related goals (Rusbult, Finkel, et al., 2009)

whereas perceived partner responsiveness is more about perceiving partner as understanding and validating of one's overall self (Reis et al., 2004) rather than about goals specifically.

In addition to showing that perceived support predicted self-efficacy, we also examined whether there were any individual or relational variables that moderated this association but found no important moderators. There are no studies to date that have examined potential moderators of the association between support and self-efficacy. However, several studies have suggested this is an important avenue for future research (B. C. Feeney et al., 2017; Tomlinson et al., 2016). Given moderator effects require large sample sizes and random forests can estimate complex interactions (Breiman, 2001b), our study was ideal in being able to examine whether there are any potential moderators. Our findings suggest that potential moderators explain negligible variance in self-efficacy beyond main effects and therefore researchers' efforts may be better spent in examining main rather than moderator effects.

Individual variables (59-74%) were overall more predictive of self-efficacy than relational variables (13-18%) with actor variables explaining the majority of the variance. The most predictive variables for high self-efficacy were high self-control, self-esteem, life satisfaction, and promotion orientation. Attachment styles were not among the most important predictors. Interestingly, partner's attachment avoidance, however, was negatively associated with self-efficacy suggesting that individuals with more avoidant partners were less committed to long-term goals. Individuals who had been in their relationship for longer and were more committed in their relationship also reported higher levels of self-efficacy. This may be because individuals who are more confident in their ability to pursue their long-term goals are also more committed in their relationship. After all, maintaining a relationship can also be a form of a long-term goal. More committed

relationships are also likely to be more secure (Arriaga et al., 2014) leaving space for

pursuing long-term goals rather than having to worry about the state of the relationship.

3.5.1   Implications for Research and Theory Development

The present study had several important implications for research. Over-reliance

and misuse of traditional statistical methods have resulted in the replicability crisis in

psychology and the social sciences (Gigerenzer, 2018; Rose & van der Laan, 2018;

Yarkoni & Westfall, 2017). The use of traditional statistical methods and a sole focus on

explainability have resulted in a field which is unable to predict outcomes with any

appreciable accuracy, especially over time (Joel et al., 2017, 2020; Yarkoni & Westfall,

2017). Furthermore, an over-reliance on linear models has meant that any potential non-

linear relationships and complex interactions may have gone unnoticed. In the present

study, many variables showed some non-linearity: for example, high relationship

satisfaction predicted little increase in support whereas low relationship satisfaction

predicted a large reduction in support. Therefore, in order to move the field forward, more

advanced and reliable ways of analyzing data are needed. In the present study, we showed

how Shapley values (Lundberg et al., 2019) can be used to explain the results from random

forest analyses (Breiman, 2001b). The use of cross-validation in machine learning also

increases the likelihood of the model generalizability beyond a single sample making the

findings more replicable. Using such techniques can greatly improve the research practices

and provide insights and understanding in relationship science as well as in the social

sciences as a whole.

Furthermore, we showed that actors' own variables are the most important

predictors of outcomes with partner effects explaining no additional variance, in line with

other machine learning studies that investigate close relationship processes (e.g., Joel et al.,

2020). Given that collecting dyadic data can be very expensive and time consuming, collecting data from both members of the dyad, especially when partners are relatively satisfied, may not be necessary unless the researchers are specifically interested in agreement between partners' perceptions, are collecting observational data of couples communicating with one another, or are interested in specific partner-variables such as attachment.

The present research also showed that perceiving partner as supportive is more related to perceiving the overall relationship in a positive light rather than about any individual differences. In line with many relationship theories (B. C. Feeney & Collins, 2015b; Kelley & Thibaut, 1978; Mikulincer & Shaver, 2009; Rusbult & Van Lange, 2003; R. M. Ryan & Deci, 2000), happier relationships are likely to be better across different domains such as satisfaction, trust, commitment, and support. The research showed that when examining other relationship-related variables, it is important to consider the overall relationship with any individual predictors likely to add comparatively little to our understanding of relationship quality, at least in relatively happy couples, such as those in our sample. In order to develop effective interventions and policies, understanding the factors that are the most likely to induce change can help researchers, practitioners, and policy-makers to make better decisions as to which elements of relationships to focus on, making this type of research of particular significance.

3.5.2   Strengths, Limitations, and Future Directions

The present study provides the most comprehensive examination of predictors associated with perceived partner support and self-efficacy to date. The study has a number of strengths including the use of explainable machine learning (random forests with Shapley Values) which enabled us to circumvent some of the issues with traditional

analyses and thus providing a more reliable estimation of the effect sizes. The use of machine learning enabled us to, in part, validate existing findings with more reliable methods and to also significantly extend the current literature by comparing a large number of theoretically relevant predictors. We also used cross-validation in which the model performance is tested on unseen data to avoid overfitting. This means that the results are more likely to generalize in other samples because this has already been tested. We also used data from five samples that have been collected by different researchers and across time. We also estimated both actor and partner effects and showed that partner effects add little value to the prediction of partner support and self-efficacy.

There are, however, several limitations that limit the generalizability of the findings. While the sample was comprised of a large number of couples, the couples were almost all relatively satisfied, mixed-sex, primarily white, middle class, and from North America. Because the follow-up periods for the studies included in the present analysis varied, we were only able to look at the variables cross-sectionally. Furthermore, while we estimated the models using a large number of predictors that have been shown to be associated with support in previous research and are consistent with existing theories, we were unable to account for all variables that may be associated with support and self-efficacy (e.g., personality, the dark triad) due to lack of availability of some measures in the pre-existing datasets. Therefore, there may be other variables that are equally important and could help improve the predictive ability of the models. It is possible that the some of the results are due to positive valence of different variables. However, the results showed that some positive variables were more predictive of support and self-efficacy than others suggesting that the results cannot be explained solely by positive valence. Finally, while the random forest used in this study is a powerful tool that will take advantage of any correlations and interactions in the data, no matter how non-linear, it cannot be interpreted

causally and therefore the associations can be due to reverse causality or some unmeasured third variable as in any correlational research.

The present study highlighted a number of important areas for future research. Because we were only able to estimate the models in a cross-sectional sample, future research is needed to examine the predictive power of these variables long-term. In fact, previous research has shown that psychological constructs are much less predictive of outcomes longitudinally than cross-sectionally (Joel et al., 2020). Furthermore, because the samples were collected primarily in an individualistic, Western context, future research should examine these predictors in more collectivist cultures given their emphasis on the group rather than the self. It may be, for example, that self-efficacy is less important in these cultures and thus support toward self-efficacy less relevant. We were also able to account for only between a quarter and third of the variance in self-efficacy. Therefore, future research is needed to better understand factors that predict self-efficacy. Finally, because previous research as well as the present sample consisted of primarily satisfied couples, future research is needed to understand whether partner effects would have more of an impact in distressed relationships.

3.5.3   Conclusion

In conclusion, the present study provided the most robust evidence to date of which variables are the most likely to contribute to perception of support and self-efficacy by using state-of-the-art explainable machine learning. Given research has shown that most variables correlate with one another in behavioral research (Orben & Lakens, 2020), it is especially important to compare variables against each other to understand which variables actually predict the most variance in the outcome of interest. The results of the present study showed that an optimal environment for growth is a relationship characterized by

support, satisfaction, commitment, trust, and empathy with individual differences

contributing relatively little to the relationship environment. One's own individual

variables did predict whether an individual is confident in their own abilities to thrive in

addition the feeling supported by their partner. The findings provide important insights into

which variables are likely to be the most important to focus on in future research and when

developing interventions, or at least which ones to control for.

3.6 Tables

Table 1

The Overall Prediction Results for Each Outcome Variable for Individual and Relational

Variables and Models with Actor Effects Only and with Actor and Partner Effects

Outcome	% Variance M (SE)	MSE M (SE)	R^2 M (SE)	Individual $\%_a$ / $\%_p$	Relational $\%_a$ / $\%_p$
Responsiveness					
Model 1	50.4 (0.03)	0.48 (0.03)	.50 (0.03)	42.9	57.1
+ Partner	50.1 (0.02)	0.48 (0.03)	.50 (0.02)	32.3 / 13.4	51.1 / 3.2
Model 2*	55.3 (0.02)	0.47 (0.04)	.54 (0.02)	35.7	64.3
+ Partner*	54.8 (0.02)	0.48 (0.03)	.54 (0.02)	26.6 / 11.9	57.4 / 4.0
Model 3	48.2 (0.03)	0.38 (0.03)	.47 (0.03)	30.8	69.2
+ Partner	48.1 (0.02)	0.35 (0.03)	.47 (0.03)	22.9 / 11.6	60.0 / 5.5
Affirmation					
Model 1*	34.5 (0.04)	1.16 (0.06)	.34 (0.05)	48.2	51.8
+ Partner*	35.4 (0.05)	1.13 (0.07)	.36 (0.04)	31.3 / 22.3	40.8 / 4.9
Self-Efficacy					
Model 1	23.6 (0.03)	2.14 (0.10)	.22 (0.03)	73.6	26.4
+ Partner	25.5 (0.02)	2.09 (0.10)	.24 (0.02)	58.6 / 18.8	17.9 / 4.7
Model 2	24.4 (0.03)	2.04 (0.10)	.24 (0.03)	73.0	27.0
+ Partner	26.0 (0.04)	1.99 (0.09)	.25 (0.04)	59.9 / 16.9	16.2 / 7.8
Model 3	28.8 (0.03)	1.97 (0.12)	.28 (0.03)	72.4	27.6
+ Partner	30.1 (0.02)	1.94 (0.12)	.29 (0.02)	58.5 / 17.5	16.0 / 8.0
Model 4*	27.2 (0.04)	2.19 (0.13)	.26 (0.03)	77.0	23.0
+ Partner*	27.8 (0.03)	2.18 (0.14)	.26 (0.03)	61.0 / 19.3	12.9 / 6.8

Note. $\%_a$ refers to the percentage of variance explained by actor variables, $\%_p$ refers to the percentage of variance explained by partner variables. The first model for each outcome variable included as many samples as possible and subsequent models included as many variables as possible. The full list of excluded variables and samples can be found on the OSF project page.
* Results presented in figures.

3.7 Figures

Figure 1

The Top-10 Most Important Predictors for Responsiveness for Models with Actor

Effects and Actor and Partner Effects
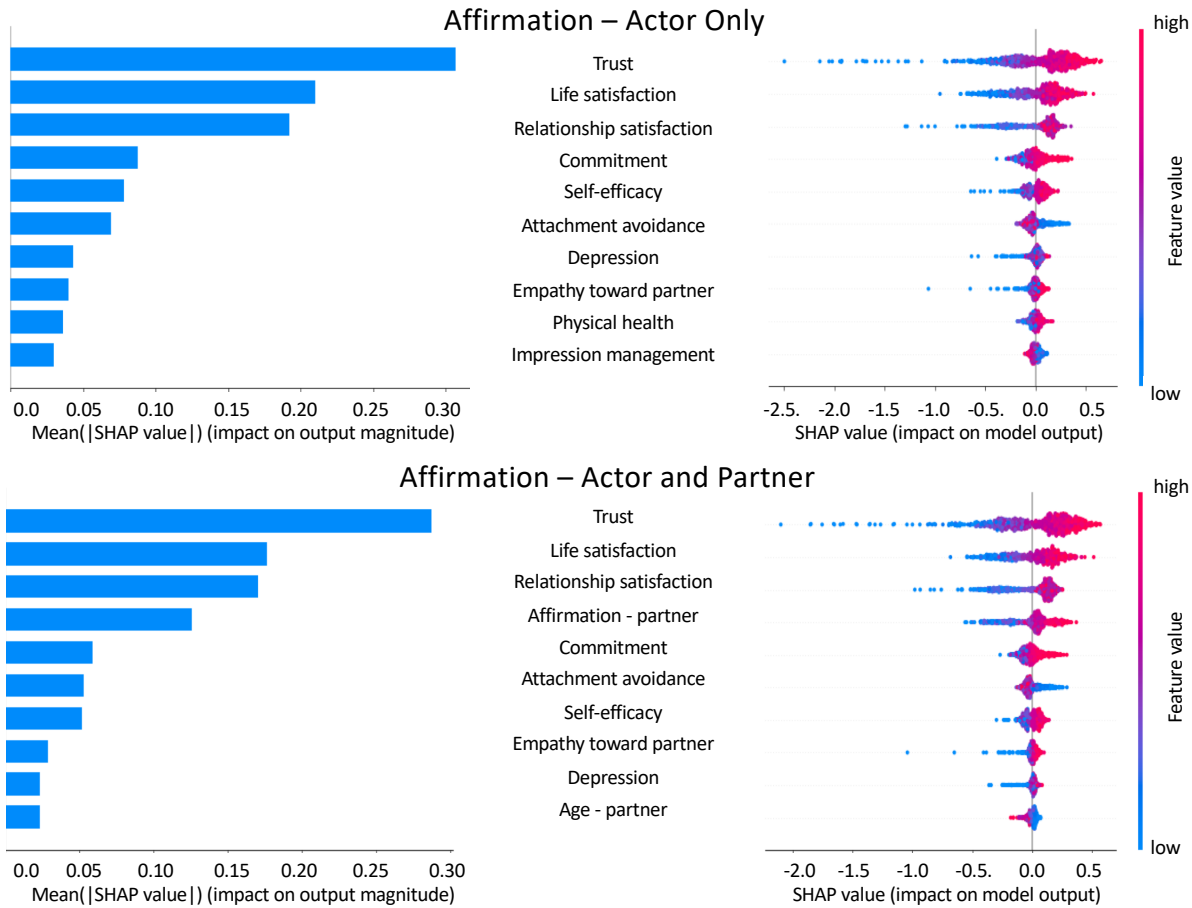
Note. The figure presents the results from the most predictive model.

Figure 2

The Top-10 Most Important Predictors for Affirmation for Models with Actor Effects

and Actor and Partner Effects
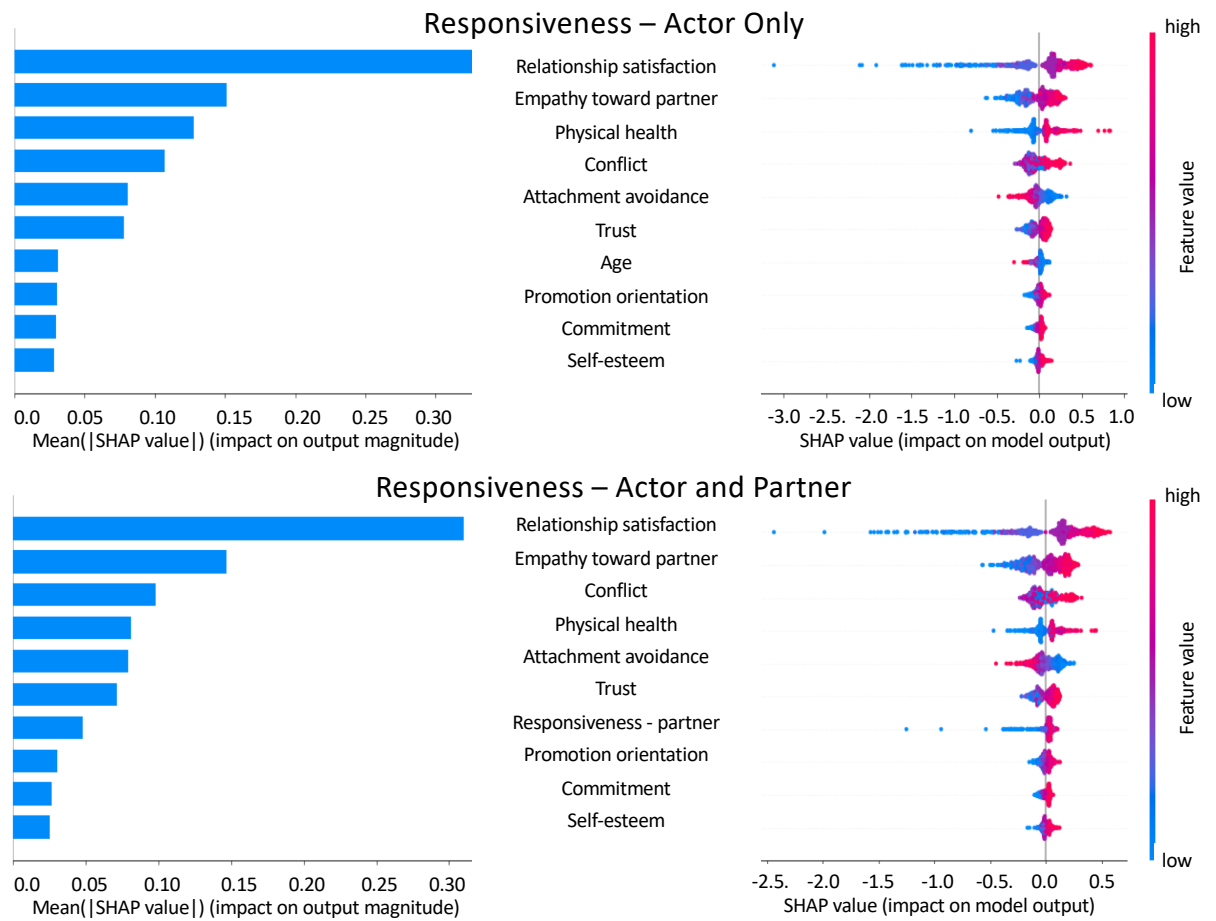
Figure 3

The Top-10 Most Important Predictors for Self-Efficacy for Models with Actor

Effects and Actor and Partner Effects
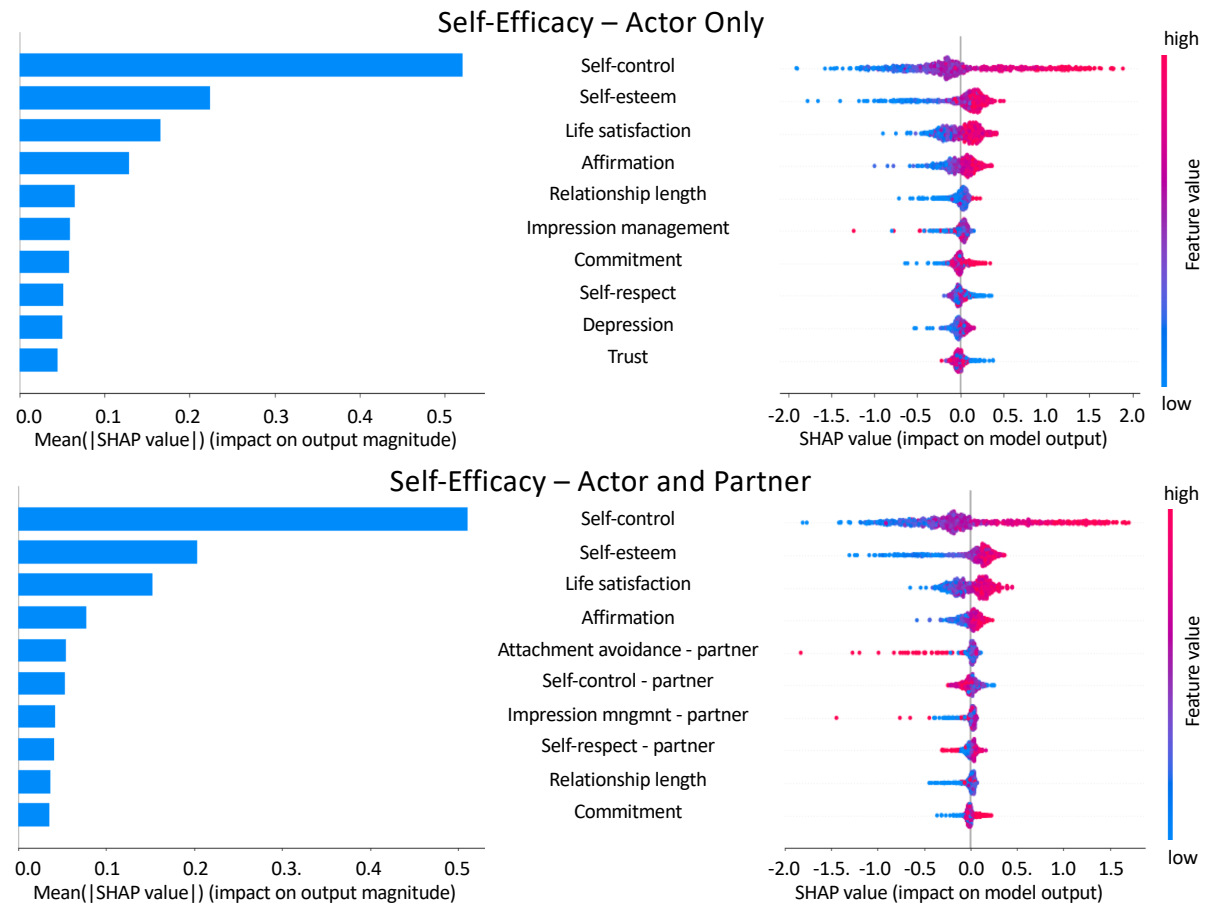
Note. The figure presents the results from the model with affirmation as a predictor. Responsiveness was not in the top-10 predictors in the models and therefore was not included in the figures.

Chapter 4   **Manuscript 3: When Goals Conflict: The Impact of Goal Conflict on Relational Catalyst Support**

4.1   Abstract

Close relationship partners are often instrumental in providing support for their partner to make progress toward life's opportunities. However, when one partner's goals conflict with the needs of the other partner or the relationship, it can have negative consequences for the partners. In the present study, we examined whether goal conflict was associated with providing and seeking relational catalyst (RC; i.e., support for growth opportunities) support, perception of RC support, and goal outcomes. We also examined whether individual differences in attachment styles moderated these associations. We examined these questions across three studies: two experimental ($N_1 = 296, N_2 = 117$) and one dyadic daily diary study ($N_3 = 267$). The results across studies showed converging evidence that goal conflict is detrimental to goal pursuit, with partners less likely to seek and provide RC support, perceive their partners as supportive, and feel less committed and make less progress toward their goals when goal conflict is present. Attachment styles, however, did not moderate the effects of goal conflict. The results highlight the importance of understanding and managing goal conflict in relationships.

Keywords: Close Relationships; Partner Support; Attachment Theory; Goal Conflict

4.2   Introduction

Close relationship partners are often instrumental in providing support for their partners to pursue life's opportunities and to thrive (Cappuzzello & Gere, 2018; B. C. Feeney & Collins, 2015b; Orehek, Forest, & Barbaro, 2018b; Overall et al., 2010). Especially in romantic relationships, individuals spend a great deal of time together and become increasingly interdependent over time and influence each other's behavior (Rusbult & Van Lange, 2003). Partners can also pool resources and potentially achieve more than each partner could alone (Fitzsimons et al., 2015, 2016; Fitzsimons & Finkel, 2018). In fact, previous research has shown that individuals make more progress toward their goals when they have supportive partners and experience increased individual and relational well-being as a result of the support (Brunstein et al., 1996; Drigotas et al., 1999; B. C. Feeney, 2004; Tomlinson et al., 2016).

While it is well established in the literature that partner support is associated with thriving outcomes, less is known about the conditions that promote or hinder support provision and foster thriving. The aim of this research was to address this gap in the literature by investigating whether higher goal conflict in relationships predicts partners withholding support or foregoing opportunities. We also sought to add to the literature by examining whether some individuals are more threatened by goal conflict than others. Specifically, we examined whether individual differences in attachment styles, known to predict responses to threat (Mikulincer & Shaver, 2003), moderated the association between goal conflict and support processes (providing and seeking support, perception of support, and commitment/movement toward goals). To provide converging evidence, we examined these questions across three studies: two studies were experimental in order to understand the causal processes and one study used data from a dyadic daily diary study in

order to understand how goal conflict was associated with support and goal progress on a day-to-day basis.

4.2.1   Thriving Through Relationships

A recent theoretical model describes the interpersonal process of thriving through relationships in which both support providers and seekers can play a role in creating an optimal environment for exploration and pursuit of life's opportunities (B. C. Feeney & Collins, 2015b). The authors describe two main types of social support. Source of strength (SOS) support extends attachment theory's (Bowlby, 1969) notion of a *safe haven* to which individuals can turn to in times of distress. Relational catalyst (RC) support, in turn, extends attachment theory's notion of a *secure base* from which partners can explore the environment and pursue life's opportunities in the absence of adversity (B. C. Feeney & Collins, 2015b). Due to the relative dearth in the literature on support in the absence of adversity, the current research focuses on RC support specifically.

Providing RC support involves being an active catalyst during the process of achieving goals and includes four components: (a) nurturing opportunities for growth by providing validation, encouragement, and showing enthusiasm toward new opportunities; (b) providing perceptual assistance in perceiving and recognizing opportunities as positive challenges rather than threats, (c) providing practical guidance in the preparation of the pursuit of life's opportunities, and (d) serving as a launching function to help a partner fully engage in opportunities by providing a secure base for exploration, assisting in dealing with adjustments or setbacks, and celebrating successes (B. C. Feeney & Collins, 2015b).

Feeney and Collins (2015) describe the interpersonal process of thriving that goes through various stages (see Figure 1 for a graphical illustration of the model). This process

is set in motion when a recipient gets a life opportunity, which may motivate the recipient to seek support from their partner. If their partner is emotionally available and responsive, the partner is likely to then provide RC support toward the recipient's opportunity. If the partner is able to provide effective RC support, the recipient is likely to perceive the partner as responsive, which can in turn lead to immediate as well as long-term thriving outcomes. To date, only a small number of studies have been conducted that have tested parts of this framework (Feeney et al., 2017; Tomlinson et al., 2016; Vowels et al., 2020; Vowels & Carnelley, 2021) and more research is needed to understand factors that may be associated with the model components. We here provide a novel contribution to this research by addressing how goal conflict might influence the different stages of the RC support and whether individual differences in attachment styles moderate the relationship between goal conflict and the stages of RC support.

4.2.2   Goal Conflict in Romantic Relationships

While close relationship partners can help each other pursue life's opportunities, each partners' goals are likely at times to conflict with the interests of the other partner or the relationship. Repeated exposure to goal conflict is likely to be harmful for relationships because it continuously tests partners' commitment toward each other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). Indeed, goal conflict has been associated with lower relationship quality and personal well-being (Gere et al., 2011; Gere & Impett, 2018; Gere & Schimmack, 2013; Righetti et al., 2016). Recent research has shown that goal conflict is negatively associated with different stages of the RC support process: openness to receiving support from a partner (Righetti et al., 2014), perceived partner support (Vowels & Carnelley, 2021), and providing support toward a partner's goals (B. C. Feeney et al., 2013, 2017; Hui et al., 2014).

Goal conflict has also been associated with negative thriving outcomes. A high level of goal conflict in a relationship makes it more difficult to coordinate goal pursuit and individuals are less likely to make progress toward goals that are problematic for the relationship (Gere et al., 2011; Gere & Schimmack, 2013; Vowels et al., 2020). Recent studies showed that individuals were more likely to stop pursuing or devalue a goal (Gere & Impett, 2018) and reported less commitment and motivation toward a goal (Vowels et al., 2020) if it conflicted with their partner's goals. Over time, devaluing goals that were conflicting predicted greater commitment toward the relationship partner (Gere & Impett, 2018). Therefore, we expect that when goals conflict with the partner's or relationship's interests, all stages of the RC support process will be negatively impacted.

While previous research suggests that goal conflict is detrimental to relationships, it is not possible to avoid goal conflict completely, and some level of sacrifice may be necessary to maintain relationships. Willingness to sacrifice in a relationship has been associated with better relational outcomes (Day & Impett, 2018; Impett et al., 2013; Kogan et al., 2010; Van Lange et al., 1997). However, if only one partner keeps sacrificing, this can have negative consequences for the relationship. (Van Lange et al., 1997). Therefore, some form of reciprocity is likely needed in relationships to maintain relational well-being. Indeed, research has shown that when partners provide equal support both partners experience higher individual and relational well-being (Bar-Kalifa et al., 2017; Gleason et al., 2003). However, we are aware of no studies that have examined whether sacrifice or reciprocity affects support or goal outcomes. In the present study we seek to add to this literature but experimentally manipulating sacrifice and reciprocity in two experimental studies to examine whether they affect support or taking on life's opportunities.

4.2.3   Attachment Styles and Goal Conflict

Feeney and Collins (2015) suggested that individual differences in attachment styles are likely to influence RC support and we expect them to also predict response to goal conflict. Attachment styles are mental models or representations that are based on prior experiences in close relationships that act as templates for future interactions with others. Individuals high in attachment anxiety are over-reliant on relationships and habitually seek support and reassurance from their partners (Mikulincer & Shaver, 2012) and lack confidence in pursuing opportunities unrelated to fulfilling their attachment needs (Otway & Carnelley, 2013). We expect that because anxious individuals are especially worried about maintaining closeness in relationships (Mikulincer & Shaver, 2012), they would experience goal conflict as a threat to the relationship.

Previous research has shown that anxious individuals, compared to secure individuals (i.e., individuals who feel they are valuable and worthy of love and support and trust other's capacity to provide for their needs), report being poorer at caregiving (Carnelley et al., 1996; Julal & Carnelley, 2012; Reizer et al., 2012). They are also more likely to withhold support from their partner because of their fear of the goal taking the partner away from the relationship or for fear of their partner changing (B. C. Feeney et al., 2013). While Feeney et al.'s study was not specific to goal conflict, we would expect goal conflict to pose a particular threat to anxious individuals. Anxious individuals are also likely to forego opportunities for goal pursuit for fear that these may interfere with attachment needs (Mikulincer & Shaver, 2007). Therefore, we expect that anxious individuals are likely to sacrifice their own goals for the sake of the relationship but to withhold support when they perceive their partner's goals as a threat to the relationship.

In contrast, individuals high in attachment avoidance learn to distrust other's capacity to be supportive and instead become overly self-reliant and defensive (Kim

Bartholomew, 1990). As support providers, avoidant individuals have been shown to be less sensitive to their partner's needs and less available for support (B. C. Feeney & Thrush, 2010; Mikulincer & Shaver, 2009; Schachner et al., 2005). They are less concerned about the goals taking their partner away from the relationship and more concerned about partners being too dependent (B. C. Feeney et al., 2013). Goal conflict may arise if an avoidant individual's partner wishes more support from them. Therefore, we expect avoidant individuals to be less supportive compared to their secure counterparts regardless of whether the goals conflict or not. Similarly, we expect avoidant individuals to be less concerned about their own goals conflicting with the needs of the relationship and be more likely to pursue goals despite them being problematic compared to more secure individuals.

4.2.4   The Current Research

The present research aimed to add to the literature in several important ways. First, we used a novel experimental paradigm to manipulate goal conflict, reciprocity, and sacrifice to determine whether these variables are causally linked to providing support or taking on opportunities (novel) in a hypothetical scenario of another couple (Study 1) and in a hypothetical scenario of participants' own relationship (Study 2). Second, we aimed to replicate previous findings showing that higher naturally occurring goal conflict predicts less perceived (recipients' perspective) and provided (partners' perspective) support as well as lower goal outcomes in a daily diary study (Study 3). Third, we also extended the current literature by addressing whether individual differences in attachment styles moderated the relationship between goal conflict and the support processes (novel). All data, materials, and code for each study can be found on the OSF project page: https://osf.io/nt3pv/?view_only=9889e90dad0445728cb3c2d5ec0c28a0.

4.3   Study 1

We used multiple-segment factorial vignettes (MSFVs; Ganong & Coleman, 2006) to identify contextual and individual characteristics that may influence participants' views toward engagement in life's opportunities and partner support. MSFVs are an ideal way of measuring people's attitudes by using multiple segments of vignettes in which aspects of the vignette are manipulated to experimentally address whether contextual factors alter people's attitudes (Ganong & Coleman, 2006). To our knowledge, this type of paradigm has not been used in previous studies examining support processes.

Study 1 aimed to add to the current literature in several important ways. First, we examined people's views toward support and engagement in life's opportunities, which has received little attention in the literature. Second, we experimentally manipulated the conditions of the vignettes to find out whether the contextual factors made a difference in people's attitudes toward support and goal pursuit. Third, we investigated whether attachment anxiety and avoidance predicted people's attitudes toward support and life's opportunities. Specifically, Study 1 aimed to address the following novel hypotheses in a hypothetical scenario:

1. Participants will be more likely to say that the partner should be supportive when there is low goal conflict. (goal conflict hypothesis)

2. Participants will be more likely to say that the recipient should be supportive when the partner has been supportive in the past. (reciprocity hypothesis)

3. Participants will be more likely to say that the recipient should be supportive of the partner's opportunity when the recipient took a difficult opportunity and the partner sacrificed in the past (sacrifice hypothesis).

4. Individuals high in attachment anxiety (versus low) will be less likely to say that the recipient should take on the opportunity (direct effect), especially when there is goal conflict (moderation).

5. Individuals high in attachment anxiety (versus low) will be less likely to say that the partner should provide support toward the recipient's opportunity (direct effect), especially when there is goal conflict (moderation).

6. Individuals high in attachment avoidance (versus low) will be more likely to say that the recipient should pursue their goals regardless of goal conflict (only significant direct effect).

7. Individuals high (versus low) in avoidance will be less likely to indicate that the couple in the vignette should provide support toward each other's opportunities (direct effect).

4.3.1 Method

All hypotheses and planned analyses were preregistered on the OSF framework: https://osf.io/q9f4b/?view_only=5a96028e16884d13bd835c5eefb072f0.[3]

4.3.1.1 Participants

A total of 362 participants had started the survey with 296 who completed at least the first segment and were included in the analyses[4]. The participants were 21.85 years on

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[3] Only a very small minority of participants responded *"no"* to questions on whether the partner should provide support toward the target's opportunity and whether the target should take on the opportunity (0-2.6%). Participants only said *"no"* if the goal was problematic for the partner. However, due to such a small minority, we were unable to conduct any of the preregistered logistic regression analyses.

[4] Based on a power analysis conducted in G*Power, we needed 350 participants to detect a small effect (OR = 1.68, equivalent to Cohen's d = 0.2; Chen, Cohen, & Chen, 2010) in the logistic regression analyses with 90% power and α = 0.006. We aimed to collect data from up to 400 participants to account for some participants not finishing the study, potentially needing to remove outliers, and the computer not allocating equal number of participants in each condition (because of randomization in Qualtrics). With 400 participants, we would have had 90% power to detect an effect size of 0.08 for multiple regression at α = 0.006, which is between a small and medium size effect (J. Cohen, 1992). However, we discovered during

average (*SD* = 5.66). The majority of the participants were single (*n* = 129) or in a

relationship (*n* = 103; with average relationship length 1.59 years, *SD* = 3.63), white (*n* =

217), and heterosexual (*n* = 259).

4.3.1.2   Procedure

We recruited university students from a UK university who received course credit

for participation. Participants had to be at least 18 years old and recruited through the

university's course credit scheme, via online advertisements (Facebook, Twitter, blogs,

listservs), and via flyers on campus. Potential participants were provided with a link to a

Qualtrics survey in which they were asked to report on demographic characteristics and

attachment orientation.

Global attachment orientation was assessed using the Experience in Close

Relationships scale (ECR; Brennan et al., 1998), which is a 36-item Likert-type measure

consisting of two subscales of 18 items each: one for anxiety (e.g., *"I worry a lot about my*

relationships", α = .93) and one for avoidance (e.g., *"I don't feel comfortable opening up*

to others", α = .93). Participants rated their agreement with items on a scale from 0

(*Strongly Disagree)* to 8 (*Strongly Agree*)[5].

Participants were then asked to answer a vignette of a hypothetical couple in three

segments in which three contextual factors were manipulated (goal conflict, reciprocity,

and sacrifice; see Figure 2 for an illustration of the manipulation). In Segment 1, one of the

partners got an opportunity to pursue an internship. In Segment 2, participants were given

further information in which they were either told that the internship would be close (low

goal conflict) or far away (high goal conflict). In Segment 3, participants were either told

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the data collection stage that almost every participant responded *"yes"* to the binary questions. Therefore, to conserve time and resources, we decided to end data collection early.

[5] The original rating scale has been changed from 1-7 in line with several other published studies (Arriaga et al., 2014) and Study 3 to increase variance in the data.

that the recipient takes the opportunity or does not take the opportunity. They were then told that now the second partner gets an opportunity, which is either close (low goal conflict) or farther away (high goal conflict) to address whether participants were more likely to say that support should be reciprocated and whether the goal being problematic makes a difference (see OSF project page for the vignettes). After each segment, participants were asked questions about whether they believed one partner should be supportive (*yes* or *no*), how supportive they should be (on a scale from 0 "*Not at all*" to 100 "*Completely*"), and whether the recipient should take the opportunity (*yes* or *no*). Additionally, participants were asked to provide their reasoning for their answers to each.

4.3.1.3   Data Analysis

The results were analyzed in *R* using multiple regression to assess whether the amount of support was influenced by the experimental manipulation. We used a *p*-value of .025 (.05 / 2) to account for multiple testing.

4.3.2   Results

The full results can be found in Table S1 in Appendix A and are shown with and without covariates and with and without interaction effects. First, we examined whether higher goal conflict was associated with participants' stating the partner should provide less support (H1; goal conflict hypothesis). The results provided support for the hypothesis and showed that when goal conflict was high, participants indicated that the partner should be 10.2% ($B = -10.20$ ($SD = 1.65$), $p < .001$) and 5.7% ($B = -5.69$ ($SD = 1.92$), $p = .003$) less supportive after Segments 2 and 3, respectively. This result was significant in the model with and without covariates but when the interaction of attachment anxiety and avoidance with goal conflict were included this association was no longer significant.

Second, we examined whether participants' attitudes toward support changed as a result of the recipient either taking or not taking the opportunity in Segment 2 (H2: reciprocity hypothesis). Participants indicated that the partner should be 5.6% (B = -5.59 (SD = 1.94), p = .004) more supportive toward their partner's opportunity when the recipient had taken on the opportunity compared to when the recipient did not take the opportunity. This result was statistically significant in the first two models but also became non-significant as interactions were included in the model. The results did not provide support for H3 which stated that the recipient should be supportive of the partner's opportunity when the recipient took an opportunity which conflicted with their partner's goals and the partner had sacrificed in the past. As expected, the results did not show any evidence of attachment avoidance moderating the participants' responses (H6-H7). However, attachment anxiety was also not a significant moderator (H4-H5).

4.3.3 Discussion

Our results provided support for Hypotheses 1 and 2 suggesting that when goal conflict is high, participants report that partners should be less supportive on average compared to when goal conflict is low. The study also showed that participants believed that partners should reciprocate support when one partner had been supportive in the past[6]. However, the results showed no evidence for a direct or interaction effect of attachment

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[6] We ended data collection early because most participants endorsed *"yes"* to questions regarding whether or not partners should be supportive or take on an opportunity and did not have as many participants as we had anticipated. Furthermore, because most participants rated very highly how supportive they thought partners should be toward an opportunity, the variances between groups were unequal. The high goal conflict group had a much higher variability in scores compared to the low goal conflict group.

anxiety or avoidance. It is possible that this was because participants were presented with a hypothetical couple which may not have been perceived as a threat. Therefore, we designed Study 2 to test this possibility.

4.4   Study 2

Study 2 aimed to improve the methodology from Study 2 in a number of ways. Participants in romantic relationships responded to questions about their own relationship rather than a hypothetical couple. We also examined whether who got the opportunity first (participant or their partner) and whether thinking about potential reasons for the participants' responses prior to responding to the questions influenced participants' responses. The reasons were evaluated using qualitative methods. The same hypotheses as in Study 1 were tested in Study 2. However, we varied goal conflict on three levels expecting that the more difficult a goal would be, the less supportive and less likely partners would say the recipient should take an opportunity. Because we did not find evidence for Hypothesis 3 (sacrifice) in Study 1 and we did not have sufficient power in Study 2, we did not test the hypothesis[7]. We also tested two other hypotheses that we were unable to test in Study 1:

8. Participants will be more likely to say that the partner should take the opportunity when goal conflict is high. (goal conflict hypothesis)

9. Participants will be more likely to say that the partner should take the opportunity when the recipient took the opportunity in the past. (reciprocity hypothesis)

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[7] We did not preregister Study 2 separately as it followed the same protocol as Study 1 apart from the changes reported in the Method section.

4.4.1   Method

4.4.1.1   Participants

To be eligible for the study, participants had to be at least 18 years of age and currently in a relationship of at least six months duration. A total of 162 participants created a login for the study. Of those, 117 completed the study and were used in the analyses. Participants were 19.7 years on average ($SD = 1.64$). The majority were in a committed relationship ($n = 97$) with a minority dating ($n = 16$) or cohabiting ($n = 4$). They had been in a relationship for an average of 1.83 years ($SD = 1.22$) and were primarily white ($n = 98$) and heterosexual ($n = 104$).

4.4.1.2   Procedure

We recruited university students from a UK university who received course credit for participation. Potential participants were provided with a link to a Qualtrics survey in which they were asked to complete the same demographic questions and attachment questionnaire as in Study 1 ($\alpha = .94$ for avoidance, $\alpha = .93$ for anxiety). The participants also completed a 16-item *Balanced Inventory of Desirable Responding – Short form* (BIDR-16; Hart et al., 2015; $\alpha = .78$). Participants were then asked to complete a vignette similar to the Study 1 but this time the vignette was about their own relationship five years into the future and goal conflict was divided into low, medium, and high. Half the participants were randomly assigned to a group in which they first got an opportunity followed by their partner getting an opportunity and the other half were assigned to a group in which their partner got an opportunity first followed by them getting an opportunity. Participants were randomly allocated into conditions in which they were asked to provide their reasoning for their answers to each question either before or after completing the rating.

4.4.1.3 Data Analysis

Because of the small sample size and unequal variances across groups, we analyzed the results in *R* using robust one-way ANOVA from the *userfriendlyscience* package (G.-J. Y. Peters, 2017). We conducted Games-Howell post-hoc tests for significant main effects to account for heterogeneity in the variances across groups. First, we tested for any effect of rating order for each support and opportunity outcome variable for each segment (six analyses). Second, we tested for any effect of who got the opportunity (self vs. partner) on the outcome variables across all segments (six analyses). Third, we tested for the effect of goal conflict in Segments 2 and 3 for support and taking on opportunity (four analyses). Fourth, we tested for the effect of sacrifice (i.e., whether one partner had taken an opportunity in the past) on support and opportunity in Segment 3 (two analyses). Finally, we ran multiple regression analyses similar to Study 1 for anxiety and avoidance separately for participants who responded about their own opportunity and participants who responded about their partner's opportunity first (12 analyses in total). In order to control for multiple analyses, we used a Bonferroni corrected p-value of .002 (.05 / 30) to test for statistical significance.

We also asked participants open-ended questions about their reasons for their responses. Open-ended questions were analyzed using content analysis (Hsich & Shannon, 2005) to identify reasons for participants' decisions. We used inductive coding with two coders reading through the codes independently and creating a draft codebook. This codebook was then discussed together with the first author and the coders went back and recoded their responses based on the final codebook. Cohen's Kappa ranged between .82 and 1.00 for the responses. Any discrepancies were resolved by the first author. Some of the participants gave multiple reasons and thus the number of reasons was greater than the number of participants in the study.

4.4.2   Results

4.4.2.1   Preliminary Analyses

First, we tested whether rating order was a significant predictor of participants'

responses to how supportive someone should be and how likely they would be to take an

opportunity. In Segment 1, participants who first provided reasons for why they or their

partner should or should not take an opportunity ($M = 62.33$, $SD = 16.43$) were

significantly less likely to say they or their partner should take the opportunity compared to

participants who provided reasons after their rating ($M = 75.54$, $SD = 23.60$), $F(1, 115) =$

12.31, $p < .001$, $\omega^2 = .09$. The rating order was not significant for opportunity in Segment 2

($p = .470$) or 3 ($p = .126$). For support, the rating order was not significant on any of the

segments ($ps = .201 - .738$). Therefore, we did not control for rating order in further

analyses. Second, we tested whether participants differed in their responses for support and

opportunity depending on whether they were reporting on themselves or their partner

getting an opportunity. This was not significant for support ($ps = .022 - .944$) or for

opportunity ($ps = .010 - .059$) across any of the three segments after Bonferroni correction.

We also tested whether social desirability predicted participants' responses to support and

taking on opportunity, but none of the analyses were significant. To ensure that the

differences were not due to baseline differences across participants, we also tested whether

the groups were different at baseline (Segment 1) based on their responses to goal conflict

in Segment 2 and showed that there were no significant differences across groups for

support ($p = .602$) or for opportunity ($p = .548$).

4.4.2.2   Primary Analyses

We examined whether goal conflict influenced participants' responses in Segments

2 and 3. In Segment 2, there was a significant main effect of goal conflict on support, $F(2,$

114) = 36.44, $p < .001$, $\omega^2 = .38$ (H1). Participants in the low conflict condition rated expected support highest ($n = 39$; $M = 94.87$, $SD = 13.08$) followed by those in the medium goal conflict condition ($n = 40$, $M = 81.60$, $SD = 12.26$). Participants in the high goal conflict condition ($n = 38$, $M = 61.47$, $SD = 24.19$) rated the support lowest (all $ps < .001$). The post-hoc tests showed that participants in the medium goal conflict condition rated likelihood of providing support 13.27% lower whereas participants in the high goal conflict condition rated the likelihood 33.40% lower compared to those in the low goal conflict condition. The difference between medium goal conflict and high goal conflict conditions was 20.13%.

The results were same for opportunity, $F(2, 114) = 36.57$, $p < .001$, $\omega^2 = .38$ (H8). Participants in the low goal conflict condition rated taking goal opportunity highest ($M = 91.69$, $SD = 14.16$) followed by those in the medium goal conflict ($M = 76.08$, $SD = 20.68$) condition. Participants in the high goal conflict condition ($M = 51.66$, $SD = 25.73$) rated the support lowest. The post-hoc tests showed that participants in the medium goal conflict condition rated likelihood of taking opportunity 15.62% lower whereas those in the high goal conflict condition rated the likelihood 40.03% lower compared to those in the low goal conflict condition. The difference between medium goal conflict and high goal conflict was 24.42% (all $ps < .001$).

In Segment 3, there was also a significant main effect of goal conflict on support, $F(2, 114) = 12.48$, $p < .001$, $\omega^2 = .16$. Participants in the low goal conflict condition rated support highest ($n = 38$, $M = 92.13$, $SD = 13.54$) followed by those in the medium goal conflict ($n = 41$, $M = 87.46$, $SD = 13.10$) condition. Participants in the high goal conflict condition ($n = 38$, $M = 74.47$, $SD = 20.48$) rated the support lowest. The post-hoc tests showed that only the participants in the high goal conflict condition significantly differed from the low goal conflict condition with participants in the high goal conflict condition

rating support 17.66% lower compared to those in the low goal conflict condition (p < .001). Participants in the medium goal conflict condition rated support 4.67% higher and did not significantly differ from those in the low goal conflict condition (p = .271). Participants in the medium goal conflict condition rated support 12.99% higher compared to those in the high goal conflict condition but the difference was not significant after Bonferroni correction was applied (p = .004).

There was also a significant main effect of goal conflict on opportunity in Segment 3, $F(2, 114) = 11.60$, $p < .001$, $\omega^2 = .15$. Participants in the low goal conflict condition rated support highest (M = 87.21, SD = 15.93) followed by those in the medium goal conflict (M = 79.41, SD = 21.18) condition. Participants in the high goal conflict condition (M = 64.66, SD = 24.28) rated the support lowest. The post-hoc tests showed that only the participants in the high goal conflict condition significantly differed from the low goal conflict condition with participants in the high goal conflict condition rating support 22.55% lower compared to those in the low goal conflict condition ($p < .001$). Participants in the medium goal conflict condition rated support 7.80% higher compared to those in the low goal conflict condition but this difference was not significant ($p = .159$). Participants in the medium goal conflict condition rated support 14.76% higher compared to those in the high goal conflict condition but the difference was not significant after Bonferroni correction was applied ($p = .015$).

The difference between groups in which one partner had taken an opportunity in the past compared to the group in which partner did not take the opportunity in Segment 3 (reciprocity hypothesis) did not significantly differ in the level of support ($F(1, 115) = 0.18$, $p = .675$, $\omega^2 = .00$; H2) or taking on opportunity ($F(1, 115) = 0.18$, $p = .672$, $\omega^2 = .00$; H9) endorsed by participants.

Finally, we tested whether participants responded differently based on levels of attachment anxiety and avoidance and whether attachment anxiety and avoidance moderated the results for goal difficulty or goal pursuit (H4-H7). As expected, the results did not show any evidence of attachment avoidance moderating the participants' responses. However, attachment anxiety was also not a significant moderator.

For the qualitative results, we coded reasons for ratings of providing support into four categories: pros and cons of job, unconditional support, relationship worries, and non-interference. Overall, participants were the most likely to say that partners should provide unconditional support toward each other's opportunities in relationships. In the low goal conflict condition, none of the participants mentioned relationship worries but these increased when goal difficulty increased. Many participants also evaluated the pros and cons of the opportunity. For reasons for ratings of taking on opportunity, the categories were divided into goal, recipient, partner, or relationship-related reasons. Very few participants explicitly reported partner-related reasons for their decision on whether a partner should take an opportunity. Instead, most participants considered relationship as a reason for why one should not take the opportunity and were more likely to endorse recipient or goal-related reasons for why someone should take an opportunity. The full results for the qualitative analyses are presented in Table S2 and S3 in supplemental file in Appendix A.

4.4.3   Discussion

The primary purpose of Study 2 was to examine the impact of goal difficulty on support and taking on opportunities in participants' own relationship. We replicated the results from Study 1 for goal conflict. As expected, we found that participants in the high goal conflict condition rated the amount of support one should provide, or likelihood of

one taking an opportunity, the lowest followed by those in the medium goal conflict condition. This was true regardless of whether the opportunity was theirs or their partner's. The effect of goal conflict was also large with participants in the high goal conflict condition being up to 33% less supportive of the opportunity and up to 40% less likely to say that they or their partner would take an opportunity. However, contrary to our predictions, the reciprocity hypothesis was not supported: whether one partner had had an opportunity in the past did not affect participants' responses on support or opportunity. Furthermore, neither attachment anxiety nor avoidance significantly predicted support or taking on opportunities or moderated the results for goal conflict. It is likely that because goal conflict was such a strong predictor of the outcomes that any effect of anxiety would not explain additional variance.

The qualitative results provided further insight into how participants made their decisions on providing support or taking on opportunities. Many participants endorsed unconditional support toward goals and also evaluated the pros and cons of an opportunity when making decisions. Interestingly, when deciding whether one should take an opportunity or not, participants were likely to consider goal, recipient, or relationship related factors. However, hardly any participants considered the partner.

4.5   Study 3

Studies 1 and 2 provided experimental evidence to show that goal conflict influences participants' attitudes toward support and taking on opportunities. In Study 3, we examined whether naturally occurring goal conflict predicted support and goal outcomes at a daily level in a sample of couples. Specifically, Study 3 examined whether goal conflict predicted the interpersonal processes of RC support: support seeking, support providing, perceived partner responsiveness, and commitment toward opportunities. We

expected that goal conflict would be negatively associated with all four core processes as partners are motivated to avoid threats to the relationship. Specifically, we expected that recipients' perception of goal conflict would be negatively associated with support seeking (H1), perceived support (H2), and movement toward goals (H3). We also expected that partner's perception of goal conflict would be negatively associated with support providing (H4). Previous research has shown that goal conflict is associated with motivation to provide, or not provide, support (B. C. Feeney et al., 2013, 2017) but whether goal conflict predicts actual support providing has not been tested. We do not make any *a priori* predictions for partner effects.

We expected that when goal conflict is high, higher levels of attachment anxiety will negatively predict perception of support (H5) as well as motivation toward goal pursuit (H6). We expected that when goal conflict is high, individuals higher (vs. lower) in attachment avoidance will seek less support (H7). Furthermore, while individuals lower (vs. higher) in attachment avoidance will be less motivated to pursue goals, those higher in attachment avoidance will be unaffected and therefore we expected this association to be positive (H8). We also expected that when partners high (vs. low) in attachment anxiety perceive goals as conflicting, they will provide less support (H9). We expected all other moderator effects to be non-significant but include them in the model as controls. Please see Figure 3 for a graphical illustration of the proposed predictions.

4.5.1   Method

4.5.1.1   Participants

The study used data from the daily diary portion (completed during Wave 3) of an existing five-wave longitudinal study of 187 romantic couples[8]. At Time 1, participants were 25.01 years old on average ranging from 17-47 years. Participants were mostly Caucasian (84.4%) and half were students (49.5%). Couples had been involved with each other for 38 months on average (SD = 24.62), were either dating steadily (25.4%), engaged (29%), or married (37.7%), with the majority living together (82%) with no children (94.3%). At T3 when the diary data were collected, 133 couples and one individual participated in the daily diary and were included in the present study.

4.5.2   Procedure

Couples in a southeastern US city were recruited via community announcements if they were newly committed (i.e., either moved in together or gotten married) and agreed to participate in a two-year, five-wave longitudinal study (see Righetti et al., 2010 for further details on the procedure). Waves were six months apart, with couples completing questionnaires either before or during lab sessions. At T3, participants completed a set of questionnaires during a lab session. After the lab session, participants completed an 8-day daily diary study in which they were asked to report daily on partner support, goal pursuits, and goal conflict. Couples were paid $60 for participating in the laboratory session and further $60 to complete the daily diary.

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[8] A full list of published studies from the dataset can be found on the OSF project page:
https://osf.io/nt3pv/?view_only=9889e90dad0445728cb3c2d5ec0c28a0

4.5.2.1   Measures

Attachment anxiety and avoidance were measured once prior to the daily diary portion of the study using a shortened 18-item version derived from the Experience in Close Relationships – Revised Scale (ECR-R; Fraley et al., 2000), which consisted of two 9-item Likert scales (0 = *Do Not Agree at All* to 8 = *Agree Completely*), one for anxiety (e.g., "*I'm afraid that I will lose my partner's love*"; α = .88) and one for avoidance (e.g., "*I prefer not to be too close to romantic partners*"; α = .89). The daily diary measures were all rated on a scale from 1 (*Do Not Agree at All*) to 5 (*Agree Completely*). Goal conflict was measured separately for goal conflicting with partner's goals ("*Pursuing my goals caused problems for my partner [was unpleasant, required effort, caused difficulties]*") and relationship's goals ("*Pursuing my goals caused problems for our relationship [limited time together, we disagreed, felt distant]*"). The support seeker's behavior was measured using a five-item scale (e.g., "*I showed my partner that I appreciated his/her support of my goal pursuits.*", α = .80). Perception of partner support was measured using an eight-item scale (e.g., "*My partner displayed confidence that I can achieve my goals.*", α = .94), and providing support was measured using the same items but asked about the participant themselves (e.g., "*I displayed confidence that my partner can achieve his/her goals.*", α = .94). Movement toward goals was measured using three items (e.g., "*I feel close to attaining my goals.*", α = .79).

4.5.2.2   Data Analysis

We used multilevel modeling with two-levels of random variation in which partners were nested within dyads and days were crossed within partners (Kenny et al., 2006). The models included both random intercepts and random slopes. We included both partners' perceptions of goal conflict (both goal conflict with partner and goal conflict with relationship) and both partners' attachment styles (and moderation) predicting a) support

seeking, b) support providing, c) perceived responsiveness, and d) goal pursuit/movement. We report the results with and without attachment styles. All predictor and moderator variables were grand mean centered. We also tested for lagged effects by including yesterday's goal conflict to predict the next day's outcomes in separate analyses. All models included time as a control variable. Due to multiple models, we used a Bonferroni-corrected alpha level of $p < .013$ (.05 / 4).

4.5.3 Results

The full results can be found in Table 1. We predicted that higher relationship and/or partner goal conflict would be negatively associated with all four elements of the RC support process: support seeking (H1), support providing (H4), perceived support (H2), and movement toward goals (H3). The results provided support for these hypotheses and showed that higher recipient's perception of relationship goal conflict predicted less support seeking, perception of support, support providing, and movement. Partner effects for relationship goal conflict were also significant for receiving and providing support but not for seeking support or movement. Partner goal conflict (i.e., goal conflict between recipient's and partner's needs rather than relationship's needs), however, did not predict any of the stages in the RC support process.

We also hypothesized that individual differences in attachment styles would moderate the association between goal conflict and RC support processes (H5-H9). However, none of the predicted moderations were significant. The only significant moderation showed that attachment anxiety moderated the association between partner goal conflict and support seeking ($B = 0.06$ ($SE = .02$), $p < .001$). On days when goal conflict was higher, participants higher in attachment anxiety ($B = 0.12$ ($SE = 0.04$), $t = 3.40, p < .001$) perceived themselves as seeking more support compared to participants

lower in attachment anxiety (B = -0.09 (SE = 0.04), t = -2.55, p = .011). However, given this association was exploratory, and none of the predicted hypotheses were supported, this finding should be interpreted with caution.

4.5.4   Discussion

Study 3 sought to add ecological validity to the findings from Studies 1-2 by providing evidence of the association between goal conflict and support and goal outcomes in a daily diary study of couples. The results provided further support for the hypotheses and showed that higher relationship goal conflict significantly predicted lower support seeking as well as lower provided and perceived support. The results also added to the literature by examining both relationship and partner goal conflict. Interestingly, after accounting for relationship goal conflict, partner goal conflict was not a significant predictor of support or goal outcomes.

4.6   General Discussion

Close relationship partners can be instrumental in providing support toward each other's life opportunities enabling growth and exploration. However, there are likely to be times when one partner's goals conflict with the interests of the other partner or the relationship. Across three studies using multiple methods, we showed that goal conflict negatively predicted all the elements of RC support: support seeking, perceived support, provided support, and thriving outcomes (taking on opportunities as well as commitment, motivation, and progress toward opportunities). In Studies 1 and 2, we provided experimental evidence showing that participants who were presented with a high goal conflict scenario became up to 40% more negative in their attitudes toward support and

taking on opportunities compared to participants who were presented with a low goal conflict scenario.

While the experimental paradigms allowed us to examine causal links, we also used correlational studies to provide more ecological validity for the results. Study 3 utilized intensive longitudinal methods providing evidence that daily instances of goal conflict predict support processes in a dyadic sample. Interestingly the results only showed that relationship goal conflict rather than partner goal conflict predicted support and goal outcomes. This was also in line with the findings from the qualitative analyses in Study 2 which showed that hardly any participants evaluated opportunities from the partner's perspective but rather considered the relationship. Taken together, these three studies provide converging evidence showing that higher goal conflict is negatively associated with support processes and predict lower goal outcomes.

The findings add to the literature on interpersonal components of goal pursuit and the thriving through relationships framework (B. C. Feeney & Collins, 2015b). The present study showed that high goal conflict can pose a threat to close relationship partners creating an optimal environment for goal pursuit by making partners less likely to provide support and recipients less likely to seek support from their partner, to perceive their partners as supportive, and to make progress toward their goals. These results replicate previous research showing that partners are less likely to provide support when they feel goals might take their partner away from the relationship (B. C. Feeney et al., 2013, 2017; Hui et al., 2014), recipients perceive their partners as less supportive (Vowels & Carnelley, 2021), and recipients make less progress and are less motivated toward their goals when the goals are problematic for the partner or the relationship (Gere et al., 2011; Gere & Schimmack, 2013; Vowels et al., 2020). Because responsive support and making progress toward one's goals have been shown to predict better individual and relational well-being

(Brunstein et al., 1996; Drigotas et al., 1999; B. C. Feeney, 2004; Tomlinson et al., 2016), understanding potential threats to a supportive environment is important. In the present study, we only examined short-term effects of goal difficulty on support processes. Therefore, future research should be conducted to better understand the potential long-term effects of goal conflict on relationships.

We showed that goal conflict can impair relationships' potential role as a launching function for goal pursuit. Interdependence theory suggests that repeated exposure to goal conflict can be harmful for relationships because it tests partners commitment to each other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). Therefore, it is also important to understand potential ways in which the negative impact of goal conflict can be mitigated in relationships. For example, previous research has found that willingness to sacrifice in relationships predicts better relationship outcomes (Day & Impett, 2018; Impett et al., 2013; Kogan et al., 2010; Van Lange et al., 1997). However, sacrifice can be costly for relationships if only one partner keeps sacrificing (Visserman et al., 2018) and reciprocity is important for relationship functioning (Bar-Kalifa et al., 2017; Gleason et al., 2003).

In Study 1 in which participants were presented with a hypothetical couple, participants rated providing support higher when one partner had provided support and the recipient had taken on the opportunity in the past, indicating participants believed support should be reciprocal. However, in Study 2 in which the vignette was based on their own relationship, there was no effect of reciprocity on future support. Indeed, many participants stated they believed support in relationships should be unconditional, indicating a communal approach to relationships (Batson, 1993; Mills et al., 2004). This finding is interesting because it suggests that while individuals may apply an expectation of reciprocity to others' relationships, they are more likely to be communal in their own relationship. Future research examining communal and exchange motives should therefore

take into account whether participants are reporting on their beliefs about others or themselves.

There are other potential ways in which partners could mitigate instances of goal conflict that require further investigation. For example, recent research has shown that successful negotiation of goal conflict in relationships predicts higher levels of support (Vowels & Carnelley, 2021) and better goal outcomes (Vowels et al., 2020). In reality, relationships are likely to experience instances of goal conflict and may have to negotiate how to divide resources for different goal pursuits as well as who may have to sacrifice their goals in order to benefit the relationship. Indeed, being able to successfully negotiate instances of goal conflict may buffer against the negative impact of goal conflict on support and goal outcomes.

In addition to examining whether goal conflict predicted support processes, we also examined whether individual differences in attachment styles moderated the association between goal conflict and support and goal outcomes. Theoretically, we expected that because anxious individuals are worried about maintaining closeness in relationships (Mikulincer & Shaver, 2012), they would be particularly likely to experience goal conflict as a threat to the relationship. Indeed, previous research has found that anxious individuals are likely to withhold support (B. C. Feeney et al., 2013) and forego opportunities for goal pursuit (B. C. Feeney et al., 2013) when the goal pursuit could pose a threat to the relationship. In contrast, because avoidant individuals are excessively self-reliant (Kim Bartholomew, 1990) and are less concerned about goals taking their partner away from the relationship (B. C. Feeney et al., 2013), we expected avoidant individuals to be unaffected by goal conflict. This is consistent with our findings that attachment avoidance was not a significant moderator. However, contrary to our prediction attachment anxiety was not a significant moderator in any of the analyses across the three studies.

There are several potential reasons for why attachment was not a significant moderator. First, goal conflict already predicted a large amount of variance and attachment styles may not explain any variance in addition to goal conflict. Second, participants across the three studies were all relatively low in attachment anxiety and avoidance whereas goal conflict was relatively low in Study 3. Therefore, it is possible that higher levels of attachment insecurity would have interacted with goal conflict. Third, because of the low levels of attachment insecurity, a hypothetical scenario in Studies 1 and 2 may not have been enough to trigger a threat response in the participants. Fourth, moderator effects are difficult to estimate and require large sample sizes (Gelman, 2018). Therefore, it is possible that the studies did not have enough power to estimate these effects. Future research in a larger sample is therefore needed to further investigate whether attachment styles indeed interact with goal conflict.

The present research showed converging evidence of the negative impact of goal conflict on support and goal outcomes using multiple methods including experimental vignettes and daily diary methods. Study 3 also included data from couples allowing us to examine potential partner effects. However, the study also had several limitations that should be considered when evaluating the results. While Study 3 included reports across multiple days, the lagged effects were not significant. As one would expect, goal conflict on one day may not be related to goal conflict the next day if the goals are different; yesterday's goal conflict may not be associated with how much one's goals conflict with their partner's or the relationship's today. Therefore, future research is needed to examine specific goals over time to understand whether goal conflict with a specific goal is associated with outcomes over time. We also only examined goal conflict in the short-term and cannot speak about any potential long-term consequences of goal conflict on relationships. All studies were conducted in a Western sample and all participants were

relatively young (Studies 1 and 2 involved students and Studies 3 and 4 involved newly committed couples).

In summary, the present research using multiple methods showed that goal conflict can be detrimental to goal pursuit with partners less likely to seek and provide support, perceive their partners as supportive, and feel less committed toward their goals. If goal conflict persists it can have detrimental consequences for relationships because it continually tests partners' commitment toward each other.

4.7   Tables

Table 1

The Multilevel Model Results for Goal Difficulty as a Predictor of Seeking Support, Received Support, Provided Support, and Movement

Predictors	Seeking support			Received Support			Provided Support			Movement		
	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p
Intercept	3.72	3.62 − 3.81	<0.001	3.69	3.56 − 3.81	<0.001	3.69	3.56 − 3.81	<0.001	3.78	3.66 − 3.90	<0.001
Partner goal conflict$_R$	0.01	-0.04 − 0.06	0.674	0.07	0.01 − 0.13	0.032	-0.01	-0.07 − 0.06	0.837	-0.03	-0.09 − 0.02	0.245
Relationship goal conflict$_R$	-0.14	-0.18 − -0.09	<0.001	-0.18	-0.24 − -0.11	<0.001	-0.09	-0.16 − -0.03	0.005	-0.07	-0.11 − -0.02	0.006
Partner goal conflict$_P$	-0.02	-0.06 − 0.03	0.440	-0.01	-0.07 − 0.06	0.836	0.07	0.01 − 0.13	0.032	-0.02	-0.06 − 0.03	0.493
Relationship goal conflict$_P$	-0.05	-0.09 − -0.00	0.030	-0.09	-0.16 − -0.03	0.005	-0.18	-0.24 − -0.11	<0.001	-0.01	-0.06 − 0.04	0.784
Time	0.02	0.00 − 0.03	0.016	-0.00	-0.02 − 0.02	0.966	-0.00	-0.02 − 0.02	0.966	0.03	0.01 − 0.05	<0.001
Random Effects												
ICC	0.51			0.34			0.33			0.45		
N	113			113			113			113		

Observations	1520	1528	1528	1602
Marginal R^2 / Conditional R^2	0.061 / 0.536	0.036 / 0.366	0.035 / 0.358	0.027 / 0.465

Note. Marginal R^2 only includes the fixed effects while the conditional R^2 also includes the random effects model.

4.8   Figures

Figure 1

A Graphical Representation of the Interpersonal Process of Relational Catalyst

Support
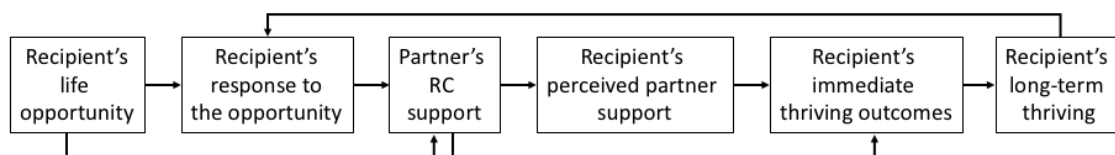
Note. Adapted from Feeney and Collins, 2015.

Figure 2

An Illustration of the Experimental Manipulation in Study 1

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             Segment 2 ┌──────────────────┐
                       │  Distance - Alex │
                       └──────────────────┘
            ┌───────────────────┴───────────────────┐
            ▼                                         ▼
 ┌───────────────────────┐              ┌───────────────────────┐
 │15 minutes away (n=143)│              │ 5 hours away (n = 141)│
 └───────────────────────┘              └───────────────────────┘
 Segment 3 ┌──────────────────┐     Segment 3 ┌──────────────────┐
           │ Pursue opportunity│              │ Pursue opportunity│
           └──────────────────┘              └──────────────────┘
     ┌──────────┴──────────┐            ┌──────────┴──────────┐
     ▼                     ▼            ▼                     ▼
┌───────────┐  ┌──────────────┐  ┌───────────┐  ┌──────────────┐
│Alex takes │  │Alex doesn't  │  │Alex takes │  │Alex doesn't  │
│opportunity│  │take          │  │opportunity│  │take          │
│ (n = 78)  │  │opportunity   │  │ (n = 59)  │  │opportunity   │
│           │  │ (n = 59)     │  │           │  │ (n = 78)     │
└───────────┘  └──────────────┘  └───────────┘  └──────────────┘
      ▼               ▼                 ▼               ▼
┌───────────┐  ┌───────────┐    ┌───────────┐  ┌───────────┐
│Distance-Sam│ │Distance-Sam│   │Distance-Sam│ │Distance-Sam│
└───────────┘  └───────────┘    └───────────┘  └───────────┘
```

| Same town (n = 37) | Different town (n = 41) | Same town (n = 32) | Different town (n = 27) | Same town (n = 32) | Different town (n = 27) | Same town (n = 36) | Different town (n = 42) |

Note. The figure provides an illustration of the sequence of the segments and the experimental manipulations that took place at each segment and the actual sample size for each condition for Study 1. Please note that we only tested for interactions that are relevant for the prespecified hypotheses rather than including all possible interactions in the models. Study 2 followed a similar experimental design but had three levels of goal conflict instead of two.

Figure 3

Proposed Associations between Parts of the Relational Catalyst Support Model, Goal

Conflict, and Attachment Styles
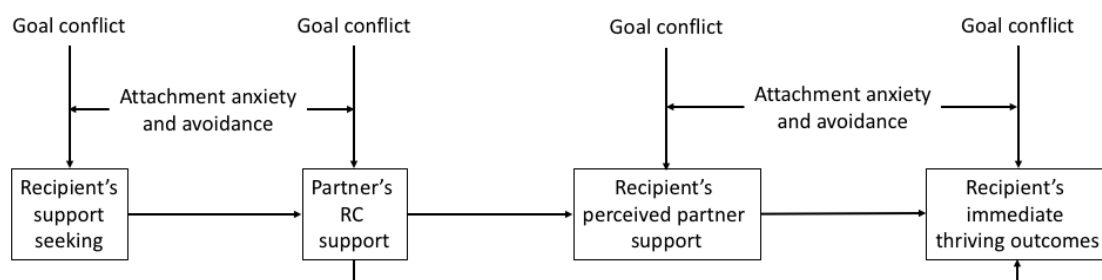
Chapter 5   Manuscript 4: Partner Support and Goal Outcomes during COVID-19: A Mixed Methods Study

5.1   Abstract

During the COVID-19 pandemic, people have been stuck indoors with their partners for months. Having a supportive partner is likely to be especially important during this time where access to outside sources of support is limited. The present mixed-methods study aimed to investigate how partner support is associated with goal outcomes during COVID-19. The survey participants ($n = 200$) completed a daily diary for a week and five weekly longitudinal reports, and 48 participants attended a semi-structured interview. The quantitative results showed that higher relational catalyst support (i.e., support for growth opportunities) predicted better goal outcomes; qualitative analyses revealed partners use direct and indirect forms of emotional and instrumental support toward goal pursuit. This is important because most studies to date have not differentiated between direct and indirect forms of support. Overall, the findings suggest that having a supportive partner is important for not only surviving, but also thriving through the pandemic.

Keywords: COVID-19; Interpersonal Relationships; Goals; Partner Support; Goal Outcomes

5.2   Introduction

The world is currently experiencing unprecedented times that are changing the nature of society as we know it. The COVID-19 outbreak has led many countries to implement social distancing measures such as working from home, avoiding social contact, and closing schools that have social and economic implications (United Nations, 2020). As such, close relationships have been uniquely impacted with more couples staying indoors for prolonged periods of time to take care of children and the household, as well as completing work tasks (Carlson et al., 2020). Partner support is especially crucial during the pandemic because one's partner may be the only person available for support toward tasks and goals, while at the same time partners may be preoccupied with the demands caused by the pandemic. In the present mixed-methods study, our aim was to understand how partner support may have been affected during the pandemic and whether perceiving one's partner as supportive is associated with better goal outcomes during the pandemic. We examined the association between partner support and goal outcomes in the daily diary and longitudinal quantitative surveys. In qualitative interviews, we asked participants how partners were supporting each other and in what ways the support had changed since the pandemic started to provide a more nuanced understanding of the impact of the pandemic on support.

A recent theoretical model, thriving through relationships, describes the interpersonal process of how partners can create an optimal environment for goal outcomes by providing Relational Catalyst (RC) or Source of Strength (SOS) support (B. C. Feeney & Collins, 2015b). RC support is an extension upon attachment theory's (Bowlby, 1969) notion of a *secure base* and "functions to promote thriving through full participation in life opportunities for exploration, growth, and development in the absence of adversity" (Feeney & Collins, 2015, p. 118). SOS support, in turn, is an extension of a *safe haven* and

"functions to promote thriving through adversity, not only by buffering the negative effects of stress but also by helping others to emerge from the stressor in ways that enable them to flourish" (Feeney & Collins, 2015, p. 118). In essence, SOS support is similar to dyadic coping (Bodenmann, 1997; Falconier et al., 2015; Falconier & Kuhn, 2019) which is often conceptualized as the way in which partners help each other cope in stressful situations. Therefore, both SOS support and dyadic coping are focused on coping with the stressful situation itself whereas RC support is more concerned with pursuing opportunities and supporting exploration and growth. While both types of support are likely to be important during the pandemic, the present study focused on RC support. We argue that while the pandemic is an ongoing, unpredictable situation, most people have to continue to pursue goals and tasks despite the pandemic. Therefore, because outside support is likely to be limited during this time, the extent to which partners provide RC support is likely to be especially important in order for individuals to continue to make progress toward their goals.

RC support is provided through partners being an active catalyst during the process of achieving goals and includes four components: (a) nurturing opportunities for growth by providing encouragement, validating goals, and expressing enthusiasm for new opportunities; (b) providing perceptual assistance in recognizing and perceiving opportunities as challenges rather than threats, (c) providing practical assistance in the preparation of pursuing life's opportunities, and (d) serving as a launching function to help one's partner fully engage in life's opportunities by providing a secure base for exploration, celebrating successes, and assisting in dealing with adjustments or setbacks (B. C. Feeney & Collins, 2015b). If the partner is able to provide effective RC support, the recipient is likely to perceive the partner as responsive, which leads to immediate as well as long-term thriving outcomes (B. C. Feeney et al., 2017; Tomlinson et al., 2016). In

contrast, if a partner provides anti-RC support (i.e., support that is intrusive or unwanted), the recipient is likely to experience lower thriving outcomes. To date, there are no studies that have examined whether self-reported perception of RC support from partners predicts goal outcomes as previous studies have relied on observers' perceptions only.

However, there are other studies that have been conducted over the past three decades that have examined the association between partner support on goal outcomes. For example, several studies have noted that perceiving one's partner as supportive is associated with greater goal progress (Brunstein et al., 1996; Drigotas et al., 1999; B. C. Feeney, 2004; Jakubiak & Feeney, 2016; Kumashiro et al., 2007), commitment toward goals (Dailey, 2018b; B. C. Feeney, 2004; Low et al., 2017; Overall & Fletcher, 2010), and confidence in one's abilities to achieve goals (B. C. Feeney, 2004; Low et al., 2017; Tomlinson et al., 2016; Winterheld & Simpson, 2016). Although fewer studies have examined negative support, some have found that negative support is associated with lower goal confidence (B. C. Feeney et al., 2017; Hammond & Overall, 2015) but not with goal progress or commitment (Overall et al., 2010). While the majority of the studies show that support is beneficial for goal outcomes, there are other studies that have found that support can at times be costly as it may hinder self-efficacy (Bolger et al., 2000; Crockett et al., 2017; Girme et al., 2013a; Gleason et al., 2008). Overall though, a recent meta-analysis found that partner support was moderately positively associated with goal outcomes (Vowels & Carnelley, under review).

All of the aforementioned studies have been conducted either in non-stressful situations or in situations in which only one member of the dyad experienced the stressor (professional stressor [Bolger et al., 2000]; and a laboratory stressor [Crockett et al., 2017; Gleason et al., 2008]) and therefore, the non-stressed partner may have been more available to provide support. During the COVID-19 pandemic, both partners are

experiencing the stressor simultaneously and the stress is likely to be prolonged with uncertainty around when the stress may be alleviated. The prior research examining the association between partner support and goal outcomes in stressful times has focused on one partner's stress with a specific end-date or a single induction of stress. We expect that in line with the majority of the previous research, RC support will be positively, and anti-RC support negatively, associated with goal outcomes (progress, confidence, commitment; H1).

The coronavirus pandemic may create a need for more support between couples as they manage pandemic-induced stress alongside the pursuit of tasks and goals (e.g., work, education, health, domestic). Nonetheless, these exceedingly stressful times may leave couples unable to respond sensitively to their partners' needs (Neff & Karney, 2004). Early research into the impact of COVID-19 on relationships found that COVID-19 related stressors (financial strain, stress, and social isolation) negatively impacted relationship quality and conflict, but perceiving partner as responsive buffered against the negative impact of the stressors (Balzarini et al., 2020). Therefore, it may also be that partner support can buffer against potential negative impacts of the pandemic on goal pursuit. Although there are no studies to date that have addressed this question, we expect that perceiving partner as more supportive will be associated with perceiving the pandemic as affecting goal pursuit less negatively (H2).

Furthermore, our aim is to add to the current understanding of what types of support partners provide during COVID-19 and how support may have been changed as a result of the pandemic (RQ1). While the thriving through relationships framework (B. C. Feeney & Collins, 2015b) proposes that in stressful times, partners' primary role is to provide support that offers relief from stress (SOS support), the framework suggests that RC support is provided in the absence of adversity. However, we argue that RC support

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can also be effective in times of adversity, such as during the COVID-19 pandemic, to enable pursuit of tasks and goals that may still need to be completed (e.g., work tasks, children's homeschooling, exercise). During these times, the goals may be qualitatively different compared to non-stressful times in that they may focus more on immediate tasks rather than long-term goals but partner support may still be needed in order to accomplish them. Qualitative studies are especially useful in understanding what types of support individuals may be providing during the pandemic. Therefore, our hope is to extend the thriving through relationships framework by exploring the ways in which RC support can still be effectively provided in times of stress. Understanding how partners can support each other to pursue tasks and goals during the pandemic can help partners and the relationship not only to survive through the pandemic, but to bounce back and thrive beyond the pandemic.

5.3   Method

5.3.1   Participants and Procedure

We preregistered the study on the Open Science Framework, which can be found here: https://osf.io/esa3u/. Data, code, and materials can be found here: https://osf.io/qr7cm/. Ethical approval was received from the authors' institutional review board. We collected the quantitative data via Prolific and used random sampling via social media to recruit participants for the qualitative interviews. Participants were eligible for the study if they were 18 years old or above and living with their romantic partner in a country where social distancing measures were in place. The participants were informed that the study focused on "understanding how the coronavirus pandemic is affecting people's day-to-day lives and relationships while living in close quarters with their partners/families for an extended period of time." Due to funding, the number of participants for the quantitative

surveys was constrained to 200. Based on a simulated power analysis, data from 200

participants (4,200 observations in the daily diaries) yield a power of 96.7% to estimate an

average effect size in Psychology (r = 0.22, d = 0.45; Richard et al., 2003) with an alpha

level of $p < .01$ and an estimated intra-class correlation of .30. Participants recruited

through Prolific received £4.70 for the daily diary and an additional £2.00 after all follow-

ups were completed. Qualitative interview participants were entered into a raffle to win

one of two £30 Amazon vouchers after the first interview and one of two £20 Amazon

vouchers after the second interview.

All survey participants completed a baseline survey on 31st March, 2020, shortly

after many countries had gone under lockdown. Participants then completed a daily dairy

survey over the next seven days with the first entry completed directly after the baseline

survey. After the daily diary portion of the study, participants completed a further three

follow-up surveys that were each one week apart. This resulted in a total of five weekly

time-points. Participants responded to questions regarding partner support and goal

outcomes from the previous 24 hours in the daily diaries and from the previous week in the

follow-up surveys. All surveys were conducted via Qualtrics. The final sample in the

quantitative surveys was 200 with an attrition rate of 4% at the end of the daily diary and

8.5% at the end of the five weeks. However, all participants completed at least two time-

points and were therefore included in the final analyses.

The semi-structured qualitative interviews were conducted via Zoom, audio

recorded, and transcribed. All first interviews were completed between 30th March 2020

and 21st April 2020. A total of 48 participants completed the first qualitative interview (30

were recruited via social media, 18 via Prolific who participated in both quantitative and

qualitative parts of the study). We invited participants who had completed the first

interview in the first two weeks of the qualitative data collection to participate in the

follow-up interview to better understand how support had changed over the course of the lockdown[9]. Nineteen of the 23 participants invited to complete a second interview responded. The initial interviews lasted between 14-49 minutes and second interviews between 7-24 minutes.

Participants in quantitative and qualitative portions of the study had similar demographic characteristics (see Table 1). Participants were 36 years old on average and had been in a relationship for 11 years. The samples were primarily white, heterosexual, and from the UK. Around half the participants were married and half cohabiting, and half of them had children. Only a small number of participants were keyworkers[10] or had shown coronavirus symptoms. None had been diagnosed with coronavirus at baseline. Participants had been under social distancing rules between seven to 42 days ($M = 10.85$, $SD = 6.94$). At baseline, all but two (living in the US, working from home) of the participants were under partial (only going out if absolutely necessary) or full lockdown (not leaving the house). On average, participants reported low positive mood ($M = 3.07$, $SD = 4.75$ on a scale between -10 to 10) with mild to moderate levels of depression ($M = 3.31$, $SD = 2.29$ on a scale between 0 to 10) and anxiety ($M = 3.56$, $SD = 2.44$ on a scale between 0 to 10).

5.3.2   Measures

5.3.2.1   Relational Catalyst (RC) Support

We measured partner support using a shorter version of the Relational Catalyst Support Survey (B. C. Feeney & Collins, 2014). Eight of the original 32 items were

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[9] We did not invite Prolific participants to participate in the follow-up interviews because the quantitative study period had ended. The four other participants who were not invited for the second interview completed their first interview around the time the first second interviews took place and therefore the study period ended before they would have been invited to the second interview.
[10] Individuals working in critical roles such as in healthcare during the pandemic.

included to reduce participant fatigue. These items were selected based on face validity. Because there are no published guidelines on the survey to date, we ran an exploratory factor analysis using principal axis factoring with varimax rotation to examine its factor structure. We found that the scale included two factors: RC support (e.g., *"Has given me confidence to pursue my goals or opportunities"*; α = .93) and anti-RC support (e.g., *"Has been negative or demeaning when I am pursuing goals or opportunities"*; α = .86)[11]. The same measures were used in both daily and weekly surveys, however, the instructions varied: Participants were asked to consider the past 24 hours in the daily measures and the past week in the weekly measures. Participants rated items on a scale from 0 (*Not at All*) to 10 (*Extremely*).

5.3.2.2   Goal-Related Items

At each time-point, we asked participants to list up to three goals that they had been working toward in the past 24 hours (or the past week in the weekly follow-ups). Participants reported the following types of goals: domestic (31.4%), exercise/health (20.1%), career (16.4%), hobbies/self-development (14.7%), relationships (6.3%), self-care (4.2%), education (2.8%), Covid-related (2.8%), and finance (1.3%). Participants then answered a set of questions for each goal using one item for each: Goal progress: "How much progress did you actually make toward achieving this goal?"; Goal motivation: "How motivated did you feel in working toward this goal?"; and Goal confidence: "How confident did you feel in being able to achieve this goal?". Participants were also asked how much they felt the pandemic had affected their goal pursuit overall. The same measures were used in both daily and weekly surveys. However, the instructions varied:

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[11] We were unable to estimate reliability change (Bolger & Laurenceau, 2013) because the models to calculate the estimates did not converge. Therefore, we provide a more traditional Cronbach's alpha as an estimate of reliability.

Participants were asked to consider the past 24 hours in the daily measures and the past week in the weekly measures. All items were rated on a scale from 0 (*Not at All*) to 10 (*Extremely*), except goal progress which was rated on a scale from 0 to 100%.

5.3.2.3 Qualitative Semi-Structured Interviews

We asked participants a range of questions about their relationship and goal pursuit during the pandemic. The questions relevant for this report were: "How have you supported each other during the pandemic in achieving tasks and goals?" and "How has the way in which you support each other changed as a result of the pandemic?"

5.3.3 Fundamental Position

The present research was fundamentally guided by pragmatism: the research questions were seen as the primary importance regardless of the philosophical worldview or the method (Creswell & Plano Clark, 2007). While quantitative research is often seen as positivist or postpositivist, these can be at odds with qualitative research which is inherently more interpretive in nature (Lincoln et al., 2011). Given the unprecedented nature of the pandemic, we believe that using a combination of methods enabled us to gain a more thorough understanding of partner support during the pandemic than using any one method alone could have accomplished.

5.3.4 Quantitative Analysis Plan

A crucial part of the analysis included separating the within- and between-subjects' elements of the predictor variables (see Bolger and Laurenceau [2013]). The within-subjects variables show the difference in the outcome variables due to within-person elements and the between-subjects variable shows the average difference between participants in the outcome variables. Both within- and between-subjects variables were

included in the models. Time was scaled to start at 0 and was included in both daily diary and weekly analyses. Daily diary data and the weekly longitudinal data were both separately analyzed using two-level hierarchical linear modeling (Raudenbush & Bryk, 2002). All participants were measured on the same days meaning that all variability across days was explainable by between-participant effects and no additional variance would have been explained by including variability across days. We began each model by including both random intercepts and random slopes for within-participant variables and time in the models. If the model failed to converge, we removed the random slope of time. However, none of the models converged when including random slopes in the models. Therefore, the final models only included a random intercept. Quantitative data were analyzed using the *lme4* package in R[12]. We used an alpha level of $p < .01$ to account for multiple analyses. Descriptive statistics and zero-order correlations among variables are presented in Table 2.

5.3.5   Qualitative Analysis Plan

The qualitative interviews were analyzed using codebook thematic analysis (Braun & Clarke, 2006, 2020) and completed using NVivo 12.0. The authors utilized a combination of inductive and deductive approaches to coding by using previous literature and theory to guide coding but allowing for new codes to be created throughout the coding process. The first and third author coded the interviews; both familiarized themselves with the data before creating the initial low-level codes. Codes were created by coding each meaning unit which may have been one word, sentence, or paragraph. These codes were

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[12] We did not perform any lagged analyses because participants reported on support toward up to three specific daily/weekly goals/tasks that may have been very different on different days/weeks. Therefore, the support required one day may be very different from support required the next day. For example, a participant may have had a work deadline the day before and needed their partner to provide support by looking after the children more. The next day their goal may have been to spend more time with the children and thus not need support from their partner.

then refined iteratively by the two coders and several codes with similar meanings were combined together into themes. Each theme needed to have been mentioned in multiple times in order to be included. We also included several subthemes within emotional and instrumental support as these were consistent with the conceptualization of these two types of support in the literature. The final themes were agreed jointly. Any disagreements regarding the classification of codes were discussed until 100% agreement was reached. '[…]' was used in the quotes if unnecessary detail was removed or to provide needed additional information in the quoted data provided. Repeated filler words such as 'like' and 'yeah' were excluded to aid readability. All identifying information was removed.

5.4 Results

5.4.1 Quantitative Results

We expected that perception of RC support would be positively associated with goal outcomes (progress, confidence, commitment) and perception of anti-RC support would be negatively associated with goal outcomes (H1). The results across daily and weekly analyses were largely consistent (see Table 3)[13]. On days/weeks when a participant perceived their partner as providing RC support, they experienced significantly higher levels of goal progress, confidence, and commitment across goals. Only one of the results was not significant: although consistent with hypotheses and the direction of the other results, including daily goal confidence, participants' perception of RC support was not significantly associated with goal confidence in the weekly analyses. At the between-participant level, participants who experienced their partners as providing greater RC

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[13] We also tested models including COVID-related covariates (change in employment, keyworker, COVID-symptoms, working from home, days since social distancing) into the model. Very few were significant or changed the results and can be found as part of the code/results on OSF.

support overall experienced significantly higher levels of goal progress, confidence, and commitment across daily and weekly analyses compared to participants who experienced their partner as less supportive.

However, anti-RC support was less consistently associated with goal outcomes. On the daily level, anti-RC support only significantly predicted goal commitment. Contrary to our prediction, on days when a participant experienced their partner as providing more (compared to less) anti-RC support, they experienced significantly more commitment toward their goals. Anti-RC support did not significantly predict goal progress or confidence at the daily level and none of the between-participants effects were significant. In the weekly longitudinal analyses, on weeks when a participant experienced their partner as providing more anti-RC support, they experienced significantly less goal progress. At the between-participant level, participants who perceived their partner as providing more anti-RC support made less goal progress compared to participants who perceived their partner as providing less anti-RC support. Anti-RC support did not significantly predict confidence or commitment in the weekly longitudinal data.

Furthermore, we also predicted that when participants perceived their partners as providing more RC support, they would perceive the pandemic as affecting their goal outcomes less, and when participants perceived their partners as providing anti-RC support they would perceive the pandemic as affecting their goal outcomes more (H2; see Table 4). Contrary to the hypothesis, RC support was not associated with the perception that the pandemic affected the participants' goals. However, the results showed that at the weekly level, when participants perceived their partner as providing more anti-RC support, they were more likely to report that the pandemic was negatively affecting their goal pursuit. The results were not significant during the daily diary. At the between-participants level, the participants who experienced their partners as providing more anti-RC support were

more likely to report that the pandemic was negatively affecting their goal pursuit compared to participants who experienced their partners as providing less anti-RC support. The between-participant results were consistent in the daily and weekly analyses.

5.4.2 Qualitative Results

The quotes are accompanied with participant number, gender, and age. In the spirit of qualitative analysis, no frequencies are reported as these would not be meaningful. The themes were organized into five main themes (availability, teamwork, reaching out to others, emotional support, and instrumental support) with emotional and instrumental support themes also including several subthemes within each type of support. Within each theme, there were both positive and negative examples of support. More representative quotes for each subtheme within emotional and instrumental support can be found in Table 5.

5.4.2.1 Availability

One of the themes referred to the overall *availability* of partners to support one another during the pandemic. Some participants stated that they were more available to provide each other support than previously. For example, one participant stated that "It's nice to be helpful. I'm still having a break from work. And I see what he's doing a bit more. Sometimes it's hard to know exactly what his issues are at work or where his stress is really coming from, but now that I see what he's working on, it makes it a little bit easier to understand that." (#14, W, 30). However, other participants said that their partner had not been available for support since the pandemic started: "I'd say at this point he's not really available emotionally to support me and also what I would need support in is keeping me motivated to apply for jobs and that's not really going on at the moment. He's really stressed. He's running around, running against a lot of deadlines and personal work like for

his dissertation and other endeavours." (#12, W, 26). Another participant said their partner had gotten a bit better but was still not very good at providing support during this time: "He gives me time to do stuff and he's getting a bit better at this but like my couch to five k, I need to go and he has been a bit rubbish [if] I want to go out at say 11 o'clock and he might fall off and not come down to like midday while I'm starving." (#15, W, 36).

5.4.2.2   Teamwork

Participants also spoke about the need for *teamwork* and flexibility during the pandemic due to the changes in current circumstances. Some participants said they were struggling to cope with the pandemic but tried to ensure they would talk to each other to help support one another: "At least we don't have to worry about the kids but it has been really crazy time. We constantly say that it just doesn't feel real, that you wouldn't have thought that something like this can happen within our lifetime. […] We sort of convince each other to stick to the lockdown, because that's the best thing you can do to minimise the risk." (#29, W, 32). Another participant remarked that the situation was not ideal but they were making pragmatic decisions to be able to work together: "I work upstairs in a small room whereas he has the whole of the downstairs because his job just needs a bigger computer setup. He's on the phone a lot and he needs space for all his stuff as I can work from the small computer and a little desk, which isn't ideal. I'm used to being in a big open office. I feel a bit confined. But I can work like this, which makes my life easier if he carries on like that." (#46, W, 31). Furthermore, some participants spoke about changing things around to support one another and avoid boredom: "I would usually do the brunt of the housework and cooking, and he's taken a lot of that off my hands and then I've gone outside and I've done more gardening, which would have usually been his job." (#33, W, 29).

5.4.2.3 Reaching out to Others

Sometimes participants felt that they needed to reach out to other people outside of the relationship for support or to encourage their partner to do so if they felt the partner was struggling. For example, one participant stated that: "[I'm] encouraging him to keep in touch with his parents and his friends and doing all those sorts of things because he's a bit of hermit sometimes. And I think given half a chance he would just not have talked to them if he didn't have to, but he will miss them and want to see them but at the same time, he'll sometimes forget that he needs to pick up the phone. So, I try to make time to do that with him and go 'Let's give him a ring'" (#15, W, 36). Another participant said she had asked for financial support from parents primarily to help her partner: "I did speak to my parents. This was mainly to support him to be fair about borrowing a bit of money to tide us through because obviously we don't know when wages are coming in and everything" (#8, W, 27).

5.4.2.4 Emotional Support

Participants reported providing each other at least some form of emotional support. They identified two subthemes that were directly related to goal pursuit: *encouragement and motivation* and *reassurance and validation*. Participants identified *encouragement and motivation* as a form of support that they or their partners provided to help motivate each other to pursue goals and interests. For example, one participant noted their partner was encouraging them to pursue goals outside of work: "[He] encouraged me to take the time to pursue a goal, like with the foreign language. And he said, 'you know, I'm going to work on a course now. Pick up yours, take an hour and just do something different'. So, we're quite encouraging of each other to not just be enveloped in work and to pursue passion projects instead." (#44, W, 30). Alternatively, some participants were unwilling to provide encouragement or motivation when they felt it was their partner's decision. For example,

one participant stated, "I never want to seem pushy. I'm more likely to stay quiet unless I have a strong opinion on something" (#21, W, 25).

Reassurance and validation was also identified as aiding goal pursuit by many participants. While encouragement and motivation related to the initial pursuit of goals, reassurance and validation was identified as aiding the continuation of goal pursuit. Participants noted that reassuring words were needed to support them throughout their tasks so that they continued to feel capable. One participant noted their partner was supporting them through validating their daily achievements and encouraging forgiveness: "I think I'm making sure he forgives himself when he's not super-productive. He wakes up and he's like, 'if I work eight hours today, it'll be a good day'. So, I tell him 'and even if you only work five hours, it was a good day. It wasn't a great day, but it was a good day.'" (#12, W, 26). On the other hand, some participants noted it was not always appropriate to comment on or encourage certain behaviors as "the other person kind of takes offence to it" (#36, W, 52). One participant noted they were neither able to encourage nor reassure their partner during the pandemic as they struggled to get out of a negative mindset hence, had to "minimize contact" (#37, W, 19) to not negatively affect their partner.

The other emotional support subthemes did not directly relate to goal pursuit but rather how partners communicated with one another: *patience* and *comfort*. Some participants noted an increased level of *patience*. Participants identified patience as being utilized in times of stress to understand and be considerate of their partners' feelings. For example, one participant said "He's probably got a lot more patience in listening to me rambling on about things where normally he would just be like 'this is a total non-event, what are you doing?'" (#4, W, 46). Many participants also noted an increase of physical and emotional *comfort*. For example, one participant said "we kiss and we hug a lot, and that's a way in which we like to show each other support" (#24, W, 23). Nonetheless, some

participants noted they were less patient with one another and were often "slipping into sort of petty disagreements … [that were] little and often" (#44, W, 30). The conflicts discussed by participants were often not goal specific but a general frustration that extended into their relationship.

5.4.2.5   Instrumental Support

Instrumental support was also reported during lockdown. Instrumental support ranged from actually helping with the goal itself, to helping with other tasks to take a load away from each other, and finally not interfering and instead giving each other the space and time to pursue goals individually. *Helping with a goal* was reported by participants as one of the ways to provide instrumental support. Participants noted that tangible and informational help including giving advice was an important factor in providing support for starting new goals as well as continuing with existing goals. For example, one participant said this about their partner: "She's helping me look for adventures like books, like part-time work, even volunteer work to see if we can help at the hospitals" (#26, M, 40). However, some participants noted that at times they felt unable to help their partner as they needed to focus on their own tasks. For example, one participant stated, "it's harder to define those boundaries between work and home life" (#3, W, 26). As such, it was at times difficult to balance assisting their partner alongside pursuing their own goals.

Participants also reported that they had each been *taking on other tasks* to aid one partner's goal pursuit. Participants noted that they increased support on a variety of tasks including household, childcare, and financial assistance instead of being directly involved in helping partner to pursue their goals. As such, some participants also noted they were taking turns on managing children or household responsibilities to allow the other to pursue goals. Some female participants noted gender dynamics to play a role within household and childcare responsibilities as they described themselves as housewives. For

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example, "I feel a bit like a 1950s housewife at the moment" (#15, W, 36). Overall, some participants said that both partners had become more flexible in taking on chores when one partner needed help. For example, one participant said "when I was trying to learn a language, he would make sure he took the kids and then I had some time just to focus on it myself" (#33, W, 29).

Finally, participants reported that giving each other time and space to pursue goals was a necessary form of support during the pandemic (*non-interference*). Within this theme, participants did not take on additional tasks themselves to give the other space but rather would stay out of each other's way when they knew one partner needed to concentrate on their goals. For example, one participant said "when we did work, we worked in separate rooms. […] So, when one has something to do, it's not interfering. No chat, or nothing." (#20, W, 29). This was not always possible for participants with some noting that due to space, "it is too difficult to separate the work and not work". (#22, M, 47)

5.4.2.6   Follow-up interviews

The follow-up interviews a month later reflected much of the same themes as in the original interviews with participants largely reporting no change. This suggests that participants were still behaving in the same ways after having been in lockdown with each other for over a month. Some participants mentioned an increase in comfort and affection: "There's definitely been more hugs." (#11, W, 36). Participants also stated that there was increase in teamwork which typically presented as taking on other tasks and "taking it in turns to do things" (#15, W, 36). Additionally, a theme of increased quality time was mentioned by participants. For some participants, this was presented as ensuring they always spent the evenings together whereas others would schedule in date nights: "…like date nights basically even though it's a date night watching a film in our own house". (#15,

W, 36). Overall, the themes identified suggest participants felt an increased sense of togetherness as the lockdown continued.

5.4.3 Mixed Methods Results

The mixed methods approach allows for comparison between the quantitative and qualitative results and can be complementary. The results showed that the survey participants rated overall level of RC support relatively high and anti-RC support relatively low during the pandemic. In the qualitative interviews, some participants reported that they were unable to provide support toward each other during the pandemic but the incidence of anti-RC support was rare. The qualitative findings also provide further nuance into the types of support: participants reported both emotional and practical support which were further divided into support that was directly relevant to goal pursuit and support that was enabling support indirectly. We did not find evidence of a distinction between emotional and practical support in the exploratory factor analysis of the quantitative survey. Instead, only positive and negative RC support were identified. This may, however, reflect that participants find that their partners provide both types of support equally and there may be an opportunity in the full RC support scale to better distinguish between emotional and practical support.

5.5 Discussion

The present study provides a unique perspective into how individuals in relationships are coping during one of the worst global public health crises the world has ever experienced. The current pandemic is an unprecedented and stressful event that has an unclear ending and is surrounded with uncertainty and change. Partner support during this time is especially crucial given that support from outside sources may not be easily

accessible. Previous research on partner support and goal outcomes has mostly been conducted during non-stressful times (B. C. Feeney et al., 2017; Jakubiak & Feeney, 2016; Kumashiro et al., 2007; Overall & Fletcher, 2010) or when only one member of the couple was experiencing the stressor (Bolger et al., 2000; Crockett et al., 2017; Gleason et al., 2008). Furthermore, the thriving through relationships framework suggests that RC support is important in non-stressful situations only. However, we showed that RC support can still be beneficial in a stressful situation, at least for goal outcomes: we found that RC support was associated with better goal outcomes (progress, confidence, commitment) during the pandemic. Anti-RC support was less robustly associated with goal outcomes but participants who reported their partners as providing more anti-RC support overall were much more likely to perceive that the pandemic was affecting their goal pursuit. It may be that some participants perceive that the pandemic is affecting their goal pursuit because their partner is more interfering and getting in the way of goal pursuit.

In addition to replicating the previous findings on partner support in a situation in which both partners were experiencing a stressor simultaneously, the study also provides the first evidence that self-reported perception of RC support is predictive of thriving outcomes (B. C. Feeney & Collins, 2015b). Many of the themes found in the qualitative analyses also support the theoretical conceptualization of RC support: effective support includes being available to each other when needed and providing both emotional and practical forms of support; support is important throughout the goal pursuit process from helping recognize opportunities to celebrating successes; and support may also involve helping the support recipient recognize and find resources (e.g., enlisting others) to help them achieve their goals. Together, both the quantitative and qualitative findings provide further support for the theory of thriving through relationships.

The qualitative results also provided further insights into the types of support provided. Previous research has examined the role of emotional and instrumental support on a variety of outcomes with results generally being mixed (Jakubiak et al., 2020; Morelli et al., 2015; Shrout et al., 2006). Some researchers have shown that visibility of support can explain why in some instances support is beneficial but not in others (Girme et al., 2013a, 2013b; Jakubiak et al., 2020; Zee & Bolger, 2019). These findings generally suggest that support that is not perceived by the recipient is beneficial whereas there can be costs to perceived support. However, many other studies do show that perceived support is associated with greater individual and relational outcomes (Fitzsimons & Finkel, 2010; Jakubiak & Feeney, 2016; Rusbult, Kumashiro, et al., 2009). The findings from our qualitative results may shed some light into this debate: participants identified both direct goal-related support (e.g., providing encouragement and motivation, helping with the goal) as well as support that was only indirectly linked to goals (e.g., providing comfort, helping with other tasks). Indeed, this type of indirect RC support may be particularly important during the pandemic due to increased childcare and household responsibilities; partners who are able to share these responsibilities are likely to be able to make more progress toward their goals whereas having a partner who is unable to provide support indirectly may hinder goal pursuit. It is possible that existing measures on support do not capture well indirect forms of support which may not be perceived as support by the recipient but is labelled as support by the provider. Indirect forms of support can be especially helpful in enabling the recipient to make progress toward their goals without negatively impacting self-efficacy. Future research should investigate these findings further in quantitative studies.

The study provided a unique perspective into how individuals in relationships are supporting each other in order to manage goal pursuit during a global pandemic. While the

results were collected during the pandemic, and some questions were specific to the pandemic (e.g., how much goal pursuit had been affected by the pandemic), we expect these findings to generalize beyond the current situation. For example, RC support is not unique to the pandemic and while some interview participants reported that the support had changed since the beginning of social distancing measures, the multiple ways in which people provide support are likely to be similar both in and out of the pandemic.

The study also has several practical implications. The Gottman Method (Gottman & Schwartz Gottman, 2008), a model of couple's therapy, includes "making life's dreams come true" as important for relationships. It refers to having discussions about how the relationship can help achieve individual goals. Discussing goals in the presence of one's partner and asking for what one needs from the partner to achieve their goals should be an important element of couple's therapy. Furthermore, it may be important to provide psychoeducation to couples on how to cope with the stressful situation in order for each partner to continue to pursue goals during the pandemic. For example, interventions based on dyadic coping research provide psychoeducation on how stress can affect couple functioning. A 3-phase training is also conducted as part of the interventions to enhance dyadic coping and mutual understanding of functioning of each partner (Bodenmann & Randall, 2012). The qualitative results can be also used to provide strategies to the public on how to provide effective support during the pandemic. For example, it is important to help partners recognize opportunities, build up their confidence, and be emotionally available in case of setbacks.

Additionally, the interview participants spoke about giving each other space to pursue goals when needed. This was considered an important form of indirect support and is consistent with attachment theory's notion of providing a secure base for exploration in which a partner is only interfering when absolutely necessary (B. C. Feeney & Thrush,

2010). These results are also consistent with a recent qualitative study into dyadic coping and self-regulation in homes for a chronically ill person (Sallay et al., 2019). The study found that space use was an important element of dyadic coping and not managing the space well caused conflicts akin to the present study. Therefore, these findings suggest that it may be important for therapists to consider how couples manage space around each other both when partners are wanting to pursue goals or when they are coping with distress and needing space to be alone.

5.5.1 Strengths and Limitations

The present study had several strengths. These include the use of mixed methods which benefit from the generalizability and reproducibility of statistical analyses as well as an in-depth account of participants' experiences. Additionally, longitudinal data was obtained with daily and weekly reports recorded alongside multiple measures of each construct over the first weeks of lockdown rather than relying on a single observation. Nonetheless, there are several limitations that should be considered. The data were collected from individual couple members, not dyads. As such, reports regarding their partner's behavior may not be as accurate as the reporting of their own behavior. Therefore, it was not possible to assess questions such as support visibility.

It is also possible the study only captured participants who are well-functioning during lockdown given that participants across quantitative and qualitative data reported relatively high levels of support. Some anecdotal evidence from China suggests that the pandemic is likely to "make or break" relationships (Liu, 2020). The present study may be better able to speak to how to cope well and less about what may cause couples to break during the pandemic. Furthermore, during the COVID-19 pandemic, both partners in a couple are simultaneously experiencing the same stressor. In non-pandemic times, stressors

may often fall only on one individual (e.g., preparing for exams, work stress, illness of a parent) and the stressor may only be indirectly affecting the non-stressed partner (Falconier & Kuhn, 2019). Therefore, although consistent with previous literature, these findings may only generalize in situations in which both couple members experience the same stressor simultaneously (for example, having a sick child, political unrest, recession, or dealing with natural disasters such as earthquakes, hurricanes, fires, or floods). Moreover, because of the rapid development of the pandemic, it was not possible to collect pre-pandemic data and examine how support or goal outcomes has changed quantitatively; rather our results rely on the qualitative participants' retrospective accounts of their pre-pandemic levels of support to assess support change.

Participants' stress level was not explicitly measured in the present study and therefore it is not clear how much stress participants were experiencing due to the pandemic. Future research on goal pursuit during the pandemic would benefit from an explicit measure of stress. The age of children in the home may influence partners' ability to pursue goals. This was, however, not measured in the present study. Therefore, it is not clear how big of a role children played in partners' ability to pursue goals during the pandemic. The random slopes in the models failed to converge which resulted in an inability to estimate different slopes for different individuals. This may be because we did not have sufficient variance in the data to estimate random slopes and future research with greater number of time-points may enable researchers to estimate the random slopes in addition to random intercepts. Additionally, while we used longitudinal data in the study, the analysis does not involve any results on change over time due to different goals being assessed each day.

5.5.2 Future Directions

There are a number of possible directions for future research. The qualitative interviews highlighted that support can be both direct and indirect and the participants discussed a number of direct and indirect forms of emotional and instrumental support. We are aware of no previous studies that have explicitly examined whether direct and indirect forms of support are differentially associated with goal outcomes. Therefore, it would be especially interesting in future research to examine whether recipients recognize indirect forms of support as support, and whether indirect support may account for the mixed findings across the support literature in addition to support visibility. Furthermore, because the present sample consisted primarily of individuals in relationships who were coping relatively well during the pandemic, future studies should aim to capture more partners who are not coping well (e.g., those in couples therapy) to better understand both extremes. We also acknowledge that having other family members in the household (e.g., children) may also be affecting goal pursuit during the pandemic but this was not explicitly addressed in the present study. Future research would benefit from explicitly examining how having children may have affected support for goal pursuit during the pandemic.

Moreover, we measured support toward goals in general rather than support for specific goals. However, it is likely that different goals require different forms and amount of support. Indeed, providing support that is consistent with the needs of the recipient is a part of being a skilled support provider (Rafaeli & Gleason, 2009) and the interview participants discussed a number of ways they and their partner provided support for each other's goal pursuit and how this support varied depending on need. Therefore, it would be interesting to examine in future research whether different goal types (e.g., health, career, relationship) would require different types of support and whether this would have an impact on goal outcomes. Furthermore, it is possible that high goal confidence means high

self-reliance for some participants. The results from the present study showed that RC support was positively associated with goal confidence suggesting that this was not the case overall. However, future research could further disentangle goal confidence from self-reliance.

Finally, the focus of the present study was primarily on how partners have provided each other support toward goals during the pandemic and whether this support had changed as a result of the pandemic. Therefore, we did not explicitly focus on how support emerges in relationships or how providing effective support may catalyze relationships over time. For example, given the lack of research into the role of the support seeker in seeking support in relationships (B. C. Feeney & Collins, 2015b), future research should focus on the ways in which support seekers can elicit support from their partner. Furthermore, previous quantitative research has established that partner support is beneficial for relationship outcomes (Overall et al., 2010). However, it would be interesting to further examine the ways in which support can improve relationship outcomes (e.g., by developing greater connection between partners, increasing appreciation) in qualitative studies.

5.5.3   Conclusion

In conclusion, this mixed methods study provided both quantitative and qualitative evidence of how partner support and goal outcomes are impacted during COVID-19. The quantitative findings show that perception of greater partner RC support is positively associated with better goal outcomes. Qualitative findings highlight the importance of both direct and indirect forms of partner emotional and instrumental support to enable goal pursuit. The study adds to the present literature by showing that RC support can still be beneficial in stressful times alongside source of strength support, and shows that both

direct and indirect forms of support may be needed in order to make progress toward tasks

and goals. Most participants in the study exhibited an amazing amount of resilience in the

face of the pandemic with many of the participants reporting increased support. This

suggests that individuals who are in supportive relationships may be able to grow

individually and in their relationship by experiencing adversities together.

5.6 Tables

Table 1

Demographic Variables for the Quantitative and Qualitative Data

	Quantitative (n = 200)		Qualitative (n = 48) [a]	
	M	SD	m	SD
Age	36.5	12.3	36.0	12.9
Relationship length	11.1	9.32	10.4	10.9
	N	%	n	%
Gender				
Woman	105	52.5	33	68.8
Man	93	46.5	15	31.1
Other	2	1.0	0	0.0
Sexual orientation				
Heterosexual	182	91.0	36	76.6
Bisexual	9	4.5	7	14.9
Lesbian/Gay	7	3.5	4	8.5
Other	2	1.0	0	0.0
Relationship status				
Married	102	51.0	26	55.2
Cohabiting	98	49.0	22	46.8
Children				
No	95	47.5	33	70.2
1	40	20.0	2	4.3
2	45	22.5	8	17.0
3	18	9.0	1	2.1
4	2	1.0	1	2.1
5	0	0.0	1	2.1
Ethnicity				
White	184	92.0	41	87.2
Black	5	2.5	1	2.1
Asian	6	3.0	4	8.5
Mixed	2	1.0	1	2.1
Education				
Graduated high school	28	14.0	4	8.5
Some college	38	19.0	4	8.5
Undergraduate	74	37.0	17	36.1
Postgraduate	52	26.0	19	40.4
Other	8	4.0	4	8.5
Employment status				
Employed full-time	121	60.5	21	44.7
Employed part-time	23	11.5	6	12.8
Self-employed	26	13.0	6	12.8
Student	4	2.0	6	12.8
Unemployed	7	3.5	4	8.5
Retired	9	4.5	3	6.4

Employment changed				
No	153	76.5	33	70.2
Yes	47	23.5	14	29.8
Usually work from home				
No	138	69.0	33	70.2
Yes	62	31.0	13	27.7
Country				
UK	119	59.5	32	68.1
USA	17	8.5	4	8.5
Other	64	32.0	12	25.5
Keyworker				
No	166	83.0	44	93.6
Yes	34	17.0	3	6.4
Coronavirus symptoms				
No	179	89.5	39	83.0
Yes	21	10.5	8	17.0

a. One interview participant did not complete the baseline and therefore most of the demographic data include data from 47 participants.

Table 2

Means, Standard Deviations, and Correlations with Confidence Intervals

Variable	*M*	*SD*	1	2	3	4	5	6
1. RC	6.04	2.76	-	-.20** [-.24, -.17]	.08** [.04, .12]	.05 [.01, .09]	.08** [.04, .12]	-.03 [-.07, .01]
2. Anti-RC	1.07	1.75	-.14** [-.17, -.11]	-	-.07** [-.11, -.04]	-.04 [-.07, .00]	-.01 [-.05, .03]	.14** [.10, .18]
3. Progress	67.13	31.86	.07** [.03, .10]	-.04 [-.07, -.01]	-	.52** [.49, .55]	.41** [.37, .44]	-.05 [-.09, -.01]
4. Confidence	7.08	2.57	.08** [.04, .11]	-.00 [-.03, .03]	.53** [.51, .56]	-	.60** [.57, -.62]	-.01 [-.05, .03]
5. Commitment	7.06	2.64	.09** [.06, .12]	.03 [.00, .07]	.45** [.43, .48]	.59** [.56, .61]	-	.02 [-.02, .06]
6. Affect	4.72	3.38	-.04* [-.08, -.01]	.06** [.03, .09]	-.07** [-.10, -.03]	-.06** [-.09, -.03]	-.03 [-.06, .00]	

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each random measures correlation. The correlation in the daily diary data are presented below the diagonal and weekly measures above the diagonal. * indicates *p* < .01. ** indicates *p* < .001.

Table 3

Results from the Hierarchical Linear Modeling for RC and Anti-RC Support as Predictors of Goal Outcomes

	Progress						Confidence						Commitment					
	Daily			Weekly			Daily			Weekly			Daily			Weekly		
Predictors	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p
Intercept	65.39	62.66 – 68.11	**<0.001**	66.45	63.76 – 69.14	**<0.001**	7.14	6.93 – 7.35	**<0.001**	7.17	6.95 – 7.39	**<0.001**	7.06	6.84 – 7.27	**<0.001**	7.09	6.86 – 7.31	**<0.001**
RC_W	1.28	0.64 – 1.93	**<0.001**	1.40	0.55 – 2.26	**0.001**	0.12	0.07 – 0.17	**<0.001**	0.08	0.01 – 0.15	0.028	0.16	0.11 – 0.21	**<0.001**	0.14	0.07 – 0.22	**<0.001**
$AntiRC_W$	-0.75	-1.58 – 0.08	0.078	-1.73	-2.77 – -0.68	**0.001**	0.02	-0.05 – 0.09	0.597	-0.04	-0.13 – 0.04	0.331	0.10	0.03 – 0.17	**0.005**	0.02	-0.06 – 0.11	0.585
RC_B	1.76	0.74 – 2.78	**0.001**	1.85	0.89 – 2.81	**<0.001**	0.25	0.17 – 0.32	**<0.001**	0.25	0.17 – 0.33	**<0.001**	0.27	0.20 – 0.35	**<0.001**	0.27	0.18 – 0.35	**<0.001**
$AntiRC_B$	-1.97	-3.70 – -0.24	0.026	-2.90	-4.58 – -1.22	**0.001**	-0.05	-0.18 – 0.09	0.496	-0.13	-0.27 – 0.01	0.073	-0.05	-0.18 – 0.09	0.490	-0.05	-0.19 – 0.09	0.507
Time	0.52	0.09 – 0.94	0.018	0.14	0.03 – 0.24	**0.009**	-0.02	-0.06 – 0.01	0.202	-0.01	-0.02 – -0.00	**0.003**	-0.01	-0.04 – 0.03	0.780	-0.01	-0.02 – 0.00	0.070
Random Effects																		
σ^2	712.25			664.05			4.72			4.34			4.96			4.67		
τ_{00}	264.57 ID			232.15 ID			1.49 ID			1.62 ID			1.48 ID			1.65 ID		
ICC	0.27			0.26			0.24			0.27			0.23			0.26		
N	200 ID			199 ID			200 ID			199 ID			200 ID			199 ID		
Observ.	3755			2660			3773			2676			3769			2673		

| R^2 | 0.036 | 0.060 | 0.061 | 0.081 | 0.073 | 0.075 |

Note. W = within-participant change, B = between-participant change, ID = Participant as nesting variable

Table 4

Results from the Hierarchical Linear Modeling for RC And Anti-RC Support as Predictors of

Perception of Goals Being Affected by Pandemic

	Goals Affected by Pandemic					
	Daily			Weekly		
Predictors	Estimates	CI	p	Estimates	CI	p
Intercept	5.05	4.66 – 5.44	**<0.001**	4.88	4.49 – 5.28	**<0.001**
RC_W	-0.06	-0.16 – 0.03	0.203	-0.00	-0.12 – 0.12	0.982
$AntiRC_W$	0.10	-0.02 – 0.23	0.112	0.31	0.15 – 0.46	**<0.001**
RC_B	0.07	-0.07 – 0.22	0.308	0.07	-0.07 – 0.21	0.339
$AntiRC_B$	0.47	0.23 – 0.72	**<0.001**	0.47	0.22 – 0.72	**<0.001**
Time	-0.12	-0.19 – -0.06	**<0.001**	-0.01	-0.02 – 0.01	0.429
Random Effects						
σ^2	6.03			5.12		
τ_{00}	4.96 $_{ID}$			5.06 $_{ID}$		
ICC	0.45			0.50		
N	200 $_{ID}$			200 $_{ID}$		
Observations	1360			948		
R^2	0.044			0.047		

Note. W = within-participant change, B = between-participant change, ID = participant as nesting variable

Table 5

Themes and Subthemes with Descriptions and Representative Quotes for Support

Theme	Subthemes	Description	Quotes
Emotional support	Encouragement & Motivation	Support is provided through encouraging partner to start pursuing their own goals and interests	Just motivating talk sometimes just the sentence you know, you can do it. 'It's gonna be good. No, you won't fail'. Something like that just lifts my spirit. (#34, M, 18) He helps me a lot with getting motivated and remembering that I have things to do but at the same time, not overworking myself and he encourages me to take breaks and he steps in and just helps me like he'll refill my coffee. (#37, W, 19) When one of us wants to do something the other will just sort of encourage them say 'you can do it come on. A little bit more.' (#38, M, 33) We do a really good job of motivating each other and keeping each other kind of on track, because we're both in quite a small space together (#41, W, 27)
	Reassurance & Validation	Support is provided through reassuring partner so they continue with goal pursuit	Sometimes I have the ability of looking at things in a more rational way. And when he's kind of losing it I try to remind him that we're very privileged in that we are going to be okay. (#2, W, 37) And so we've been supporting each other by: he'll do something and be like, 'Oh, I'm not making any progress on this'. I'll say, 'but wait, but you did this, this and this', which are things that I can recognise because I'm outside of it. And then he does the same for me. (#3, W, 26) I think both of us obviously just need reassurance because it is highly anxiety provoking for anyone. So, I think just having to be able to say to the other person, like, 'are we going to be alright' for them to just be like, 'Yes, I think so'. (#8, W, 27)
	Patience	Support is provided through being considerate and understanding of partner's feelings at times of stress.	I see what he's doing a bit more. Sometimes it's hard to exactly know what his issues are at work on where his stress is really coming from, but now that I see what he's working on, then it makes a little bit easier to understand that. (#14, W, 30) We kind of had these separate work-life, home-life situations. […] I think we just let things go maybe rather than cause an argument about it or kind of a bit more understanding of each other. (#46, W, 31) He is very understanding about food and things like that so he likes to cook when I don't feel like cooking, obviously, because I've had an eating disorder that [is] so special (#24, W, 23)

	Comfort	Support is provided through affection that is both physical and emotional in times of stress including listening to one's partner and checking in with each other.	If I've got something […] a little bit depressing or something like, just go over. You tell them come and have a short rant or not. And then you also get your cuddles or supporting words. (#10, M, 42) And you see, he makes a lot more space for me to communicate with him than you maybe normally would in that setting, and he kind of listens to it and thinks about it. (#4, W, 46) I think just a lot of checking in with him and talking to him and seeing how he's feeling and what could be helpful. (#5, W, 36)
Instrumental support	Helping with goal	Support is provided through advice and facilitating goal pursuit so that their partner can pursue new goals.	He has been thinking about going back to school, because he didn't finish his bachelor's degree the first time. […] I've been trying to help facilitate him, get into that and see what opportunities might be lurking in the near future when this all ends. (#3, W, 26) Well, she's been quite helpful with my CV and has a look over it and talked about some of the possible options for getting a job after I qualify, which has been helpful. (#31, M, 29) I'll say 'do you want to run it by me, and I'll pick up anything before you send it out?' and he seems to like that. (#21, W, 25)
	Taking on other tasks	Completing tasks on behalf of the partner and/or providing financial assistance, to alleviate pressure and allow partner to continue pursuing their own goal.	He financially supports me as well. He always tells me that you don't have to worry about your finances. (#19, M) She's working from home and she seems to think that I'm her personal IT help desk now. So rather than trying to contact anyone, at her actual work, she just bothers and pesters me to fix any IT problems she's got. (#26, M, 40) And he does some of the chores that I absolutely hate, which is nice. And he's just, he's always there, which is nice. He's dependable and he's reliable. (#18, W, 32)
	Non-interference	Support is provided through physical space so partner can pursue their own goals uninterrupted	I think we're quite supportive of each other's space when we need to, I mean, my partner mostly works in the living room, and I've got the corridor to myself, sometimes it's just a case of closing the door if we need that space when we're working. (#13, M, 31) […] do the things he needs to do and also try and give him a bit of time to do the things he wants to do. […] So, he sits up in his attic and paints these models, so trying to give him time to do that. (#15, W, 36) (NO.14) I think part of this point is just giving him the space for him to play video games and giving me space and just letting each other know like, 'okay, are we going to hang out right now? Or are we going to do our own thing for a bit?' (#14, W, 30)

Chapter 6   **Manuscript 5: Attachment Styles, Negotiation of Goal Conflict, and Perceived Partner Support During COVID-19**

6.1   Abstract

Due to the pandemic, people have been stuck indoors with their partners for months. Instead of being able to rely on multiple sources of support, many couples have to rely on each other more. We investigated whether goal conflict, successful negotiation of the conflict, and individual differences in attachment styles were associated with perceived partner support to understand factors that may enable or hinder goal pursuit during the pandemic. Participants (n = 200) completed a daily diary for a week and weekly longitudinal reports for five weeks. Results showed that higher goal conflict predicted perception of less relational catalyst (RC) support and more anti-RC support from partner, whereas more successful negotiation of goal conflict predicted higher RC support and lower anti-RC support. Attachment avoidance was directly associated with less support. Attachment anxiety moderated the relationship between goal conflict and support: when goal conflict was high, individuals higher in attachment anxiety perceived their partners as more supportive compared to individuals lower in attachment anxiety. Implications for partner support during the pandemic are discussed.

Keywords: COVID-19; Partner Support; Attachment; Relationships; Goals

6.2   Introduction

Because of COVID-19, many countries are engaging in social distancing measures including working from home, avoiding social situations, and shutting down schools causing wide social and economic disruptions (United Nations, 2020). Social distancing has meant that couples are staying at home without much outside support for an extended period of time. The change in circumstances is likely to increase goal conflict because couples are having to negotiate how to continue work-related tasks and pursue goals while simultaneously managing other demands. Couples also struggle to be responsive during highly stressful times (Neff & Karney, 2004). Indeed, conflict in relationships has increased since the start of the pandemic (Balzarini et al., 2020). Perceiving partners as responsive can buffer against the negative impact of pandemic-related stressors (financial strain, stress, conflict, and social isolation; Balzarini et al., 2020). Partner support may be more important than ever as couples strive to cope with demands caused by the pandemic, while at the same time goal conflict may deter partners from being as supportive as they otherwise might be. In the present daily diary and longitudinal study[14], our aim was to add to the literature by examining several novel research questions: whether goal conflict and negotiation of goal conflict predicted perceived support and whether individual differences in attachment styles prevented some individuals from perceiving partner support during COVID-19.

A recent theoretical model, thriving through relationships, describes the interpersonal process of how partners can create an optimal environment for thriving by providing relational catalyst (RC) support (B. C. Feeney & Collins, 2015b). RC support involves being an active catalyst throughout the process of attaining goals including

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[14] Because of the unprecedented nature of the pandemic, we were unsure how quickly the situation might change and therefore we chose to collect both daily and weekly data.

helping the recipient to recognize and view opportunities positively, providing a secure base for exploration, and helping with potential setbacks (B. C. Feeney et al., 2017). If the partner is able to provide effective RC support, the recipient is likely to perceive the partner as responsive (B. C. Feeney et al., 2017). However, if the partner is not responsive and instead is seen as intrusive, the recipient is likely to perceive them as providing anti-RC support. Feeney and Collins (2015) proposed that attachment-anxious individuals may have particular difficulty seeking RC support as pursuing independent goals may trigger anxious individuals' fear of losing their partner. Furthermore, avoidant individuals may find support seeking particularly difficult during stressful times. Therefore, we would expect individual differences in attachment styles to predict perception of partner support.

6.2.1 Goal Conflict in Relationships

While close relationship partners can help each other pursue goals, each partners' goals are likely at times to conflict with the interests of the other or the relationship. Repeated exposure to goal conflict is likely to be harmful for relationships because it continuously tests partners' commitment toward each other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). Goal conflict is indeed negatively associated with relational and personal well-being (Gere et al., 2011; Gere & Impett, 2018; Gere & Schimmack, 2013; Righetti et al., 2016). Only one study has examined whether goal conflict is associated with less support providing and found that more (vs. less) committed individuals support their partners only when goals do not pose a threat to the relationship (Hui et al., 2014). However, none have examined whether goal conflict predicts perceiving partners as supportive. We aim to investigate this novel question in the context of a global pandemic, a highly unusual and stressful situation. We expect that higher levels of goal conflict will be negatively associated with perceiving one's partner as providing RC

support and positively associated with perceiving one's partner as providing anti-RC support (H1).

Furthermore, being able to successfully negotiate goal conflict is likely to influence perceived support. We are aware of no studies that have examined whether successful negotiation of goal conflict predicts support in romantic relationships. However, previous research examining how couples resolve general conflicts has found that more successful negotiation predicts greater relational well-being (Delatorre & Wagner, 2019; Kurdek, 1995). Given that successful negotiation of conflict predicts better outcomes and may enable partners to be more supportive, we expect that negotiation of goal conflict will be positively associated with perception of RC support and negatively associated with perception of anti-RC support (H2).

6.2.2   Attachment Styles and Goal Conflict

Because of the uncertainty caused by the pandemic, need for safety and security is likely to be greater. At the same time, insecurities around partner availability may be heightened, leading more insecure individuals to perceive their partners as less supportive. Furthermore, attachment security has previously been associated with more adaptive response to stressful situations whereas attachment insecurity can impede ability to respond to stressors (for a review, see Mikulincer & Shaver, 2016). Insecure attachment is generally viewed along two dimensions: anxiety and avoidance (Brennan et al., 1998). High attachment anxiety is characterized by over-reliance on support and reassurance seeking from others because of feeling unlovable and unworthy of others (Mikulincer & Shaver, 2012). Attachment avoidance is characterized by a high degree of self-reliance and distrust of others' capacity to provide support in times of need (Mikulincer & Shaver, 2012). Therefore, we expect that higher (vs. lower) levels of attachment anxiety and higher

(vs. lower) avoidance will be negatively associated with perceived RC support and positively associated with perceived anti-RC support, albeit for different reasons (Exploratory H1).

There are no published studies to date that have addressed whether individual differences in attachment styles moderate the association between goal conflict and support. However, theoretically we would expect attachment styles to influence how partners manage goal conflict in relationships. We expect that because attachment-anxious individuals are especially worried about maintaining closeness in relationships (Mikulincer & Shaver, 2012), they would experience goal conflict as threatening to the relationship. Therefore, we expect that when goal conflict is high, higher levels of attachment anxiety will negatively predict perception of RC support and positively predict perception of anti-RC support (Exploratory H2). We expect avoidant individuals to perceive their partners as less responsive overall regardless of goal conflict and therefore not significantly moderate the association between goal conflict and RC support. Hypotheses for attachment were exploratory because we had less power to detect these effects, especially the moderator effects, and attachment tends to inconsistently predict perception of support (Mikulincer & Shaver, 2016).

6.3   Method

6.3.1   Participants and Procedure

We preregistered the study on the Open Science Framework: https://osf.io/ght3x/?view_only=5b53d9e33690444e9cde8a6527775d2b. The data, code, and materials are here: https://osf.io/qr7cm/?view_only=365bf35f7ddd45548143b851e10cfcd9. The study received ethical approval from the institutional review board. Data were collected via

Prolific. Participants who were aged 18 and above and currently living with their partner in a country in which social distancing measures were in place were invited to participate. We limited the number of participants for the quantitative surveys to 200 because of funding. Based on a simulated power analysis, data from 200 participants (up to 4,200 observations) yield a power of 96.7% to estimate an average effect size in Psychology ($r = 0.22$; Richard et al., 2003) with an alpha level of $p < .01$. Participants were reimbursed £4.70 after completing the daily diary and a further £2.00 after completing all follow-ups.

Participants completed a baseline survey (demographic characteristics and attachment) on 31st March, 2020, shortly after many countries had gone under lockdown. Participants then completed daily surveys for the next seven days in which they responded to questions about partner support, goal conflict, and negotiation of goal conflict from the past 24 hours (see Figure 1 for timeline). After the daily diary, participants completed a further three follow-ups, one week apart. This resulted in five weekly timepoints. Follow-up surveys asked similar questions to the daily diary but participants reported on the previous week rather than 24 hours. Surveys were conducted via Qualtrics. The final sample was 200 with an attrition rate of 4% at the end of the diary and 8.5% at the end of the five weeks. All participants completed at least two timepoints and were included in the final analyses. Demographics can be found in Table 1.

6.3.2 Measures

6.3.2.1 Attachment Styles

Attachment was measured at baseline using the short version of the Experience in Close Relationships questionnaire (ECR-12; Lafontaine et al., 2016) which includes 12 Likert-scale items with two six-item subscales: anxiety (e.g., *"I worry that my partner won't care about me as much as I care about them."*; α = .83) and avoidance (e.g., *"I don't*

feel comfortable opening up to my partner."; α = .85). Participants rated agreement with items on a scale from 0 (*Disagree Strongly*) to 10 (*Agree Strongly*).

6.3.2.2   Relational Catalyst (RC) Support

Partner support was measured using a shorter version of the Relational Catalyst Support Survey (B. C. Feeney & Collins, 2014). We shortened the original 32-item questionnaire to 8-items to reduce participant fatigue. Items were selected based on face validity; also, we included both positive and negative emotional and practical support items. Participants responded to items on a scale from 0 (*Not at All*) to 10 (*Extremely*). Because there are no published guidelines on the survey, we ran an exploratory factor analysis using principal axis factoring with varimax rotation to examine its factor structure. Results indicated two factors: RC support (e.g., *"Has given me confidence to pursue my goals or opportunities"*; α = .93) and anti-RC support (e.g., *"Has been negative or demeaning when I am pursuing goals or opportunities"*; α = .86).

6.3.2.3   Goal Conflict and Negotiation

At each time-point, we asked participants to list up to three goals that they had been working towards in the past 24 hours (or the past week in the weekly follow-ups). The most common goals included domestic (31.4%), exercise/health (20.1%), career (16.4%), and hobbies/self-development (14.7%). Goal conflict was measured with two items: "How problematic was pursuing this goal for your partner?" and "How problematic was pursuing this goal for your relationship?" Participants were also asked "How well were you able to negotiate with your partner being able to work toward your goals?" Items were rated on a scale from 0 (*Not at All*) to 10 (*Extremely*).

6.3.3   Data Analysis Plan

We separated the within- and between-subjects' elements of the predictor variables (see Bolger & Laurenceau, 2013). The within-subjects variables show the difference in the outcome variables due to within-person elements and the between-subjects variable shows the average difference between participants' average scores in the outcome variables. Time was scaled to start at 0 and was included in both daily diary and weekly analyses as a control. Daily diary data and the weekly longitudinal data were separately analyzed using hierarchical linear modeling (Raudenbush & Bryk, 2002) with two levels (time-points nested within individuals). Attachment anxiety and avoidance were measured once at baseline and did not vary across timepoints. All models included only a random intercept as models with any random slopes failed to converge. Data were analyzed using the *lme4* package in *R*. Several models were conducted to test the hypotheses and therefore we used an alpha level of $p < .01$ as a cutoff for significance. The models were run first only including the main effects and again including attachment in the model.

6.3.4   Results

We assessed two types of goal conflict: self-goals that conflict with partner's and relationship's goals[15]. The results for relationship goal conflict are presented in the supplemental material in Appendix B as they were similar to partner goal conflict. Descriptive statistics and correlations among all variables are presented in Table 1.

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[15] We also tested models including Covid-related covariates (change in employment, keyworker [critical worker during the pandemic], Covid-symptoms, working from home, days since social distancing) into the model. Very few were significant or changed the results and can be found as part of the code/results on OSF.

6.3.4.1   Goal conflict and support

Consistent with our hypothesis that goal conflict would be associated with less RC support and more anti-RC support (H1; see Table 2), on days/weeks when participants felt their goals conflicted more with their partner's goals or relationship's goals, they reported their partner as providing less RC support and more anti-RC support. However, daily variation in goal conflict did not significantly predict a decrease in RC support for relationship goal conflict but did for partner goal conflict. The results for between-participants showed a similar pattern. We also hypothesized that negotiation of goal conflict would predict perception of support (H2; see Table 3). We found that on days/weeks when participants perceived that they and their partner were more successful in negotiating goal conflict they also perceived their partner as providing more RC support and on days/weeks when they perceived that negotiating goal conflict was less successful they experienced their partners as providing more anti-RC support. The results for between-participants showed a similar pattern.

6.3.4.2   Attachment anxiety and avoidance

Importantly, we expected that individuals higher in attachment anxiety or avoidance would perceive their partners as less supportive (Exploratory H1; Table 2). This hypothesis was partially supported. Attachment anxiety did not significantly predict perception of support. However, individuals higher in attachment avoidance were significantly less likely to perceive their partners as providing RC support both in the daily and weekly data and explained some of the between-person variability in the data; after including attachment avoidance in the model, between-person variability in goal conflict was no longer significant.

We also expected attachment anxiety to moderate the association between goal conflict and support (Exploratory H2; see Figure 2 for the simple slopes). Attachment

anxiety significantly moderated the association between goal conflict and RC and anti-RC support in the longitudinal weekly but not in the daily diary data. However, contrary to our prediction, on weeks when goal conflict was higher, participants higher in attachment anxiety (B = -0.06 (SE = 0.02), t = -3.08) perceived their partners as providing more RC support compared to participants lower in attachment anxiety (B = -0.14 (SE = 0.02), t = -6.85). Similarly, on weeks when goal conflict was higher, participants higher in attachment anxiety (B = 0.11 (SE = 0.02), t = 7.59) perceived their partners as providing less anti-RC support compared to participants lower in attachment anxiety (B = 0.18 (SE = 0.02), t = 10.44). Overall, individuals higher in attachment anxiety perceived their partners as providing more RC support and less anti-RC support when goal conflict was high compared to individuals low in attachment anxiety. An opposite pattern was observed on low conflict weeks: Participants lower in attachment anxiety perceived their partners as providing more RC support and less anti-RC support compared to participants high in attachment anxiety. We also explored whether attachment anxiety moderated the association between negotiation and support but none of the moderator effects were significant. We did not include these results here as they were not preregistered.

6.4   Discussion

Because partner support is especially crucial during COVID-19 as social distancing measures prevent many people from seeking support from sources outside of their romantic relationship, the aim of the present study was to understand factors that may hinder effective support, including goal conflict and attachment insecurity. Both RC and anti-RC support remained stable over the study period suggesting any variation in support was due to factors other than time. Our results suggest that higher goal conflict is likely to result in suboptimal levels of support whereas successful negotiation of goal conflict is

important for partners' ability to provide an optimal environment for goal pursuit.
Interestingly, goal conflict predicted a much higher increase in anti-RC support than a
decrease in RC support suggesting that goal conflict likely induces feelings that the partner
is trying to hinder goal pursuit rather than simply withdrawing support. In contrast,
successful negotiation of goal pursuit was more strongly predictive of perceiving one's
partner as providing more RC support than less anti-RC support. It appears that negotiating
goal conflict is especially important in increasing feelings that a partner is supportive of
one's goal pursuits[16]. Previous research has found that partners will provide support to the
extent that they feel the goals do not take the partner away from the relationship (B. C.
Feeney et al., 2017; Hui et al., 2014). While in the present study we did not have access to
partner's reports of their own support providing, we showed that during higher goal
conflict, the recipient perceived less support from their partner.

Furthermore, in line with previous research (Florian et al., 1995), we found that
individuals higher in attachment avoidance perceived their partner as less supportive
toward their goals overall. This finding is important because during social distancing
measures, support from outside sources may not be accessible and a partner may be the
most important source of support. Yet, avoidant individuals are viewing their partners as
less supportive of goal pursuits. This may leave avoidant individuals especially vulnerable
and lacking support during the pandemic.

In contrast, attachment anxiety did not predict perceptions of support which is
contrary to the prediction by Feeney and Collins (2015). Attachment anxiety was,
however, a moderator of goal conflict in the weekly longitudinal data. Contrary to our
hypothesis, individuals high in attachment anxiety actually perceived their partners as more

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[16] It is also possible that similarity in valence is an underlying factor explaining the results; future
research should address this.

supportive compared to more secure individuals when goal conflict was high. These results are similar to findings by Pietromonaco and Barrett (1997) who found that anxious individuals perceive others more positively in high (vs. low) conflict situations, which anxious individuals may interpret as an intimate interaction. However, because these findings were unexpected, they should be replicated.

Strengths of the present study include the use of longitudinal data with both daily and weekly reports over the first weeks of many countries' lockdowns; furthermore, our hypotheses and analyses were preregistered. The study had some limitations. Data were collected from individual couple members, not dyads, and were based on one partner's perception[17]. Future research should investigate whether partner's actual support behaviors are influenced by goal conflict and its negotiation. Researchers could also examine whether partner's attachment style moderates the association between goal conflict and providing support. For example, partners who are more anxiously attached may experience goal conflict as a threat and withdraw support. The participants reported relatively high levels of support and low levels of anti-RC support and goal conflict, therefore the study may have captured mainly participants who were coping relatively well with lockdown. We would expect, however, that the results would be even stronger in a sample with higher levels of goal conflict. Future research should target more distressed couples. Finally, the present study does not include pre-pandemic data from participants, thus it does not allow for within-participant comparisons.

In conclusion, the present study showed that goal conflict predicts a decrease in support whereas its negotiation predicts an increase in support. We show that avoidant individuals perceive their partners as less supportive, whereas anxious individuals perceive

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[17] Previous research has shown that partner effects predict no additional variance in outcomes (Joel et al., 2020)

their partners as more supportive than secure individuals but only when goal conflict is high. The study also provides a unique perspective into how individuals are coping during one of the worst global health crises the world has experienced and suggests that helping individuals in relationships negotiate goal conflicts may enable them to be more available and responsive toward each other.

6.5   Tables

Table 1

Demographic Variables

	M	SD
Age	36.5	12.3
Relationship length	11.1	9.32
	N	%
Gender		
Woman	105	52.5
Man	93	46.5
Other	2	1.0
Sexual orientation		
Heterosexual	182	91.0
Bisexual	9	4.5
Lesbian/Gay	7	3.5
Other	2	1.0
Relationship status		
Married	102	51.0
Cohabiting	98	49.0
Children		
No	95	47.5
Yes	105	52.5
Ethnicity		
White	184	92.0
Black	5	2.5
Asian	6	3.0
Mixed	2	1.0
Education		
Graduated high school	28	14.0
Some college	38	19.0
Undergraduate	74	37.0
Postgraduate	52	26.0
Other	8	4.0
Employment status		
Employed full-time	121	60.5
Employed part-time	23	11.5
Self-employed	26	13.0
Student	4	2.0
Unemployed	7	3.5
Retired	9	4.5
Employment changed		
No	153	76.5
Yes	47	23.5
Usually work from home		
No	138	69.0

Yes	62	31.0
Country		
UK	119	59.5
USA	17	8.5
Other	64	32.0
Keyworker		
No	166	83.0
Yes	34	17.0
Coronavirus symptoms		
No	179	89.5
Yes	21	10.5

a. None had been diagnosed with coronavirus.

Table 2

Means, Standard Deviations, and Correlations with Confidence Intervals for the Diary

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. RC	6.04	2.76	-	-.20 [-.24, -.17]	.33 [.30, .37]	-.13 [-.17, -.09]	-.11 [-.16, -.08]	-.43 [-.46, -.40]	-.08 [-.12, -.04]
2. Anti-RC	1.07	1.75	-.14 [-.17, -.11]	-	-.25 [-.29, -.22]	.25 [.21, .19]	.21 [.17, .25]	.23 [.19, .26]	.15 [.12, .19]
3. Negotiation	7.09	2.66	.34 [.31, .37]	-.20 [-.23, -.17]	-	-.19 [-.22, -.15]	-.19 [-.23, -.16]	-.35 [-.38, -.32]	-.06 [-.10, -.02]
4. Conflict$_P$	1.39	2.39	-.08 [-.11, -.05]	.21 [.17, .24]	-.14 [-.17, -.10]	-	.63 [.60, .65]	.22 [.18, .26]	.12 [.09, .16]
5. Conflict$_R$	1.32	2.31	-.11 [-.14, -.07]	.20 [.17, .23]	-.16 [-.19, -.13]	.66 [.64, .68]	-	.22 [.18, .25]	.13 [.09, .16]
6. Avoidance	2.27	1.74	-.39 [-.41, -.36]	.22 [.19, .25]	-.31 [-.34, -.28]	.22 [.19, .25]	.24 [.21, .27]	-	.16 [.13, .20]
7. Anxiety	3.67	2.17	-.08 [-.11, -.05]	.14 [.11, .17]	-.08 [-.11, -.05]	.14 [.11, .17]	.14 [.11, .17]	.16 [.13, .19]	-

Note. M = mean (across participants and time-points); *SD* = standard deviation. Values in square brackets indicate the 95% confidence interval for each correlation. The random measures correlations for daily diary data are presented below and for weekly data above the diagonal. Correlations for avoidance and anxiety with other study variables are zero-order correlations. All significant at *p* < .01.

Table 3

Results from the Hierarchical Linear Modeling for Goal Conflict and Attachment as Predictors of RC and Anti-RC Support

	RC Support						Anti-RC Support					
	Daily			Weekly			Daily			Weekly		
Predictors	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p
Intercept	6.10	5.78 − 6.41	**<0.001**	6.25	5.93 − 6.57	**<0.001**	1.17	1.04 − 1.30	**<0.001**	0.96	0.84 − 1.08	**<0.001**
Conflict$_{PW}$	-0.07	-0.10 − -0.04	**<0.001**	-0.10	-0.13 − -0.07	**<0.001**	0.12	0.10 − 0.14	**<0.001**	0.15	0.12 − 0.17	**<0.001**
Conflict$_{PB}$	-0.14	-0.35 − 0.06	0.172	-0.22	-0.42 − -0.01	**0.040**	0.71	0.63 − 0.79	**<0.001**	0.73	0.65 − 0.80	**<0.001**
Avoidance	-0.52	-0.71 − -0.34	**<0.001**	-0.56	-0.75 − -0.37	**<0.001**	0.01	-0.06 − 0.08	0.778	0.00	-0.07 − 0.07	0.993
Anxiety	0.01	-0.13 − 0.15	0.896	0.02	-0.13 − 0.17	0.792	0.00	-0.06 − 0.06	0.965	0.03	-0.03 − 0.08	0.349
Time	0.00	-0.02 − 0.03	0.747	0.00	-0.00 − 0.01	0.585	-0.03	-0.05 − -0.02	**<0.001**	0.01	0.01 − 0.01	**<0.001**
Conflict$_{PW}$ * Anxiety	0.01	0.00 − 0.02	0.025	0.02	0.01 − 0.03	**0.002**	-0.01	-0.01 − 0.00	0.188	-0.01	-0.02 − -0.00	**0.006** *
Conflict$_{PW}$ * Avoidance	0.01	-0.00 − 0.02	0.088	0.01	-0.01 − 0.02	0.467	0.01	-0.00 − 0.02	0.067	0.02	0.01 − 0.03	**0.002** *
Random Effects												
σ^2	1.87			1.44			1.08			0.93			

τ_{00}	4.76 ID	4.99 ID	0.71 ID	0.59 ID
ICC	0.72	0.78	0.40	0.39
N	200 ID	199 ID	200 ID	199 ID
Observations	3769	2674	3769	2674
R^2	0.135	0.165	0.434	0.491

Note. P = goal conflicts with partner's goals, W = within-participant change, B = between-participant change, ID = participant level

Table 4

Results from the Hierarchical Linear Modeling for Negotiation of Goal Conflict as a Predictor of RC and Anti-RC Support

| | RC Support | | | | | | Anti-RC Support | | | | | |
| | Daily | | | Weekly | | | Daily | | | Weekly | | |
Predictors	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p
Intercept	6.06	5.80 – 6.33	**<0.001**	6.20	5.93 – 6.47	**<0.001**	1.19	0.98 – 1.39	**<0.001**	0.95	0.75 – 1.15	**<0.001**
Negotiate$_w$	0.27	0.23 – 0.32	**<0.001**	0.25	0.20 – 0.30	**<0.001**	-0.12	-0.15 – -0.09	**<0.001**	-0.15	-0.20 – -0.11	**<0.001**
Negotiate$_B$	0.83	0.71 – 0.95	**<0.001**	0.87	0.75 – 0.99	**<0.001**	-0.24	-0.33 – -0.15	**<0.001**	-0.31	-0.40 – -0.22	**<0.001**
Time	-0.00	-0.04 – 0.03	0.876	0.00	-0.01 – 0.01	0.923	-0.04	-0.07 – -0.01	0.014	0.01	0.00 – 0.02	0.011
Random Effects												
σ^2	1.92			1.60			1.20			1.09		
τ_{00}	2.71 $_{ID}$			2.90 $_{ID}$			1.60 $_{ID}$			1.41 $_{ID}$		
ICC	0.59			0.64			0.57			0.56		
N	200 $_{ID}$			200 $_{ID}$			200 $_{ID}$			200 $_{ID}$		
Observations	1357			945			1357			945		
R^2	0.400			0.426			0.092			0.159		

Note. Attachment was not a significant predictor or moderator and therefore not included in the table but can be found on the OSF page. W = within-participant change, B = between-participant change, ID = participant level

6.6 Figures

Figure 1

A Graphical Illustration of the Study Timeline
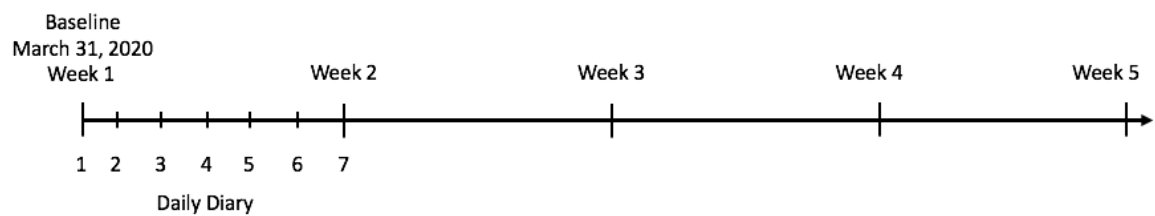
Figure 2

Results of the Simple Slope Analyses Depicting the Association between Goal Conflict

and RC and Anti-RC Support at Different Levels of Attachment Anxiety for the

Longitudinal Weekly Data
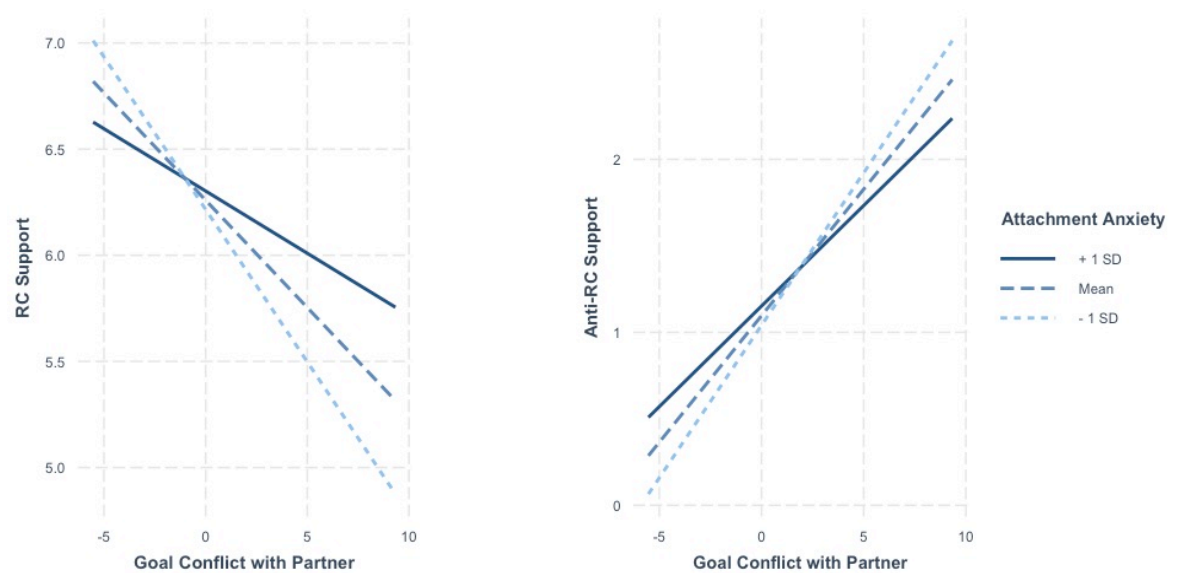
Chapter 7   Manuscript 6: Successful Negotiation of Goal Conflict between Romantic Partners Predicts Better Goal Outcomes During COVID-19

7.1   Abstract

Interdependence theory suggests that romantic partners become more interdependent as they spend more time together. Due to COVID-19, partners have been together for an extended period while coping with demands caused by the pandemic. This is likely to lead to instances of conflict between partners' goals. Goal conflict is damaging for relationships as it continuously tests the commitment between partners. In a concurrent mixed-methods study, we investigated whether (negotiation of) goal conflict was associated with goal outcomes (progress, confidence, motivation) and what strategies partners used during the pandemic to negotiate goal conflict. Survey participants ($n = 200$) completed a daily diary for a week and weekly longitudinal reports for a month and interview participants ($n = 48$) attended a semi-structured interview. Results showed that higher goal conflict was associated with lower goal outcomes, and successful negotiation of goal conflict was associated with better goal outcomes. Qualitative analyses identified three conflict strategies (compromise, integration, concession). Conversations focused on both practical and emotional needs and included respectful communication and space from conflict (timeout or avoidance). The mixed-methods results suggest that goal conflict was relatively low during the pandemic and participants were often able to negotiate goal conflict resulting in better goal outcomes.

Keywords: COVID-19; Interpersonal Relationships; Goals; Goal Conflict; Mixed Methods

7.2 Introduction

The World Health Organization (2020) announced the COVID-19 outbreak as a pandemic on 11th March, 2020. Around the same time, many countries worldwide announced social distancing measures including avoiding social situations, working from home, and shutting down schools causing wide social and economic disruptions (United Nations, 2020). Many countries also enforced nationwide stay-at-home orders, or lockdowns, that confined many couples and families into their homes for several months. This has meant that many people are working from home while taking care of children, homeschooling, and doing more housework (Carlson et al., 2020). The pandemic is also characterized by a high degree of uncertainty as it is not clear when life may return to normal.

The change in circumstances is likely to lead to instances of daily goal conflict as couples are having to continue work-related tasks as well as other goals while having to manage increasing demands caused by the pandemic (e.g., children at home, space restrictions). Further goal conflict may deplete already diminished resources leading individuals to feel less motivated toward their goals, less confident about their abilities to achieve goals, and ultimately make less progress toward their goals. At the same time, couples who are better able to successfully negotiate instances of goal conflict may be in a better position to survive, or even thrive, through the pandemic. We employed a concurrent mixed-methods design in which both quantitative and qualitative data were collected simultaneously to complement each other. In the quantitative study, our aim was to add to the extant literature by examining whether low goal conflict and successful negotiation of goal conflict were associated with better goal outcomes across multiple timepoints. The qualitative data describes how couples negotiate instances of goal conflict during the

pandemic to better understand how couples may be able to minimize the potential negative impact of goal conflict during the pandemic and beyond.

7.2.1   Goal Conflict and Goal Outcomes during the Pandemic

Interdependence theory (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003) proposes that relationship partners become increasingly interdependent over time as the relationship progresses and couples spend an increasing amount of time interacting together. Each partner's needs, thoughts, and motives will influence interactions with one another and depending on the congruence between the partners, interactions can be perceived positively or negatively (Rusbult & Van Lange, 2003). Increasing interdependence means that partners begin to influence each other's decision-making and each partner's actions have implications for the other partner. Thus, interdependent romantic relationship partners need to learn to coordinate goal-directed activities. During the COVID-19 pandemic, partners who live together are likely to become increasingly interdependent over the course of the pandemic as they will spend more time together and have fewer outside resources available to them. At the same time, partners are likely to experience goal conflict as they are having to negotiate how to manage the new circumstances including childcare, working from home, and potentially one or both partners being off work.

Repeated exposure to goal conflict is likely to be harmful for relationships because it continuously tests partners' commitment toward each other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). In fact, several studies have shown goal conflict to be negatively associated with relationship quality as well as personal well-being (Gere et al., 2011; Gere & Impett, 2018; Gere & Schimmack, 2013; Righetti et al., 2016). Another study has shown that when people find it difficult to sacrifice or make a change for their

partner or the relationship, they feel less satisfied in the relationship (Ruppel & Curran, 2012). People are also less motivated to provide support toward their partner's goals when they feel goals might take their partner away from the relationship (B. C. Feeney et al., 2013, 2017), especially if they are highly invested in the relationship (Hui et al., 2014). It is evident from the research that there are a number of potential costs associated with goal conflict including loss of support and lowered well-being, both of which are already in jeopardy due to the pandemic.

Therefore, partners may be motivated to reduce instances of goal conflict to reduce stress on the system. Indeed, previous research has found that a high level of goal conflict in a relationship makes it more difficult to coordinate goal pursuit and individuals are less likely to make progress toward goals that are problematic for the relationship (Gere & Schimmack, 2013). A recent study showed that individuals were more likely to stop pursuing or devalue a goal if it conflicted with their partner's goals (Gere & Impett, 2018). Over time, devaluing goals that were conflicting predicted greater commitment toward the relationship partner (Gere & Impett, 2018). Previous research has assessed the impact of goal conflict on goal outcomes only cross-sectionally or across two time points. The present study adds to the literature by assessing the impact of goal conflict in a longitudinal dataset collected over a number of days and weeks. We also test the hypotheses in a different context, during a global pandemic, a potentially stressful and unprecedented situation. We expected that when an individual's goal conflicts with the partner's or relationship's goals, they will report lower goal outcomes (progress, confidence, motivation; H1) during the pandemic.

Furthermore, being able to successfully negotiate goal conflict is likely to influence goal outcomes. Indeed, the transactive goal dynamics theory proposes that when partners are able to successfully coordinate their goal pursuits, they are more likely to achieve their

goals (Fitzsimons et al., 2015). However, we are aware of no studies to date that have directly assessed how negotiation of conflict, or goal coordination, in goal situations predicts goal outcomes. The present study aims to add to the literature by testing the assumption of the transactive goal dynamics theory (Fitzsimons et al., 2015) that successful goal coordination predicts better goal outcomes. We expect that successful negotiation of goal conflict will be positively associated with goal outcomes (a novel hypothesis; H2).

Finally, in addition to examining whether successful negotiation would predict better goal outcomes, we also wanted to understand what successful negotiation of goal conflict looked like for participants during the pandemic. While we are aware of no studies to date that have attempted to categorize context-specific negotiation strategies for goal conflict specifically, we can look into the literature on accommodation to understand what types of strategies partners might use to negotiate goal conflict during the pandemic. Research into accommodation has shown that more constructive reactions (e.g., actively talking about the problem [voice] or passively prioritizing or sacrificing for the relationship [loyalty]) to potential conflict predicts better relationship satisfaction, commitment, and overall happiness compared to destructive strategies (e.g., actively picking a fight [exit] or passively deciding the partner cannot be trusted anymore [neglect]; Rusbult et al., 1982). In order to understand which strategies participants in the study may have used, we conducted semi-structured interviews and asked participants to describe how they negotiated any potential goal conflict within their relationship (RQ1).

7.2.2　　　The Current Study

Due to these unique and unprecedented circumstances, we used mixed methods to test our research questions and hypotheses. While quantitative data can answer questions

more broadly and generally, qualitative data provides more nuanced and detailed insights into how the pandemic has impacted participants' ability to negotiate goal conflict. In order to assess change as the pandemic progressed we sampled both quantitative and qualitative participants over time. In the quantitative part, participants responded to questions once a day for a week and once a week for five weeks. This study is among the first to provide evidence of the impact of COVID-19 on relationships and goal outcomes and also provides a window into 5 weeks in the lives of people living under stay-at-home orders.

7.3   Method

7.3.1   Participants and Procedure

We preregistered the study on the Open Science Framework (https://osf.io/6ebyz/?view_only=6c074f85d8fe4acaa2215cf69d54bad5); data, code, and materials can be found here: https://osf.io/qr7cm/?view_only=365bf35f7ddd45548143b851e10cfcd9. The study received ethical approval from the authors' institutional review board. The quantitative data was collected via Prolific and social media was used to recruit participants for the semi-structured qualitative interviews. In order to be eligible for the study, participants had to be 18 years or over and living with their romantic partner in a country where social distancing measures were in place. Due to funding constraints, we recruited 200 participants for the quantitative portion of the study. Based on a simulated power analysis, data from 200 participants (up to 4,200 observations) yield a power of 96.7% to estimate an average effect size in Psychology ($r = 0.22$, $d = 0.45$; Richard et al., 2003) with an alpha level of $p < .01$. Participants recruited through Prolific received up to £6.70 if they completed all follow-ups. Qualitative interview participants were entered into a raffle to

win one of two £30 Amazon vouchers after the first interview and one of two £20 Amazon vouchers after the second interview.

Participants in the quantitative part completed a baseline survey on 31st March, 2020, shortly after many countries had gone under lockdown. The participants then completed a daily dairy survey over the next seven days with the first entry completed directly after the baseline survey. After completing all of the daily diary, participants completed further three follow-up surveys that were each one week apart. This resulted in a total of five weekly time-points. Participants responded to questions regarding goal conflict, negotiation of goal conflict, and goal outcomes from the previous 24 hours in the daily diaries and from the previous week in the follow-up surveys. All surveys were conducted via Qualtrics. The final sample in the quantitative surveys was 200 with an attrition rate of 4% at the end of the daily diary and 8.5% at the end of the five weeks. However, all participants completed at least two time-points and were therefore included in the final analyses.

The semi-structured qualitative interviews were conducted via Zoom, audio recorded, and transcribed. Participants were asked questions about how they and their partner have negotiated instances of goal conflict during the pandemic. The first set of interviews were completed between 30th March 2020 and 21st April 2020. Participants recruited through Prolific were also eligible to participate in the interview. A total of 48 participants completed the first qualitative interview (30 were recruited via social media, 18 via Prolific). Participants who had completed the first interview in the first two weeks of the qualitative data collection were invited to participate in the follow-up interview to better understand how support had changed over the course of the lockdown. Nineteen of the 23 participants invited to complete a second interview responded. Initial interviews lasted between 14-49 minutes and second interviews between 7-24 minutes.

Participants in quantitative and qualitative parts of the study had similar demographic characteristics (see Table 1). Participants were on average 36 years old and had been in a relationship for 11 years. The samples were primarily white, heterosexual, and from the United Kingdom. Around half the participants were married and half cohabiting, and half of them had children. Only a small number of participants were keyworkers or had shown coronavirus symptoms. None had been diagnosed with coronavirus at baseline.

7.3.2   Measures

At each time-point, participants listed up to three goals that they had been working toward in the past 24 hours (or the past week in the weekly follow-ups). Participants reported the following types of goals: domestic (31.4%), exercise/health (20.1%), career (16.4%), hobbies/self-development (14.7%), relationships (6.3%), self-care (4.2%), education (2.8%), COVID-related (2.8%), and finance (1.3%). Participants then answered a set of questions for each goal using one item for each: "How much progress did you actually make toward achieving this goal?" (progress); "How motivated did you feel in working toward this goal?" (motivation; and "How confident did you feel in being able to achieve this goal?" (confidence). Participants were also asked how much they felt the pandemic had affected their goal pursuit overall. Goal conflict was measured with two items, one for conflict with partner's goals and one for relationship's goals: "How problematic was pursuing this goal for your partner/relationship?" ($r = .80$). Participants were also asked "How well were you able to negotiate with your partner being able to work toward your goals?" All items were rated on a scale from 0 (*Not at All*) to 10 (*Extremely*), except goal progress which was rated on a scale from 0 to 100%.

7.3.2.1 Qualitative Semi-Structured Interviews

We asked participants a range of questions about their relationship and goal pursuit during the pandemic. The question relevant for this report was "How have you negotiated any goal conflicts between you and your partner when you have tried to work toward tasks and goals?"

7.3.3 Quantitative Analysis Plan

We separated the within- and between-subjects' elements of the predictor variables (Bolger &Laurenceau, 2013). The within-subjects variables show the difference in the outcome variables due to within-person fluctuations and the between-subjects variables show the average difference between participants in the outcome variables. Time was scaled to start at 0 and was included in both daily diary and weekly analyses. Daily diary data and the weekly longitudinal data were both separately analyzed using hierarchical linear modeling with restricted maximum likelihood estimation (REML) to account for missing data (Raudenbush & Bryk, 2002). All participants were measured on the same days and therefore we did not include random variability at the day/week level. Goal conflict and goal outcomes were measured three times for each time-point, once for each goal, and therefore the analyses included three levels with two levels of random variability. Negotiation of goal conflict and the effect of coronavirus pandemic on goals were only measured once at each time-point and therefore only included two levels. We only included a random intercept in the models as models with random slopes failed to converge. All quantitative data were analyzed using the *lme4* package in *R*. We used an alpha level of $p < .01$ as a cutoff for significance to account for multiple analyses. Descriptive statistics and zero-order correlations among all study variables are presented in Table 2.

7.3.4   Qualitative Analysis Plan

We analyzed the qualitative interviews using codebook thematic analysis (Braun & Clarke, 2006, 2019) with NVivo 12.0 software. We used a combination of inductive and deductive approaches to coding by using previous theory and research to guide coding but allowing new codes to be created throughout the coding process. The first and third author coded the interviews and both familiarized themselves with the data before creating the initial low-level codes. Codes were created by coding each meaning unit which may have been one word, sentence, or paragraph. These codes were then refined iteratively by the two coders and the final themes were agreed jointly. Any disagreements were discussed until 100% agreement was reached on the coding. '[…]' was used in the quotes if unnecessary detail was removed or to provide needed additional information in the quoted data. Repeated filler words such as 'like' and 'yeah' were excluded to aid readability. Identifying information was removed.

7.3.5   Mixed Methods

We used a concurrent mixed-methods design in which both quantitative and qualitative data were collected simultaneously: The quantitative data provided information on how goal conflict and negotiation of goal conflict were associated with a range of goal outcomes, whereas the qualitative results provided more nuanced information on what types of strategies participants employed to successfully negotiate instances of goal conflict. The present research was fundamentally guided by pragmatism in line with mixed methods research: the research questions were seen as the primary importance regardless of the philosophical worldview or the method (Creswell & Plano Clark, 2007). While quantitative research is often seen as positivist or postpositivist, these can be at odds with qualitative research which is inherently more interpretive in nature (Lincoln et al., 2011).

Given the unprecedented nature of the pandemic, we believe that using a combination of methods enabled us to gain a more thorough understanding of partner support during the pandemic than using any one method alone could have accomplished. The quantitative and qualitative results are combined to describe the overall functioning of individuals in relationships during COVID-19.

7.4   Results

7.4.1   Quantitative Results

7.4.1.1   Goal conflict[18] and goal outcomes

We hypothesized that greater perceived goal conflict would be associated with lower goal outcomes during the pandemic (H1; see Table 3 for results). In line with the hypothesis, on days/weeks when participants perceived higher levels of goal conflict, they also reported less goal progress, confidence, and motivation. The results also showed that on average, participants who experienced higher levels of goal conflict reported lower levels of goal progress and commitment but not motivation compared to participants who reported lower levels of goal conflict (between-participant change).

In addition to goal conflict, we hypothesized that the perception of how well participants had been able to negotiate goal conflict predicted goal outcomes during the pandemic (H2; see Table 4 for results). We found that on days/weeks when participants reported more successful negotiation of goal conflict, they reported experiencing better goal outcomes. The results showed a similar pattern for between-participants: participants who reported more successful negotiation of goal conflict overall also reported better goal outcomes on average compared to participants who reported higher levels of goal conflict.

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[18] Goal conflict did not change over time across the daily or weekly timepoints.

Although not preregistered, we also explored whether goal conflict and negotiation of goal conflict were associated with a perception that the pandemic was affecting goal pursuit (see Table 5 for results). We found that on days/weeks when goal conflict was higher, participants reported that their goals were affected by the pandemic more than on days/weeks when goal conflict was lower. Similarly, at the between-participant level, participants who reported higher levels of goal conflict overall also reported that the pandemic was having more of an impact on their goal pursuit compared to participants who reported lower levels of goal conflict. In contrast, negotiation of goal conflict was not associated with participants' perception of their goals being affected by the pandemic.

7.4.2   Qualitative Results

The quotes are accompanied with participant number, gender, and age. In the spirit of qualitative analysis, no frequencies are reported as these would not be meaningful. Table 6 presents additional representative quotes. Goal conflict negotiation strategies were divided into six main themes with one of the themes including three subthemes. A mind map illustrating how the different themes related to each other can be found in Figure 1. Overall, most participants described strategies that were helpful but a few also commented on strategies that they had tried in the past and did not find helpful.

7.4.2.1   Respectful communication

Most participants described their negotiation of goal conflict as involving strategies that included clear and respectful communication (as opposed to accusatory or negative communication), flexibility, use of humor, and trying not to force communication. Many participants stated that engaging in "open and honest" (#13, M, 31 and #16, W, 23) communication whilst "not accusing [partner] of anything" (#2, W, 37) were important. Furthermore, one participant noted that when they felt hurt, they "would reciprocate with

disrespectful words" but typically deemed this to be unsuccessful (#37, W, 19). Some

participants also noted that flexibility was important when discussing goal conflict. For

example, one participant stated that "[It's] good to listen, good to be flexible, while we're

looking at alternative solutions" (#6, M, 19). Many participants also said that using humor

was helpful, for example, "Actually, sometimes not being too serious and heavy about it,

and just finding I guess the fun. Putting on music and doing silly dances" (#11, W, 36).

Additionally, many participants said that pressuring their partner to communicate when

they were not ready was not helpful. For example, one participant said "If he is not ready

to speak […] I am never ever going to change his perspective, by just badgering him, or

throwing information at him or insisting that we talked about it now." (#4, W, 46).

7.4.2.2   Talk about it

Many participants reported that they would discuss any goal conflict to either seek

compromise, integrate two partner's perspectives, or until one person would concede. It

was not always clear what the participants' goals were: whether they wanted to

compromise, integrate, or concede. The majority of participants identified *compromise* as a

way to resolve goal conflict. This form of mutual concession led to finding a middle

ground between each partners' ideas. For example, one participant described that they

would "kind of focus more on the compromise or some solutions to it that you can both be

happy with" (#14, W, 30). Other participants mentioned negotiation leading to *integration*

of both partner's goals in order for both to be happy. Many participants stated pros and

cons lists to be useful. For example, one participant said "we would [take] the best parts of

both of our ways of dealing with things [to] come up with a solution together" (#44, W,

30). Yet, some participants mentioned that they would just concede to their partner or their

partner would concede and found this an effective strategy in resolving goal conflict. For

example, one participant retorted "I present an option. If she doesn't like it I ask her what

she wants to change and I'm usually okay with any change" (#34, M, 18). However, a few participants stated that expecting their partner to concede led to further conflict. For example, one participant explained that "just putting my opinion across and expecting it to be taken. Then just waiting until he finally concedes but that's selfish and it doesn't work" (#44, W, 30).

7.4.2.3 Focus on emotional needs

Within the goal conflict discussions, some participants reported a greater focus on emotional needs of both partners. For many participants this included "understanding and validating [one partner's] point" (#7, W, 26) and "giving each other room to speak" (#11, W, 36) as well as checking in during the conversation to ensure they were both comfortable: "sometimes it's worth checking that he's actually comfortable with something or that it's not breeding resentment. I would look for more reassurance than him to see that he's comfortable with what we've agreed" (#13, M, 31). Some participants also recognized that the pandemic is an unusual scenario in which both partners may need to show more patience with another. For example, one participant said "Sort of make allowances for the fact that we spend a lot of time together. It is a different situation. Maybe you do need to be more patient and more compromising than you normally would" (#40, M, 33).

7.4.2.4 Focus on practical needs

Yet, other participants mentioned that focusing on practical solutions was important. For many of these participants this led to a focus on practical issues that could have a solution rather than blaming each other or being inflexible. For example, one participant stated "focusing on what needs to be done to get to a solution rather than like saying, 'you always want this, or you really want that'" (#14, W, 30) and another said they "try to focus on productive issues (#3, W, 26).

7.4.2.5 Timeout

Many participants noted that taking a timeout was helpful instead of trying to discuss potential goal conflicts when upset. Many mentioned this was necessary to allow them to cool off. For example, one participant stated "sometimes you have to roll your eyes, go away five minutes, and wait for something and then it's okay" (#10, M, 42) and another participant said that "if it was gonna get heated or emotional, we both agree to back off the situation for a minute, get some time or some space (#41, W, 27). Some participants also said that sometimes it was not the right time to discuss a topic in which case they would agree a time or place to discuss it later. For example, one participant commented that "I just explained that maybe we can have the conversations like an hour later, when I would finish my test. I would be more concentrated on him" (#20, W, 29).

7.4.2.6 Avoidance

A few participants also mentioned they or their partner would avoid discussing goal conflict. For example, one participant noted that "it might be that we just won't talk about it" (#33, W, 29) whereas another participant stated that "walking away without comment isn't helpful" (#11, W, 36).

7.4.2.7 Follow-up interviews

Few changes were identified regarding how participants negotiate conflict a month later. Most participants stated they were trying to engage in clear and respectful communication. This led to behavioral changes such as partners 'trying to be more vocal' (#12, W, 26) to ensure emotions did not build overtime. None of the participants noted an increase in conflict, with some mentioning a decrease as they had become "less combative" (#2, W, 37). Overall participants appeared to engage in conversations early on, which

prevented the occurrence of a heated conflict. As such negotiating goal conflict became "less confrontational and more conversational" (#12, W, 26).

7.4.3   Mixed Methods Results

The mixed methods approach allows for comparison between the quantitative and qualitative results and can be complementary. Both the quantitative and qualitative results indicated relatively low levels of goal conflict during the course of the pandemic. Higher goal conflict was significantly associated with lower goal outcomes in the quantitative data. In the qualitative interviews, most participants could think of at least one scenario during the course of the lockdown that their goals had conflicted and some participants said they would sometimes give up their goals if their partner felt strongly about theirs or they would find an alternative compromise solution. The results from the quantitative analyses also showed that successful negotiation of goal conflict predicted better goal outcomes. Many of the interview participants reported that they were able to negotiate potential goal conflicts relatively seamlessly and many said they would find a mutually satisfying solution in which both partners would be able to pursue their goals.

7.5   Discussion

Couples and families are facing unprecedented challenges caused by the COVID-19 pandemic including financial strain, stress, and social isolation (Balzarini et al., 2020). During this time, couples are put into a situation in which they spend much more time together than usual. This is likely to increase interdependence but also lead to potential instances of goal conflict as couples have to negotiate how to live and work together in a confined space with few breaks from each other. Interdependence theory suggests that goal conflict is likely to be damaging for relationships over time as it continuously tests

partners' commitment for each other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). Previous studies have also found that people make less progress toward goals that conflict with partner's or relationship's needs cross-sectionally or across two timepoints (Gere & Impett, 2018; Gere & Schimmack, 2013). In the present study, we add to this literature by showing that higher goal conflict predicts lower confidence in one's abilities and lower motivation to pursue goals over days and weeks, and ultimately individuals make less progress toward goals that conflict with partner's or relationship's goals. In the qualitative interviews, many participants also said that if one partner felt strongly about their goals, the other partner would give up theirs (concession) or adapt their goal in some way (compromise).

Furthermore, while the transactive goal dynamics theory suggests that successful goal coordination leads to better goal outcomes (Fitzsimons et al., 2015), we are aware of no studies to date that have directly assessed how negotiation of conflict in goal situations predicts goal outcomes. The results of the present study showed that successful negotiation of goal conflict predicted higher levels of goal outcomes. The qualitative results focusing on how participants had negotiated instances of goal conflict found similar themes to what has been shown in previous quantitative studies (Bonache et al., 2019; Rusbult et al., 1982). Compromise and integration can be seen as voice strategies whereas concession is more similar to loyalty. Avoidance, in turn, is akin to neglect in theory of accommodation. Many participants also said that successful strategies involved both taking each other's emotional needs into account as well as focusing on workable solutions. In addition, many participants highlighted that taking a timeout and talking about issues later was important. It would be interesting to conduct experience sampling studies to examine how taking a timeout to calm down before addressing goal conflict aids negotiation. This type of study would show whether partners are able to more successfully negotiate goal conflict if they

have a timeout before the conversation compared to when they do not. Overall, these results suggest that successful negotiation is important in a situation in which one partner's personal goals conflict with the needs of the relationship or partner.

In addition to the preregistered hypotheses, we also explored whether goal conflict and negotiation of goal conflict were significantly associated with participants' perception that their goal pursuit was being negatively affected by the pandemic. The results showed that higher goal conflict significantly predicted participants' perception that the pandemic had negatively affected their ability to pursue goals. In contrast, successful negotiation of goal conflict was unrelated to the perception that the pandemic was affecting goal pursuit. It may be that goal conflict is one way in which participants perceive their goals are being affected by the pandemic. For example, it may be that partners are having to share a tight space with one another and any amount of negotiation cannot completely resolve the problem which means that partners are having to compete for resources to continue to work and pursue other goals.

7.5.1   Theoretical and Practical Implications

The present study has several important theoretical and practical implications. The study provides further evidence showing that individuals experience a decline in multiple goal outcomes when they experience their goals as conflicting with their partner's or relationship's goals. These findings are in accordance with interdependence theory suggesting that goal conflict can be damaging for relationships (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). Therefore, in long-term relationships, individuals are likely to devalue conflicting goals for the sake of the relationship (Gere & Impett, 2018). However, the effect sizes in the present study were small with goal conflict only predicting between 2-4% of the variance in the outcomes. In contrast, successfully negotiating goal

conflict may have a stronger positive impact on goal outcomes predicting between 6-15% of the variance across the outcomes. The findings highlight the importance of negotiating potential goal conflicts so that partners can continue to pursue goals and minimize the impact goal conflict has on goal pursuit. The study also furthers our understanding of how the pandemic is impacting goal pursuit and suggests that higher goal conflict is likely to influence people's perception of how much the pandemic is influencing goal pursuit negatively.

The qualitative findings further our understanding of how partners negotiate instances of context-specific conflict of goals. In addition to highlighting different conflict resolution strategies, the findings also suggest that respectfully focusing on both emotional needs as well as practical solutions are needed to successfully negotiate instances of goal conflict. Some participants also highlighted that sometimes taking a timeout before approaching goal conflict was important suggesting that avoidance, as long as temporary, may be a successful long-term strategy for negotiating goal conflict. Together, both quantitative and qualitative results provide evidence of the importance of negotiating goal conflict in relationships that we would expect to be relevant during and beyond the current global health crisis.

In addition to theoretical implications, the study has several practical implications. The results suggest that successful negotiation of goal conflict is likely to be associated with better outcomes. Many couples therapies focus on conflict resolution strategies such as soft start-ups (i.e., approaching a topic gently without blame or criticism; Gottman & Schwartz Gottman, 2008). It may be important to assess these strategies in the context of individual goal pursuit as well as facilitate discussion of goal pursuit and potential goal conflict. Finally, the qualitative results can be used to provide strategies to the public on how to effectively negotiate situations of goal conflict during the pandemic. These may

include suggesting taking a timeout before engaging in a conversation about the goal

conflict; focusing on both emotional needs and practical solutions; and being clear with

each other whether the goal of the negotiation is to integrate, compromise, or concede.

7.5.2   Strengths, Limitations, and Future Directions

The present study had several strengths. We used mixed methods which benefit

from the generalizability and reproducibility of quantitative analyses and the nuanced and

detailed description of participants' experiences in the semi-structured qualitative

interviews. The study also used longitudinal data with both daily and weekly reports,

which enabled us to assess both within- and between-participant change over time and

across different goals. The study had adequate power to estimate hypothesized effects. The

participants began completing the surveys from the beginning of many countries' stay-at-

home orders effectively capturing the first month under lockdown. Additionally, we used

several goal outcome measures to investigate whether (negotiation of) goal conflict was

associated with a number of outcomes over time. All hypotheses, research questions, and

analyses were also preregistered.

However, the study also had several limitations and the results of the study should

be interpreted with these in mind. The data were only collected from individuals in a

couple, not dyads, and was therefore based on one partner's perception. In the interviews,

the participants were asked about their own as well as their partner's behavior, but the

participants' reports of their partner's behavior may be less accurate. For example, it may

be that partners have a different perception of which goals are conflicting. Additionally, in

situations in which partners' goals conflict with each other's, one member of the couple

may end up sacrificing their goals for the other partner's, which may have implications for

relationship and individual well-being. Partners may also have different agendas when

negotiating goal conflict if both partners are trying to pursue their own goals, which may have implications for how they negotiate goal conflict. Future research should therefore assess these questions in a sample of dyads.

Overall, the level of goal conflict was also very low in the present sample. It may be because 30% of the time the goals that participants were reporting on were domestic and therefore may conflict less on a day-to-day basis. It is likely that many potential high conflict goals such as moving away to study, increasing hours at work, or making a high-risk investment have been put on hold during the pandemic. Therefore, future research should focus specifically on understanding the impact of high conflict goals. Experimental evidence on the impact of goal conflict on goal outcomes is also lacking and future research is needed to investigate these associations in experimental settings. For example, researchers could manipulate goal conflict to examine whether higher levels of goal conflict predict participants' attitudes toward pursuing the goal.

There are also other limitations due to the nature of the pandemic. The study was only able to capture five weeks of lockdown and it is possible that these results would change over time as lockdown measures are eased and people are able to pursue potentially higher conflict goals. Partners' goals especially related to the pandemic may also conflict. For example, one partner may feel more comfortable with easing of social distancing or flying overseas for a vacation whereas another partner may prefer to act more cautiously. It would be interesting to also understand how couples negotiate how to navigate a need for social contact and connection with a need for health and safety during the pandemic.

7.5.3　Conclusion

The present mixed methods study provided both quantitative and qualitative evidence of the impact of goal conflict on goal outcomes during COVID-19. Many of the

results are likely to have implications beyond the pandemic. The results supported the novel preregistered primary hypotheses and were relatively consistent across analyses: higher goal conflict was negatively associated with goal outcomes whereas successful negotiation of goal conflict was positively associated with goal outcomes. The qualitative interviews highlighted several ways in which partners were able to negotiate instances of goal conflict and suggested that over the course of the pandemic, participants became even better at negotiating goal conflict, perhaps because they had more practice with smaller day-to-day conflicts. Overall, while most participants reported that the pandemic was affecting their goal pursuit at least somewhat, successful negotiation goal conflict can buffer against potential negative outcomes.

7.6   Tables

Table 1

Demographic Variables

	Quantitative (n = 200)		Qualitative (n = 48)	
	m	SD	m	SD
Age	36.5	12.3	36.0	12.9
Relationship length	11.1	9.32	10.4	10.9
	n	%	n	%
Gender				
Woman	105	52.5	33	68.8
Man	93	46.5	15	31.1
Other	2	1.0	0	0.0
Sexual orientation				
Heterosexual	182	91.0	36	76.6
Bisexual	9	4.5	7	14.9
Lesbian/Gay	7	3.5	4	8.5
Other	2	1.0	0	0.0
Relationship status				
Married	102	51.0	26	55.2
Cohabiting	98	49.0	22	46.8
Children				
No	95	47.5	33	70.2
Yes	105	52.5	13	29.8
Ethnicity				
White	184	92.0	41	87.2
Black	5	2.5	1	2.1
Asian	6	3.0	4	8.5
Mixed	2	1.0	1	2.1
Education				
Graduated high school	28	14.0	4	8.5
Some college	38	19.0	4	8.5
Undergraduate	74	37.0	17	36.1
Postgraduate	52	26.0	19	40.4
Other	8	4.0	4	8.5
Employment status				
Employed full-time	121	60.5	21	44.7
Employed part-time	23	11.5	6	12.8
Self-employed	26	13.0	6	12.8
Student	4	2.0	6	12.8
Unemployed	7	3.5	4	8.5
Retired	9	4.5	3	6.4
Employment changed				
No	153	76.5	33	70.2
Yes	47	23.5	14	29.8
Usually work from home				
No	138	69.0	33	70.2

Yes	62	31.0	13	27.7
Country				
UK	119	59.5	32	68.1
USA	17	8.5	4	8.5
Other	64	32.0	12	25.5
Keyworker				
No	166	83.0	44	93.6
Yes	34	17.0	3	6.4
Coronavirus symptoms				
No	179	89.5	39	83.0
Yes	21	10.5	8	17.0

Table 2

Means, Standard Deviations, and Correlations with Confidence Intervals

Variable	*M*	*SD*	1	2	3	4	5	6
1. Conflict	1.36	2.14	-	-.20** [-.24, -.16]	-.13** [-.17, -.09]	-.13** [-.16, -.09]	-.06* [-.09, -.02]	.05 [.01, .09]
2. Negotiate	7.14	2.60	-.16** [-.19, -.13]	-	.13** [.09, .17]	.10** [.06, .14]	.09** [.05, .13]	-.02 [-.06, .01]
3. Progress	68.64	30.87	-.10** [-.13, -.07]	.14** [.11, .17]	-	.52** [.49, .55]	.41** [.37, .44]	-.04 [-.09, -.01
4. Confidence	7.02	2.55	-.12** [-.15, -.09]	.11** [.07, .14]	.53** [.51, .56]	-	.60** [.57, .62]	-.01 [-.05, .03]
5. Motivation	7.00	2.61	-.05* [-.09, -.02]	.12** [.08, .15]	.45** [.43, .48]	.59** [.56, .61]	-	.03 [-.02, .06]
6. Affect	4.82	3.25	.07** [.03, .10]	-.02 [-.05, .02]	-.07** [-.10, -.03]	-.06** [-.09, -.03]	-.03 [-.06, -.00]	-

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The correlation in the daily diary data are presented below the diagonal and weekly measures above the diagonal. * indicates *p* < .01. ** indicates *p* < .001. P = conflict with partner's goals, R = conflict with relationship's goals.

Table 3

Results from the Hierarchical Linear Modeling for Goal Conflict as a Predictor of Goal Outcomes

	Progress						Confidence						Motivation					
	Daily			Weekly			Daily			Weekly			Daily			Weekly		
Predictors	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p
Intercept	65.47	62.69 – 68.25	**<0.001**	66.71	63.92 – 69.50	**<0.001**	7.16	6.94 – 7.38	**<0.001**	7.18	6.95 – 7.42	**<0.001**	7.08	6.85 – 7.31	**<0.001**	7.10	6.85 – 7.34	**<0.001**
Conflict$_W$	-1.62	-2.16 – -1.08	**<0.001**	-2.18	-2.85 – -1.50	**<0.001**	-0.16	-0.21 – -0.12	**<0.001**	-0.18	-0.23 – -0.12	**<0.001**	-0.07	-0.12 – -0.03	**0.002**	-0.08	-0.14 – -0.02	**0.006**
Conflict$_B$	-2.35	-4.00 – -0.71	**0.005**	-2.80	-4.37 – -1.24	**<0.001**	-0.20	-0.33 – -0.07	**0.003**	-0.24	-0.37 – -0.11	**<0.001**	-0.15	-0.28 – -0.01	0.032	-0.17	-0.30 – -0.03	0.017
Time	0.50	0.07 – 0.93	0.021	0.12	0.02 – 0.22	0.018	-0.03	-0.06 – 0.01	0.123	-0.01	-0.02 – -0.00	**0.002**	-0.01	-0.05 – 0.03	0.583	-0.01	-0.02 – 0.00	0.070
Random Effects																		
σ^2	709.36			659.79			4.68			4.29			5.00			4.69		
τ_{00}	280.87 ID			261.77 ID			1.76 ID			1.95 ID			1.87 ID			2.03 ID		
ICC	0.28			0.28			0.27			0.31			0.27			0.30		
N	200 ID			199 ID			200 ID			199 ID			200 ID			199 ID		
Observations	3755			2660			3773			2676			3769			2673		
R^2	0.021			0.033			0.025			0.035			0.010			0.013		

Note. W = within-participant, B = between-participants

Table 4

Results from the Hierarchical Linear Modeling for Negotiation of Goal Conflict as a Predictor of Goal Outcomes

	Progress						Confidence						Motivation					
	Daily			Weekly			Daily			Weekly			Daily			Weekly		
Predictors	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p	Estimates	CI	p
Intercept	65.22	62.57 − 67.88	**<0.001**	66.55	63.91 − 69.18	**<0.001**	7.13	6.93 − 7.33	**<0.001**	7.18	6.97 − 7.38	**<0.001**	7.06	6.86 − 7.26	**<0.001**	7.09	6.88 − 7.30	**<0.001**
Negotiate$_W$	2.16	1.65 − 2.68	**<0.001**	2.11	1.46 − 2.75	**<0.001**	0.13	0.09 − 0.18	**<0.001**	0.13	0.08 − 0.18	**<0.001**	0.15	0.11 − 0.20	**<0.001**	0.12	0.07 − 0.18	**<0.001**
Negotiate$_B$	3.46	2.32 − 4.61	**<0.001**	3.93	2.81 − 5.05	**<0.001**	0.39	0.30 − 0.47	**<0.001**	0.45	0.37 − 0.54	**<0.001**	0.41	0.33 − 0.49	**<0.001**	0.45	0.37 − 0.54	**<0.001**
Time	0.54	0.11 − 0.97	0.013	0.13	0.02 − 0.23	0.016	-0.02	-0.06 − 0.01	0.214	-0.01	-0.02 − -0.00	**0.002**	-0.01	-0.04 − 0.03	0.697	-0.01	-0.02 − 0.00	0.076

Random Effects

σ^2	703.05		659.18		4.70		4.33		4.96		4.67
τ_{00}	246.70 $_{ID}$		218.16 $_{ID}$		1.24 $_{ID}$		1.23 $_{ID}$		1.22 $_{ID}$		1.23 $_{ID}$
ICC	0.26		0.25		0.21		0.22		0.20		0.21
N	200 $_{ID}$		199 $_{ID}$		200 $_{ID}$		199 $_{ID}$		200 $_{ID}$		199 $_{ID}$
Observations	3738		2648		3756		2664		3752		2661
R^2	0.064		0.082		0.103		0.145		0.111		0.135

Note. W = within-participant, B = between-participant

Table 5

Results from the Hierarchical Linear Modeling for Goal Conflict and Negotiation of Goal Conflict as Predictors of Participants' Perception of Goals being Affected by the Pandemic in Separate Models

	Goals Being Affected by the Pandemic					
	Daily			Weekly		
Predictors (Goal Conflict)	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*
Intercept	5.05	4.71 – 5.40	**<0.001**	4.83	4.48 – 5.18	**<0.001**
Conflict$_W$	0.09	0.05 – 0.14	**<0.001**	0.07	0.02 – 0.12	0.011
Conflict$_B$	0.59	0.38 – 0.81	**<0.001**	0.53	0.32 – 0.75	**<0.001**
Time	-0.13	-0.16 – -0.09	**<0.001**	-0.00	-0.01 – 0.00	0.378
Random Effects						
σ^2	5.40			4.42		
τ_{00}	5.23 $_{ID}$			5.54 $_{ID}$		
ICC	0.49			0.56		
N	200 $_{ID}$			199 $_{ID}$		
Observations	4080			2844		
R^2	0.075			0.063		
Predictors (Negotiation)	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*
Intercept	5.07	4.71 – 5.43	**<0.001**	4.85	4.49 – 5.22	**<0.001**
Negotiate$_W$	-0.02	-0.06 – 0.02	0.363	-0.03	-0.08 – 0.02	0.204
Negotiate$_B$	-0.16	-0.33 – 0.01	0.058	-0.18	-0.35 – -0.01	0.043
Time	-0.13	-0.17 – -0.09	**<0.001**	-0.00	-0.01 – 0.00	0.306
Random Effects						
σ^2	5.43			4.43		
τ_{00}	5.91 $_{ID}$			6.11 $_{ID}$		
ICC	0.52			0.58		
N	200 $_{ID}$			200 $_{ID}$		
Observations	4068			2835		
R^2	0.016			0.013		

Note. W = within-participant, B = between-participant

Table 6

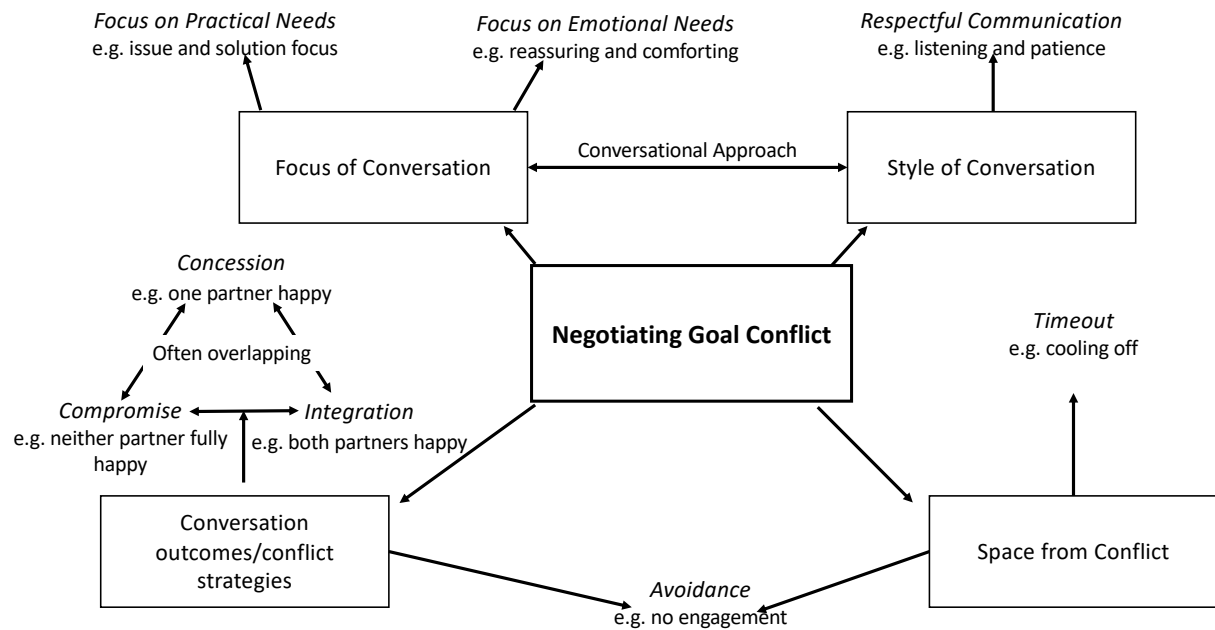*Themes and Subthemes with Descriptions and Representative Quotes for Negotiation of Goal Conflict*

Themes	Subthemes	Description	Quotes
Respectful communication		Partners talking honestly, respectfully, and clearly; remaining open to partner's thoughts; using humor; and not forcing communication.	Phrasing things in such a way that it's not like a command, for starters. (#17, W, 41) Well, sort of, you know, getting annoyed about people getting too entrenched in their points of view early on, and then it being hard to resolve either way. (#31, M, 29) Continuing to talk about something once we're upset. So once we get to a point of being too upset in an argument, but continuing to drive the point that we're trying to make when nobody is listening, really doesn't help. (#14, W, 30) I never want to seem pushy. Yeah, I'm more likely to kind of stay quiet unless I have a strong opinion on something. (#21, W, 25)
Talk about it	Compromise	An acceptable middle ground is found between both partners ideas	We always managed to find an outcome that we're both happy with. Whether it's a compromise or whether we bring [round the other person's thinking] (#11, W, 36) So talk about it and see, you know, explain our points of view and then see if we can reach a compromise. (#31, M, 29) I think just like being aware of the other person's perspective. […] So I think that the understanding of the person's perspective and just trying to be chill about stuff and finding alternative versions. (#32, W, 36)
	Integration	Partners work together to find a solution that is good for them both	We sort of talk through the pros and cons of each thing that both of us wants to do. (#38, M, 33) Try and invite kind of like joint problem solving and shared responsibility. (#18, W, 32) Talking about all the solutions, and then think about for each solution, what is the pros and cons, advantages and disadvantages. (#7, W, 26)
	Concession	One partner accepts their partners ideas to resolve conflict or concession is expected	You know, trying to sort of insist we do everything that I want to do to get my stuff out the way first doesn't work either. (#15, W, 36) For the most part, we negotiate pretty well and sort of reasonably, you know, sort of concede the other person's point. (#23, W, 49)

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	leading to further conflict	If I want to do something she doesn't, most of the time, I'll just say right, fine. (#26, M, 40) He would try to please me more, I guess. (#39, W, 29)
Focus on emotional needs	Partners focus on and consider how the other is feeling and attempting to understand each other	Explicitly acknowledging that, you know, at the end of the day, we just want what's best for each other because we care for each other a lot. (#5, W, 36) It's generally a lot of me asking him questions about how he feels, because I think it's harder for him to, to just say outright. (#8, W, 27) I think that the understanding of the person's perspective and just trying to be chill about stuff and finding alternative versions. (#32, W, 36)
Focus on practical solutions	Partners focus on a solution for the conflict and how this can practically be achieved	He's probably more matter of fact about stuff. I guess [he] probably would go to practical advice quicker. (#11, W, 36) I solve conflicts. I just find the solution if it's good for me or bad for me, I just find a way to solve problems (#34, M, 18) So we just try to stay as positive as possible. And when we do sit down to talk to each other about a problem, we both tend to try to bring solutions to the table. Not only what the problem is. (#36, W, 52)
Timeout	During a heated discussion partners take space away from one another before reconvening	The communication will stop for a little while and we'll both go off and calm down. And once we've both calmed down and then can come back together and say well I was angry or unhappy or stressed out because of XYZ. (#17, W, 41) But there are situations where when we do have an argument and we talk, sometimes it's not communicating that helps us at times, there has to be space. (#30, W, 39)
Avoidance	Partners avoid conversations of contentious issues. E.g.	I don't know to be honest, because sometimes it doesn't feel like we do [reach a compromise or decision]. (#18, W, 32) When the feeling it's negative, I'm leaving the house going for a walk. (#35, M, 64) He wants to avoid any form of conflict at any point and would probably see this obviously, it's quite stressful. It's something you'd probably rather avoid. (#8, W, 27)

7.7   Figures

Figure 1

A Mind Map Illustrating How the Qualitative Themes Relate to Each Other

Focus on Practical Needs
e.g. issue and solution focus

Focus on Emotional Needs
e.g. reassuring and comforting

Respectful Communication
e.g. listening and patience

Focus of Conversation ⟷ Conversational Approach ⟷ Style of Conversation

Negotiating Goal Conflict

Concession
e.g. one partner happy

Often overlapping

Compromise ⟷ *Integration*
e.g. neither partner fully happy   e.g. both partners happy

Timeout
e.g. cooling off

Conversation outcomes/conflict strategies

Avoidance
e.g. no engagement

Space from Conflict

Chapter 8   Conclusion

Through a series of studies, the present thesis added to the literature on partner support and goal outcomes by addressing a number of novel research questions: 1) How much does partner support contribute to goal outcomes (i.e., what is the average correlation)? 2) What type of support (e.g., practical, emotional, negative support) is the most beneficial for goal outcomes? 3) Which relationship theories (attachment theory, interdependence theory, self-determination theory, theory of thriving through relationships) are best supported by the current evidence? 4) For whom (individual factors such as attachment style, self-esteem, gender), 5) in what kinds of relationships (relational factors such as trust, commitment, and satisfaction), and 6) under which conditions (contextual factors such as goal conflict and COVID-19) is partner support beneficial (or not) for goal outcomes? An overall conceptual model of the thesis can be found in Figure 1. The results of the thesis added understanding of the individual, relational, and contextual factors that contribute to an optimal environment for RC support in romantic relationships.

The meta-analysis answered the first three research questions by providing a synthesis of the literature, comparing several theories of partner support, and showing that the overall effect size of the correlation between partner support and goal outcomes was moderate. The effect size was similar to an effect by a strong intention to achieve a goal, highlighting the importance of close relationships in the pursuit of individual goals. I also compared a number of theories on partner support for goals, highlighting ways in which the existing literature provided support for each theory. Overall, the meta-analysis provided support for the thriving through relationships framework showing that both emotional and practical support can be beneficial for goal outcomes.

The machine learning study focused on understanding which individual (RQ4) and relational factors (RQ5) were the most important predictors of perceived support and self-

efficacy. I showed that relational variables (e.g., trust, commitment, empathy toward partner) were more important predictors of support than individual variables overall. The manuscript also showed that attachment avoidance was one of the few individual level variables, along with depression, physical health, and life satisfaction, that reliably predicted support when compared against relational and other individual variables. The machine learning study also introduced a state-of-the-art model explainability tool called Shapley values that can be used to interpret results from machine learning models such as the random forest. To my knowledge this technique had not been adapted to the use in psychological research prior to this study.

I also examined goal conflict as a potential contextual factor that impacts the RC support process. Several studies throughout the thesis using a number of different methods found converging evidence that goal conflict is detrimental to both support and goal outcomes. There are a small number of studies investigating goal conflict in the literature but the studies in the present thesis add methodological rigor to this investigation due to the use of multiple methods including experimental and longitudinal methods. The research also added to the literature by showing that the successful negotiation of goal conflict (relational factor) predicted better support and goal outcomes, which had not been established prior to these studies. Furthermore, the studies on goal conflict showed that while attachment anxiety and avoidance are often directly linked to partner support and goal outcomes, when goal conflict is also measured, attachment styles explained little over and above goal conflict. This is understandable given such a strong impact of goal conflict on support and goal outcomes identified in the experimental studies in Manuscript 3.

I also examined COVID-19 as a contextual factor to understand whether support, goal conflict, and goal outcomes changed during the first five weeks of lockdown. I extended the thriving through relationship framework (B. C. Feeney & Collins, 2015b) by

showing that, at least in a chronically stressful situation such as the pandemic, RC support can still be beneficial in enabling partners to continue to make progress toward goals, and partners should provide both RC support and source of strength (SOS) support rather than focusing solely on providing SOS support to get through the adversity.

Finally, there is a lack of qualitative exploration in this field of research; when conducting the meta-analysis, I only identified two qualitative studies that had focused on support for goals. Qualitative research can be beneficial in adding nuance and explanation to the quantitative findings and it can also help identify further areas of research. In fact, Manuscript 4 showed that partners can provide both direct and indirect support, a distinction previously missing in the literature.

In addition to the implications for theory and research outlined above, the thesis has a number of practical implications that can provide insights for clinicians working with couples. First, the thesis highlighted the importance of clinicians encouraging clients to have conversations about each partner's dreams, goals, and aspirations in couple therapy. It is easier to be supportive toward a recipient's goals that the partner is aware of than toward goals that the partner does not know about. Therapists should also teach clients how to ask for support that they need and discuss different ways of providing support. For example, Manuscript 4 highlighted that partners can provide emotional and practical support both in direct and indirect ways. For example, sometimes the best way of supporting someone is to help facilitate goal pursuit by removing obstacles such as children (indirect practical support) rather than being directly involved with the goal (direct practical support).

Second, the thesis highlighted that some individuals make better support providers and some relationships foster a more supportive environment. When talking to clients about their goals, understanding the individual, relational, and contextual factors that impact their ability to pursue their goals is important; becoming aware of factors that

enable or hinder goal pursuit can help clients and clinicians to explore what can be changed to help goal pursuit. Talking about these factors can be beneficial in both individual and couple therapy.

Finally, goal conflict is likely going to occur at some point in most relationships. The results of the present thesis showed that when these instances of goal conflict were negotiated successfully, this predicted higher levels of support as well as better goal outcomes. Manuscript 6 provided a number of ways (e.g., through compromise, integration, or taking a timeout) in which couples can negotiate goal pursuit that can be provided to them as options. It can also be helpful for clinicians to facilitate discussions about goal conflict and help facilitate negotiation of the goal conflict between partners.

In conclusion, the present thesis added to the current literature by addressing a number of important, novel research questions that further our understanding of partner support and its impact on goal outcomes. I showed that partner support is beneficial for goal outcomes but there are individual, relational, and contextual factors that can create an environment that enables or hinders goal pursuit. The thesis also benefited from the use of multiple methodologies (e.g., meta-analysis, primary and secondary data, experimental and longitudinal designs, quantitative and qualitative methodologies, and state-of-the-art machine learning) and highlighted a number of implications for theory, research, and practice.

Figure 1

Conceptual Model of the Thesis

Contextual factors: goal conflict, adversity (e.g., COVID-19), availability of opportunities
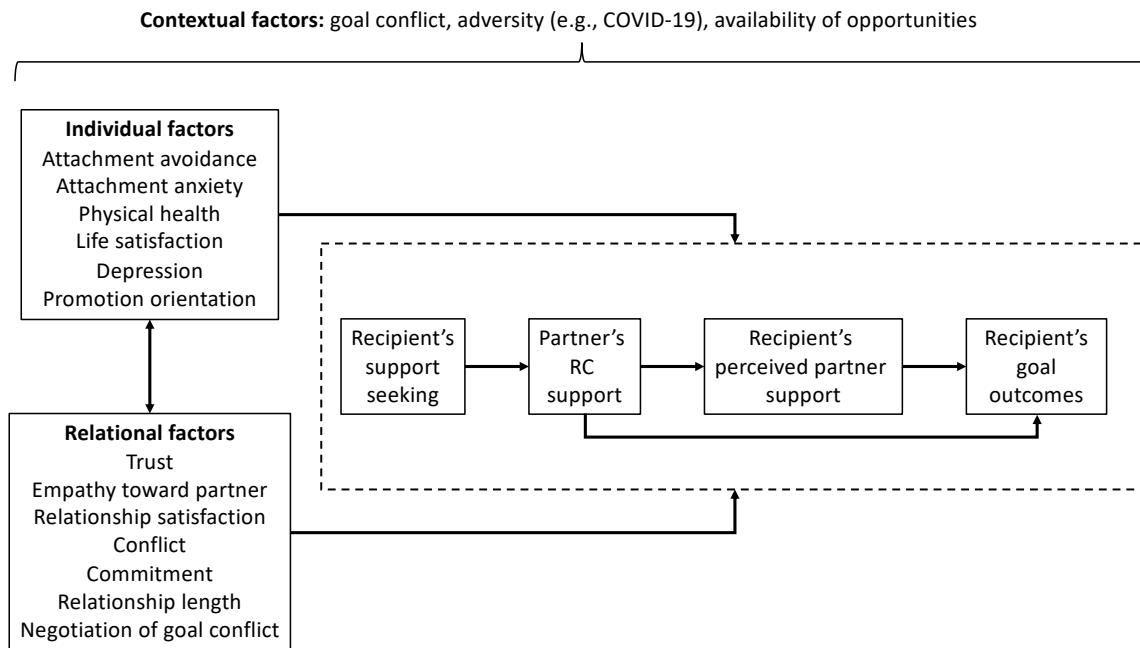
Note. Goal conflict refers to situations in which one partner's goals conflict with the needs of the relationship or the other partner (e.g., one partner getting a job opportunity abroad) rather than partners having conflicts about their goals (relational factor). The model inside the dashed rectangle showcases the RC support model. Individual, relational, and contextual factors examined in the thesis predict all stages of the RC support process.

Appendix A **Supplementary Material for Manuscript 3: When Goals Conflict: The Impact of Goal Conflict on Relational Catalyst Support**

Table S1

The Results for Study 1 with and without Covariates and Interactions

Variables	Basic model			Covariates			Covariates + interactions		
	B (SD)	*t*	*p*	*B (SD)*	*t*	*p*	*B (SD)*	*t*	*p*
Model 1 (Segment 2, *n* = 273)	$\Delta R^2 = .12$			$\Delta R^2 = .12$			$\Delta R^2 = .12$		
Intercept	95.53 (1.16)	82.06	<.001	94.92 (3.45)	27.55	<.001	93.65 (4.19)	22.37	<.001
Problematic S2	-10.20 (1.65)	-6.19	<.001	-10.39 (1.66)	-6.27	<.001	-8.62 (4.92)	-1.75	.081
Avoidance				-0.01 (0.60)	-0.01	.993	-0.35 (0.81)	-0.43	.669
Anxiety				-0.73 (0.57)	-1.29	.198	-0.08 (0.86)	-0.09	.929
Gender				2.34 (2.18)	1.08	.283	2.26 (2.18)	1.04	.301
Relationship status				1.32 (1.92)	0.69	.493	1.26 (1.93)	0.65	.515
Relationship length				0.38 (0.25)	1.50	.136	0.40 (0.26)	1.58	.116
Avoidance *x* problematic							0.71 (1.16)	0.61	.512
Anxiety *x* problematic							-1.14 (1.12)	-1.02	.311

Model 2 (Segment 3)	$\Delta R^2 = .06$			$\Delta R^2 = .09$			$\Delta R^2 = .07$		
Intercept	97.37 (1.83)	52.22	<.001	99.08 (4.13)	24.01	<.001	99.36 (4.56)	21.77	<.001
Pursue	-5.59 (1.94)	-2.89	.004	-5.64 (1.92)	-2.94	.004	-5.32 (3.81)	-1.40	.164
Problematic S3	-5.69 (1.92)	-2.97	.003	-5.53 (1.91)	-2.90	.004	-5.96 (3.54)	-1.68	.093
Problematic S2	1.45 (1.94)	-0.75	.455	-1.47 (1.92)	-0.77	.443	-2.37 (3.73)	-0.64	.525
Avoidance				-0.75 (0.67)	-1.10	.275	-0.76 (0.69)	-1.10	.274
Anxiety				-1.37 (0.64)	-2.13	.034	-1.37 (0.65)	-2.10	.037
Gender				5.62 (2.47)	2.27	.024	5.61 (2.50)	2.24	.026
Relationship status				1.05 (2.20)	0.48	.633	1.10 (2.23)	0.50	.621
Relationship length				0.09 (0.29)	0.32	.750	0.10 (0.29)	0.33	.742
Pursue(0) x Problematic S3							-1.17 (5.48)	-0.21	.831
Pursue(0) x Problematic S2							-0.03 (5.43)	-0.005	.996
Pursue x Problematic S2 x S3							1.56 (5.40)	0.29	.773

Note. We have included gender, relationship status, and relationship length as covariates. Problematic S2 refers to whether the target's goal was problematic for the partner in segment 2 (0 = non-problematic, 1 = problematic), Pursue refers to whether the target took the opportunity (0 = did not take opportunity, 1 = took the opportunity), Problematic S3 refers to whether the partner's goal was problematic for the target in segment 3 (0 = non-problematic, 1 = problematic). The problematic goal hypothesis is addressed in Model 1 in which participants read either a problematic (vs. non-problematic) segment and the reciprocity hypothesis is addressed in Model 2 in which participants either find out that target took the opportunity (vs. did not take the opportunity). The sacrifice is assessed with the *pursue x problematic S2 x problematic S3* interaction in which target pursued the problematic opportunity in the past (i.e., their partner had to sacrifice) and now the partner's goal is problematic so the target would need to sacrifice in turn.

Table S2

The Results from Content Analysis for Study 2 with Reasons Reported Second

Reason	Segment 1	Segment 2 Not difficult	Somewhat difficult	Very difficult	Segment 3 Not difficult	Somewhat difficult	Very difficult	Segment 3 No opportunity	Takes opportunity
Support									
Pros and cons of job	6	12	9	15	5	5	4	7	7
Unconditional support	51	8	6	3	15	12	4	15	16
Relationship worries	1	0	8	3	0	5	9	8	6
Non-interference	3	0	2	0	0	0	0	0	0
Opportunity									
Goal	17	9	4	2	7	9	4	11	9
Recipient	35	7	11	11	11	10	5	12	14
Partner	1	0	1	2	0	0	1	0	1
Relationship	10	6	6	5	2	6	9	8	9

Note. The numbers in the table refer to how many participants in each condition endorsed a particular reason. Segment 1 acted as a baseline in which all participants received the same instructions to imagine that they have graduated and have been together with their current partner for at least five years and are cohabiting in a committed relationship. One partner gets an opportunity for a promotion. In Segment 2, participants learned that the opportunity would either not be difficult, be somewhat difficult, or very difficult for the partner or the relationship in order to manipulate goal conflict. In Segment 3, the participants learned that the first partner either took the opportunity or did not take the opportunity to manipulate sacrifice. They were then told that the second partner gets an opportunity, which is either not difficult, somewhat difficult, or very difficult for the partner or the relationship to manipulate goal difficulty.

Table S3

The Results from Content Analysis for Study 2 with Reasons Thought about First

	Segment 1	Segment 2			Segment 3			Segment 3	
	yes/no	Not difficult	Somewhat difficult	Very difficult	Not difficult (yes/no)	Somewhat difficult (yes/no)	Very difficult (yes/no)	No opportunity (yes/no)	Takes opportunity (yes/no)
Opportunity									
Goal	22/22	7	3	5	12/5	7/1	1/2	13/2	13/6
Recipient	34/24	8	3	7	6/4	10/6	7/1	13/5	15/6
Partner	1/2	1	5	3	0/0	0/1	12/0	0/0	0/1
Relationship	8/20	4	9	10	4/7	3/2	2/18	3/21	4/14

Note. The numbers in the table refer to how many participants in each condition endorsed a particular reason. Segment 1 acted as a baseline in which all participants received the same instructions to imagine that they have graduated and have been together with their current partner for at least five years and are cohabiting in a committed relationship. One partner gets an opportunity for a promotion. In Segment 2, participants learned that the opportunity would either not be difficult, be somewhat difficult, or very difficult for the partner or the relationship in order to manipulate goal conflict. In Segment 3, the participants learned that the first partner either took the opportunity or did not take the opportunity to manipulate sacrifice. They were then told that the second partner gets an opportunity, which is either not difficult, somewhat difficult, or very difficult for the partner or the relationship to manipulate goal difficulty. "Yes" refers to reasons why one partner should take an opportunity and "No" refers to reasons why one partner should NOT take an opportunity. We did not ask about support in the segments where participants were asked to think about reasons why a partner should take an opportunity. In Segment 2, participants were asked to think about whether this new information influenced their attitudes toward an opportunity.

Appendix B   Supplementary Material for Manuscript 5: Attachment Styles, Negotiation of Goal Conflict, and Perceived Partner Support During COVID-19

Table S1

The Results from the Hierarchical Linear Modeling for Goal Conflict with Relationship's Goals as Predictors of RC and Anti-RC Support.

	RC Support						Anti-RC Support					
	Daily			Weekly			Daily			Weekly		
Predictors	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*
Intercept	6.10	5.76 − 6.43	**<0.001**	6.25	5.90 − 6.60	**<0.001**	1.15	1.02 − 1.28	**<0.001**	0.95	0.82 − 1.07	**<0.001**
$Conflict_{RW}$	-0.08	-0.11 − -0.06	**<0.001**	-0.09	-0.11 − -0.06	**<0.001**	0.12	0.10 − 0.14	**<0.001**	0.13	0.10 − 0.15	**<0.001**
$Conflict_{RB}$	-0.30	-0.52 − -0.09	**0.006**	-0.32	-0.53 − -0.12	**0.002**	0.73	0.66 − 0.81	**<0.001**	0.70	0.63 − 0.77	**<0.001**
Time	0.00	-0.02 − 0.02	0.900	0.00	-0.00 − 0.01	0.672	-0.03	-0.05 − -0.01	**0.001**	0.01	0.01 − 0.01	**<0.001**
Random Effects												
σ^2	1.86			1.45			1.09			0.96		
τ_{00}	5.54 ID			5.96 ID			0.70 ID			0.65 ID		
ICC	0.75			0.80			0.39			0.40		
N	200 ID			199 ID			200 ID			199 ID		

Observations	3769	2672	3769	2672
R^2	0.032	0.038	0.433	0.457

Table S2

The Results from the Hierarchical Linear Modeling for Goal Conflict with Relationship's Goals and Attachment as Predictors of RC and Anti-

RC Support.

	RC Support						Anti-RC Support					
	Daily			Weekly			Daily			Weekly		
Predictors	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*
Intercept	6.10	5.79 − 6.42	**<0.001**	6.25	5.93 − 6.57	**<0.001**	1.15	1.02 − 1.28	**<0.001**	0.95	0.82 − 1.08	**<0.001**
Conflict$_{RW}$	-0.09	-0.11 − -0.06	**<0.001**	-0.09	-0.12 − -0.06	**<0.001**	0.12	0.10 − 0.14	**<0.001**	0.13	0.10 − 0.15	**<0.001**
Conflict$_{RB}$	-0.09	-0.31 − 0.12	0.403	-0.12	-0.32 − 0.09	0.257	0.74	0.65 − 0.82	**<0.001**	0.70	0.62 − 0.77	**<0.001**
Avoidance	-0.53	-0.72 − -0.35	**<0.001**	-0.58	-0.77 − -0.39	**<0.001**	-0.01	-0.08 − 0.07	0.814	0.00	-0.07 − 0.07	0.976
Anxiety	0.00	-0.14 − 0.15	0.951	0.01	-0.14 − 0.16	0.871	-0.01	-0.06 − 0.05	0.855	0.02	-0.03 − 0.08	0.443
Time	0.00	-0.02 − 0.02	0.945	0.00	-0.00 − 0.01	0.654	-0.03	-0.05 − -0.01	**0.001**	0.01	0.01 − 0.01	**<0.001**
Conflict$_{RW}$ * Anxiety	0.01	-0.00 − 0.02	0.191	0.02	0.01 − 0.03	**0.005**	-0.01	-0.02 − 0.00	0.081	-0.01	-0.02 − -0.00	0.029
Conflict$_{RW}$ * Avoidance	0.00	-0.01 − 0.02	0.668	0.01	-0.01 − 0.02	0.213	0.01	-0.00 − 0.02	0.268	0.01	-0.00 − 0.02	0.216

Random Effects

σ^2	1.86	1.45	1.09	0.96
τ_{00}	4.78 ID	5.06 ID	0.71 ID	0.65 ID
ICC	0.72	0.78	0.39	0.41
N	200 ID	199 ID	200 ID	199 ID
Observations	3769	2672	3769	2672
R^2	0.131	0.155	0.432	0.457

Figure S1

The Results of the Simple Slope Analyses Depicting the Association between Goal

Conflict with Relationship's Goals and RC and Anti-RC Support at Different Levels

of Attachment Anxiety for the Longitudinal Weekly Data
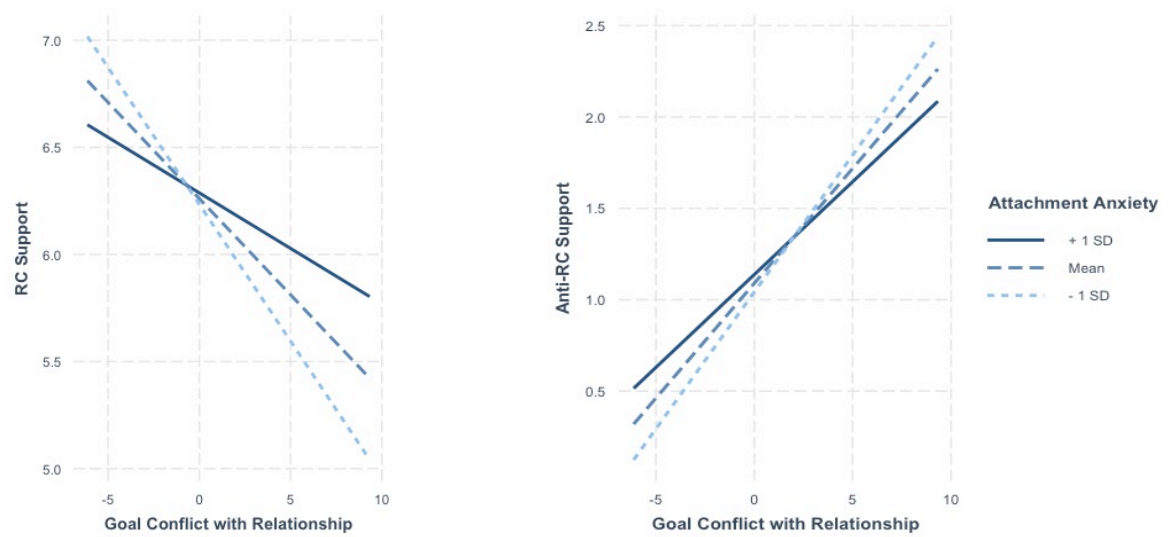
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