

WHAT MAKES INDIVIDUALS HAPPY IN
DAILY LIFE?
FROM PERSONAL TO RELATIONAL WELL-
BEING

A Ph.D. Dissertation

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WHAT MAKES INDIVIDUALS HAPPY IN DAILY LIFE?

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To My Grandmother,
Seniye,

Who was always passionate for science

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FROM PERSONAL TO RELATIONAL WELL-BEING?

The Graduate School of Economics and Social Sciences of
İhsan Doğramacı Bilkent University

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October 2021

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ABSTRACT

WHAT MAKES INDIVIDUALS HAPPY IN DAILY LIFE? FROM PERSONAL TO RELATIONAL WELL-BEING?

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Positive relationship events that allow meaningful interactions with the romantic partner or reminding oneself of these events are expected to improve well-being, while engaging in solitary activities without the involvement of romantic partner might have an adverse effect on well-being. To address the role of positive relational experiences (and lack thereof) on well-being, the current dissertation investigated three diverse but interrelated questions. The first empirical chapter focused on how average responsiveness and responsiveness variability are linked with personal well-being and attachment orientations, as a consistent predictor of relational well-being. Across three studies, we showed low average responsiveness as a consistent predictor of increases in both partner-specific and global attachment avoidance, while responsiveness variability did not predict partner-specific or global attachment anxiety, especially after controlling for covariates. In the second empirical chapter, results of one laboratory study and two studies involving daily diary and longitudinal assessments demonstrated that both positive affect following a positive face-to-face interaction with one's romantic partner, and daily positive

relationship events—and daily positive affect as the mediator were linked to decreases in partner-specific attachment avoidance. In the last empirical chapter, we focused on the direction of the link between watching TV—a solitary daily activity that might steal time from relational activities—and positive affect. We showed that duration of watching TV did not predict lower positive affect, but lower positive affect predicted longer duration of watching TV. Overall, this research enhances our understanding of how relational and solitary experiences contribute to personal and relational well-being.

Keywords: Attachment Styles, Average Responsiveness, Personal Well-Being, Responsiveness Variability, Watching TV

ÖZET

KİŞİLERİN GÜNLÜK HAYATTAKİ MUTLULUĞUNU NE BELİRLER? KİŞİSEL ESENLİKTEN İLİŞKİSEL ESENLİĞE

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Partnerimizle anlamlı bir etkileşim yaşamamıza olanak sağlayan olumlu olayların ya da bu olayları hatırlamanın esenliğe katkı sağlaması, buna karşın tek başına gerçekleştirilen ve romantik partneri içermeyen aktivitelerinse esenlik üzerinde olumsuz bir etki yapması beklenebilir. Mevcut tez, ilişkiye dair olumlu deneyimlerin (ve bu deneyimlerin yoksunluğunun) esenlik üzerindeki rolünü irdelemek için üç farklı ancak birbiriyle ilişkili soruya odaklanmıştır. İlk deneysel bölümde, ortalama duyarlılık ve duyarlılık değişkenliğinin kişisel esenlik ve ilişkisel esenliğin istikrarlı bir yordayıcısı olan bağlanma boyutlarıyla olan ilişkisi incelenmiştir. Üç ayrı çalışmada, düşük ortalama duyarlılığın hem partnere kaçınan bağlanmanın hem de yakın ilişkilerdeki kaçınan bağlanmanın istikrarlı bir yordayıcısı olduğu ortaya çıkmış, duyarlılık değişkenliği ise özellikle kontrol değişkenlerinin eklenmesinin ardından partnere kaygılı bağlanmayı ve yakın ilişkilerdeki kaygılı bağlanmayı yordamamıştır. Tezin ikinci deneysel bölümünde, laboratuvarında gerçekleştirilen bir çalışmada partnerle yüz yüze gerçekleştirilen olumlu bir etkileşimin ardından açığa çıkan olumlu duyguların partnere kaçınan bağlanmadaki düşüşü yordadığı tespit edilmiştir. Günlük ve boylamsal ölçümler içeren iki çalışmadaysa,

ilişkiye dair günlük olumlu olayların partnere kaçınan bağlanmadaki düşüşü anlamlı bir şekilde yordadığı, günlük olumlu duygularınsa bu ilişkide aracı rol oynadığı gösterilmiştir. Tezin son deneysel bölümünde, genellikle yalnız başına gerçekleştirilen ve bu yüzden diğer ilişkiyel aktivitelere ayrılacak zamanı işgal edebileceği düşünölen bir aktivite olan TV izleme ve olumlu duygular arasındaki ilişkinin yönü incelenmiş, TV izleme süresinin olumlu duyguları azaltmadığı, aksine azalan olumlu duyguların TV izleme süresini arttırdığı ortaya konulmuştur. Bir bütün olarak ele alındığında, mevcut çalışma, ilişkiye dair ve tek başına gerçekleştirilen deneyimlerin kişisel ve ilişkiyel esenliğe olan katkıları üzerine daha derin bir kavrayışa sahip olmamıza katkıda bulunmuştur.

Anahtar Kelimeler: Bağlanma Boyutları, Duyarlılık Değişkenliği, Kişisel Esenlik, Ortalama Duyarlılık, TV İzleme

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CHAPTER 1

INTRODUCTION

Decades of research has endeavored to find what makes individuals happy in daily life. Despite the magic formula of happiness is yet to be uncovered, engaging in positive, enjoyable, novel, and meaningful daily social interactions with others has long been acknowledged as a fundamental driver of both personal (Campbell, Converse, & Rodgers, 1976; Cantor & Sanderson, 1999; Maybery, Jones-Ellis, Neale, & Arentz, 2006; Ryff & Singer, 2000; Sonnentag, 2001) and relational well-being (Greeff & Malherbe, 2001; Schaefer & Olson, 1981). Research shows that individuals are happier when they spend time with others, rather than being alone (Diener & Seligman, 2004; Killingsworth & Gilbert, 2010). They also report being happier when engaging in social rather than solitary experiences (Caprariello & Reis, 2013). Of all social relationships, close relationships are long known to be an enduring source of physical and psychological health, longevity, and intrapersonal happiness (Burt, 1986; Cohen, 1988; House, Landis, & Umberson, 1988; Pavot, Diener, & Fujita, 1990). As the most common intimate and committed form of close relationship in adulthood, romantic relationships, in particular, are thought to play a unique role in well-being (Campbell, Simpson, Boldry, Kashy, 2005; Glenn & Weaver, 1981; Kansky, 2018; Lyubomirsky, King, & Diener, 2005).

According to the positive activity model, positive experiences allowing us to show kindness, care, gratitude and interest towards others increase our happiness (Lyubomirsky & Layous, 2013). Activities shared with a romantic partner are indeed among these positive experiences associated with greater well-being. Thus, positive relationship events that allow meaningful interactions with the partner or reminding oneself of these events are expected to improve well-being, while engaging in activities that are usually conducted alone, without the involvement of romantic partner might have an adverse effect on well-being.

A notable positive relationship event is participating in novel, challenging and exciting activities with the partner (Aron, Norman, Aron, McKenna, & Heyman, 2000; Strong & Aron, 2006), which was found to elevate personal positive affect. This positive affect generated as a result of shared positive interactions improved several important relational well-being indicators for each partner, including relationship quality, satisfaction, closeness, and commitment (Reissman, Aron & Bergen, 1993; Aron et al., 2000; Strong & Aron, 2006; Totenhagen et al., 2012). Positive relational events and the resulting personal positive affect also reduce the detrimental effects of negative emotions that might be aroused within the relationship (Fredrickson, 2001) and buffer the relationship against potential future stressors (Aspinwall, 2005; Totenhagen et al. 2012), thus contributing to relational well-being. By promoting closeness and intimacy, and by reducing the impact of stressors, positive relationship events also foster relational well-being by increasing feelings of security (Cortes, Britton, Holmes, & Scholer, 2020; Shaver &

Mikulincer, 2008), and by lowering attachment avoidance in particular (Rholes, Eller, Simpson, & Arriaga, 2020; Stanton, Campbell, & Pink, 2017).

Similarly, perceiving romantic partner as responsive during these interactions also leads to greater well-being (Reis, 2012; Tasfiliz et al., 2018). For instance, sharing some good news with the partner and seeing partner reacting in a responsive manner (Gable & Reis, 2010; Gable, Reis, Impett, & Asher, 2004) were found to elevate personal positive affect. Several other work (e.g., Selcuk, Gunaydin, Ong, & Almeida, 2016; Yoo, Bartle-Haring, Day, & Gangamma, 2014) also hinted at the role of responsive partner interactions in increasing hedonic and eudaimonic well-being, feelings of intimacy and individual sexual satisfaction. For example, when couples engaged in constructive behaviors and encouraged each other for disclosure during a discussion, they reported greater feelings of intimacy (Laurenceau, Barrett, & Rovine, 2005; Mitchell et al., 2008). Individual intimacy and sexual satisfaction of each spouse mediated the link between perceived communication with partner and relationship satisfaction (Yoo et al., 2014). A partner who is perceived as responsive to one's needs also fosters attachment security (Bowlby, 1982; Hazan & Shaver, 1987), by lowering down attachment avoidance and anxiety (Rice et al., 2020).

As positive activities showing that we value and care for others increase our well-being, mundane activities that are usually conducted alone might be expected to diminish well-being (Lyubomirsky & Layous, 2013; Turcotte, 2007). Watching

television (TV), as being the most commonly preferred daily leisure activity (Bureau of Labor Statistics, 2015; IP, 2004; OECD, 2015) might be one prominent example of passive and mundane daily activities that might lead to lower well-being by occupying the time that might otherwise be devoted to other positive activities—and thus reducing the likelihood of experiencing positive relationship events. For example, watching TV might deteriorate well-being by preventing individuals from communicating with significant others or engaging in close interactions (Bruni & Stanca, 2006; Kataria & Regner, 2011; Kubey and Csikszentmihalyi, 1990).

Overall, extant theoretical and empirical work suggests that positive relational events and perceptions (such as perceived partner responsiveness) would bolster well-being while activities that detract one from positive aspects of the relationship—a mundane daily activity such as watching TV—would diminish well-being. Therefore, one major aim of the present dissertation is to answer the question of how perceived partner responsiveness—the extent to which individuals evaluate their partners as understanding, caring and appreciating— might be linked with hedonic and eudaimonic well-being as well as with a robust indicator of relational well-being, namely attachment styles (Collins & Read, 1990; Strauss, Morry, & Kito et al., 2012). A second aim is to investigate how daily relationship activities are related to attachment styles and whether hedonic well-being (i.e., positive affect) mediates this relationship. Also, we intend to shed light on how TV watching—a solitary daily activity that reduces the time that might otherwise be

invested in romantic relationships—predicts hedonic well-being (i.e., positive affect).

Chapter 2 focused on perceived partner responsiveness as a key factor fostering attachment security and personal well-being. Specifically, it investigated the separate roles of two different types of perceived partner responsiveness—namely average responsiveness and responsiveness variability, in attachment orientations as well as hedonic and eudaimonic aspects of personal well-being. Chapter 3 focused on the link between positive experiences within a relationship and attachment security and examined how positive relational events might reduce attachment avoidance in the long-run. We also investigated whether improved hedonic well-being—measured by increases in individual positive affect—mediates the relationship between positive events and attachment avoidance. Chapter 4 focused on how a solitary daily activity that reduces the time spent with romantic partners (specifically watching TV) is linked with hedonic well-being (specifically positive affect). Daily assessment of positive affect and time spent watching TV allowed us to examine the direction of the relationship between watching TV and positive affect. Finally, Chapter 5 discussed avenues for future research based on the empirical chapters.

CHAPTER 2

THE ROLE OF AVERAGE RESPONSIVENESS AND RESPONSIVENESS VARIABILITY IN PERSONAL WELL- BEING AND ATTACHMENT STYLES

We would all agree that Carrie Bradshaw's two major romantic relationships in the popular TV show *Sex and the City*, her relationship with Mr. Big and with Aidan, have totally different dynamics. Carrie Bradshaw's relationship with Mr. Big always contained ups and downs, so it was difficult to guess how this relationship would unfold. On the other hand, her relationship with Aidan was quite predictable, so we might guess that these two would have a pretty stable and long-lasting relationship if they ended up together. So, what makes the difference? One plausible argument is that Mr. Big was variably responsive to Carrie's needs and it was difficult to predict how he would behave from one situation to the next, while Aidan was consistently responsive and caring towards Carrie. Under these circumstances, should we expect differences in how Carrie is attached to Mr. Big and to Aidan, and her personal well-being?

Although this example suggests that consistent vs. variable responsiveness of partners might have differential consequences, studies assessing the link between

perceived partner responsiveness and well-being have largely focused on the consequences of average levels of responsiveness, but did not touch upon the potential role of responsiveness variability. Average responsiveness captures our partner's mean level of responsiveness across time or situations, whereas responsiveness variability captures changes in our partner's responsiveness from one day to another or from one situation to another. For example, if I perceive my partner as very responsive one day but unresponsive the next day (as opposed to consistently responsive or consistently unresponsive), this is indicative of high responsiveness variability as in the case of Mr. Big. Another example of high responsiveness variability might be perceiving my partner as highly responsive in one situation (e.g., when we are sharing a positive event) while unresponsive in a different one (e.g., when we are discussing a common conflict). When we focus only on the average level of responsiveness throughout the relationship, a romantic partner who is very responsive at one incident but unresponsive in another would be perceived as moderately responsive on average, and the impact of responsiveness variability across time or situations would not be captured.

2.1 Perceived Partner Responsiveness and Personal Well-Being

Perceiving one's partner as responsive during a romantic relationship is expected to improve well-being both by increasing personal positive affect and by reducing the detrimental effects of outside stressors (Collins & Feeney, 2000; Cutrona & Russell, 2017; Maisel & Gable, 2009; Tasfiliz et al., 2018). Perceived partner responsiveness has been found to predict both hedonic (conceptualized as high pleasure and positive

affect) and eudaimonic well-being (conceptualized as reaching one's highest potential and finding purpose in life; Selcuk et al., 2016; Tasfiliz et al., 2018). Several studies showed that perceived partner responsiveness is also linked with several correlates of personal well-being—including better physical health (Slatcher, Selcuk, & Ong, 2015), better sleep quality via reduced anxiety and depression (Selcuk, Stanton, Slatcher, & Ong, 2017), and lowered stress (Maisel & Gable, 2009). Seeing the partner reacting responsively while talking about a stressful experience (Collins & Feeney, 2000), during experiencing a daily negative event (Maisel & Gable, 2009) or while working on a difficult task (Feeney, 2004) also contributed to maintenance of positive affect and alleviation of negative affect. Thus, perceiving partner as responsive helps individuals preserve a positive mood, besides protecting them against stressors in daily life, and thereby fostering personal well-being.

Research showed that perceived partner responsiveness improves well-being even in positive contexts. For instance, after sharing a positive event, believing that partner has acted responsively contributed to positive affect and life satisfaction (Gable & Reis, 2010; Otto, Laurenceau, Siegel, Belcher, 2015). Similarly, perceived partner responsiveness while talking about personal goals led to heightened positive affect (Feeney, 2004). Besides fostering positive affect or reducing negative affect, perceived partner responsiveness also improves personal well-being by allowing individuals to worry less about outside stressors and to devote more of their resources for personal growth (Mikulincer & Shaver, 2007). As an example, perceiving partner as responsive while disclosing personal plans was found to

contribute to goal attainment (Feeney, 2004). Similarly, individuals knowing the presence of a responsive partner reported higher confidence in realizing personal goals (Feeney, 2004) and engaged in destructive reactions less if they face with failure (Caprariello & Reis, 2011).

Although perceived partner responsiveness is a robust predictor of individual well-being (Ruan, Reis, Clark, Hirsch, & Bink, 2020; Selcuk et al., 2016), research on hand did not separately examine the role of average responsiveness and responsiveness variability in personal well-being. Thus, one of the major aims of the present study was to address the gap in the literature by investigating the distinct roles that average responsiveness and responsiveness variability might play in hedonic and eudaimonic aspects of personal well-being.

2.2 Perceived Partner Responsiveness and Attachment Styles

A recent theoretical framework on attachment change (the Attachment Security Enhancement Model; ASEM; Arriaga et al., 2018) suggests that perceived partner responsiveness also plays an important role in attachment security—a consistent indicator of relational well-being (Candel & Turliuc, 2019; Kachadourian, Fincham, & Davila, 2004). Attachment security is typically conceptualized as low attachment anxiety (defined by the worry that our partner might leave us) and low attachment avoidance (defined by the difficulty in getting close to and trusting our partner). Currently, there is limited work investigating how different types of responsiveness might predict attachment anxiety and avoidance.

Perceived partner responsiveness determines the happiness and longevity of a romantic relationship by predicting major relationship processes, including attachment styles (Reis, 2012). For example, perceived partner responsiveness increases intimacy and trust in a romantic relationship (Laurenceau et al., 1998; Manne et al., 2004; Reis, Clark, & Holmes, 2004), which in turn would foster the feeling that we can rely on our partner and hence attachment security (Feeney & Collins, 2003). On the contrary, perceiving our partner as unresponsive leads to insecure attachment styles—either avoidant or anxious attachment (for a review see Ainsworth, Blehar, Waters, & Wall, 2015). Although these findings indicate that perceived partner responsiveness plays an active role in determining major relationship processes they did not make a distinction between average levels of responsiveness vs. responsiveness variability.

Having consistently unresponsive attachment figures might motivate individuals to avoid forming an attachment bond (Ainsworth et al., 2015; Beckes & Coan, 2015; Mikulincer & Shaver, 2003). For example, infants having consistently unresponsive caregivers—i.e., caregivers demonstrating low average responsiveness—were found to develop an avoidant attachment style (Ainsworth et al., 2015; NICHD Early Child Care Research Network, 1997). These findings may also be generalized to adult romantic relationships. When our romantic partner is consistently unresponsive to our needs, we cannot receive the support that we expect to receive from our partner and our distress is not alleviated by them (Beckes & Coan, 2015). In such a situation, eventually, we would choose to rely on ourselves rather than

trusting our partner, which leads to avoidant romantic attachment (Mikulincer & Shaver, 2003). So, we might expect low average responsiveness to predict attachment avoidance.

Whereas, when our partner acts responsively on one day while acting unresponsively on the other, it becomes difficult to predict how our partner will behave the next time we meet. Similarly, when we perceive our partner as responsive in one situation but unresponsive in a different situation, we may not be sure about how our partner will behave in an upcoming novel situation. So, high responsiveness variability across time or situations causes us to doubt about whether or not our partner truly cares about us. This uncertainty may cause us to constantly ruminate about our partner and about the future of our relationship (Knobloch & Solomon, 2002; Solomon & Knobloch, 2001; Whitchurch, Wilson, & Gilbert, 2010). Also, given the support we receive in a romantic relationship plays an important role in reducing our stress (Maisel & Gable, 2009), when our partner shows inconsistent responsiveness, we cannot assume our partner as a consistent and reliable source while alleviating our stress (Beckes & Coan, 2015). This may make us worry about the future of our relationship (Mikulincer & Shaver, 2003; Pietromonaco, Uchino, & Dunkel Schetter, 2013), which leads to higher attachment anxiety. So, we might expect high responsiveness variability to predict attachment anxiety.

Indeed, the distinction between average responsiveness and responsiveness variability has been made while investigating attachment bonds between infants and

their primary caregivers; and low average responsiveness was found to predict attachment avoidance while responsiveness variability predicted attachment anxiety (Ainsworth et al., 2015; Beckes & Coan, 2015; Mikulincer & Shaver, 2003). However, the distinct roles of average responsiveness and responsiveness variability in attachment style formation have received limited attention in adult romantic relationships.

In one computer-mediated laboratory study that might point to the link between responsiveness variability and adult attachment anxiety, newly met individuals responded to support requests of each other (Beckes, Simons, Lewis, Le, & Edwards, 2017). Participants developed somewhat ambivalent attitudes towards individuals showing variable responsiveness (i.e., individuals who are responsive at some moments while being unresponsive at some others). Despite these ambivalent attitudes hint an anxious attachment style, actually, there exists no real attachment relationship between these newly encountered individuals. Thus, results of this study are far from reflecting the characteristics of attachment anxiety observed in actual romantic relationships. Also, the way responsiveness variability is measured in this study does not truly reflect the change of responsiveness across time or situations in daily life. In another research investigating the distinct roles of average responsiveness and responsiveness variability within the course of an actual adult romantic relationship using daily diaries and longitudinal assessments, low average responsiveness uniquely predicted increases in attachment avoidance, while high responsiveness variability uniquely predicted increases in attachment anxiety

(Gunaydin et al., 2021). However, this study focused only on daily assessments of responsiveness in new dating relationships. So, whether the findings generalize to more established relationships (e.g., newlyweds) or to responsiveness assessments across situations remains unexamined.

Using a longitudinal design and capturing both time-based and situation-based variability, another major aim of the present research was to investigate the distinct roles that average responsiveness and responsiveness variability might play on attachment styles. To this end, we conducted three studies. Study 1 aimed to examine the unique roles of average responsiveness and responsiveness variability across time in predicting attachment styles in new romantic relationships (i.e., first six months of the relationship). Romantic couples reported the extent to which they perceived their partner as responsive, their attachment anxiety, and their attachment avoidance in eight weekly sessions. Participants' self-reports of perceived partner responsiveness were used to compute two metrics: average responsiveness and *weekly* responsiveness variability. Study 2 aimed to investigate distinct roles of average responsiveness and responsiveness variability across different situations—rather than across time—in predicting attachment styles in a new romantic relationship (i.e., first six months of the relationship). At each of three monthly sessions, participants reported the extent they perceived their partner as responsive across a multitude of different situations (e.g., when they are sharing a positive event with their partner, when they are discussing a common conflict, when they spend time together with their partner in a social setting, when they are feeling tired

or under the weather, when they are getting physically intimate), while also reporting their attachment anxiety and avoidance. Participants' self-reports of perceived partner responsiveness were used to compute: average responsiveness and *situational* responsiveness variability. Here, for each monthly session, average responsiveness was found by computing the mean of responsiveness across each different situation and responsiveness variability by computing the deviations from mean level of perceived partner responsiveness. Finally, Study 3 aimed to investigate the role of average responsiveness and responsiveness variability in attachment styles and personal well-being by recruiting recently married couples as opposed to newly formed relationships. To this end, couples who were in the first six months of their marriage reported perceived partner responsiveness in a 21-day daily diary study, and attachment anxiety, attachment avoidance, and two indicators of personal well-being (i.e., life satisfaction and psychological well-being) in ten monthly sessions. Participants' self-reports of perceived partner responsiveness were used to compute two metrics: average responsiveness and *daily* responsiveness variability.

While investigating average responsiveness and responsiveness variability as predictors of attachment styles and personal well-being, we identified possible alternative interpretations and tried to address them in our work. First, our analyses controlled for the average number of negative and positive life events since such events were found to predict both attachment styles (Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Davila & Sargent, 2003; Kirkpatrick & Hazan, 1994)

and personal well-being (Maisel & Gable, 2009).

Second, individuals who are psychologically vulnerable were shown to be more likely to experience attachment change (Davila, Burge, & Hammen, 1997; Davila, Karney, & Bradbury, 1999). Experiencing high average negative affect and high negative affect variability might be considered as an indicator of psychological instability (Davila et al., 1999). Experiencing negative affect also predicts personal well-being (Collins & Feeney, 2000). Therefore, we also controlled for the average negative affect and negative affect variability in our studies.

Lastly, the association of responsiveness with attachment styles and personal well-being might be related to relationship perceptions other than perceived responsiveness. That is, individuals whose relationship quality or commitment is low might also experience low average responsiveness and high responsiveness variability. Changes in relationship perceptions (Campbell, Simpson, Boldry, & Rubin, 2010) and in particular relationship satisfaction (Arriaga, Reed, Goodfriend, & Agnew, 2006) found to predict major relational outcomes. Besides, relationship perceptions are also a major determinant of personal well-being (Glenn & Weaver, 1981; Lyubomirsky et al., 2005). Therefore, we also added perceived relationship quality to our analyses as a covariate.

2.3 Study 1

The major aim of Study 1 was to investigate the distinct roles of average responsiveness and responsiveness variability across weeks in predicting attachment styles in a new romantic relationship.

2.3.1 Method

2.3.1.1 Participants. We aimed to recruit at least 150 heterosexual dating couples (300 participants) who are in a relationship for one to six months. We especially focused on couples who are in the first few months of their relationship, because past research indicated that changes in relational outcomes are more prominent in recently started relationships as the attachment bond between partners is still under development (Fraley, Vicary, Brumbaugh, & Roisman, 2011). Three hundred forty-eight eligible participants initially enrolled in the study for course credit or monetary compensation. Forty-four participants who broke up before eight weekly survey sessions were completed, and four participants in which at least one partner did not participate in any of the seven weekly follow-up sessions were excluded, leaving 304 participants. These 304 participants have completed all weekly survey sessions (*Mean age* = 20.376, *SD* = 2.053).

2.3.1.2 Procedure. In eight weekly sessions conducted online, participants were asked to report the extent to which they perceive their partner as responsive, their attachment anxiety, and their attachment avoidance. Participants' self-reports of perceived partner responsiveness were used to compute average responsiveness and responsiveness variability across weeks (see Figure 1).

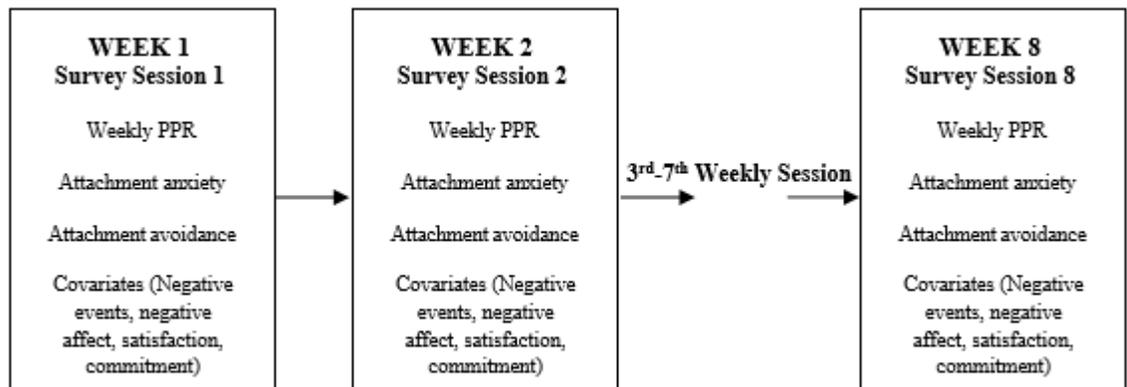


Figure 1: *Phases of Study 1*

2.3.1.3 Measures.

2.3.1.3.1 Perceived Partner Responsiveness. At each weekly session, participants evaluated the extent they perceived their partners as responsive for the last week. While measuring perceived partner responsiveness, items adapted from past work (Maisel & Gable, 2009; Selcuk et al., 2016) were used (“*This week my partner made me feel understood.*”, “*This week my partner made me feel like they valued my abilities and opinions.*”, and “*This week my partner made me feel really cared for.*”, 1 = *Strongly disagree* to 7 = *Strongly agree*), which address the major dimensions of responsiveness, based on extant literature (Reis & Gable, 2015). At each weekly session, perceived partner responsiveness was computed by averaging across these three items ($M = 5.665$, $SD = 1.377$, Cronbach’s alpha = .92).

Average responsiveness was calculated by computing the mean of weekly

responsiveness across eight weeks and *responsiveness variability* by computing the standard deviation of multilevel modeling residuals corresponding to weekly deviations from an individual's mean level of perceived partner responsiveness (see Gunaydin et al., 2021 for a similar procedure to quantify variability in relationship processes). The correlation between average responsiveness and responsiveness variability was found to be -.700 (see Table 1 for correlations among variables).

2.3.1.3.2 Partner-Specific Attachment Avoidance and Anxiety. At each weekly session, partner-specific attachment avoidance and anxiety were assessed by 10 items adapted from the Experiences in Close Relationships-Revised Inventory (ECR-R; Fraley, Waller, & Brennan, 2000). To measure each attachment dimension, participants responded to five items by considering their relationship with their current romantic partner (e.g., “*I find it difficult to allow myself to depend on my partner*” for attachment avoidance, “*I'm afraid that I will lose my partner's love.*” for attachment anxiety, 1 = *Strongly disagree* to 7 = *Strongly agree*). Partner-specific attachment avoidance ($M = 2.459$, $SD = 1.297$, Cronbach's alpha = .84) and anxiety ($M = 2.638$, $SD = 1.278$, Cronbach's alpha = .77) scores were computed by averaging across items in each subscale. Items were reverse-scored where appropriate so that higher scores reflected greater attachment avoidance and anxiety.

2.3.1.3.3 Global Attachment Avoidance and Anxiety. At each weekly session, global attachment avoidance and anxiety were assessed using the same items as in the partner-specific attachment measure, except that the items referred to “*close relationship partners*” (e.g., “*I find it difficult to allow myself to depend on my close relationship*

partners” for attachment avoidance, “*I’m afraid that I will lose my close relationship partners’ love.*” for attachment anxiety). Global attachment avoidance ($M = 2.874$, $SD = 1.317$, Cronbach’s alpha = .85) and anxiety ($M = 2.796$, $SD = 1.399$, Cronbach’s alpha = .86) scores were computed by reverse-scoring items where appropriate to reflect higher attachment avoidance and anxiety and averaging across items in each subscale.

2.3.1.4 Covariates.

2.3.1.4.1 Negative Events. At each weekly session, participants completed a measure of daily negative events. Occurrence of negative events (e.g., problem at work, interpersonal conflict) during the past week were measured using seven items adapted from the Daily Inventory of Stressful Events (Almeida et al., 2002). For each session, number of negative events were summed to create an overall measure of negative events ($M = 1.574$, $SD = 1.429$).

2.3.1.4.2 Negative Affect. At each weekly session, participants reported the frequency with which they felt restless, nervous, worthless, sad, disappointed, and hopeless on a 7-point scale (1 = *Not at all* to 7 = *A lot*), during the week after the last session. The items were adapted from past work using a brief measure of negative affect (Mroczek & Kollarz, 1998; Selcuk et al., 2016; $M = 2.771$, $SD = 1.421$, Cronbach’s alpha = .91). For each session, we computed *average negative affect* by calculating the mean of negative affect ratings. We computed *negative affect variability* in the same way as we computed responsiveness variability, except that the outcome variable of the multilevel model estimating residuals was negative affect instead of responsiveness.

2.3.1.4.3 Relationship Satisfaction. At each weekly session, participants reported their relationship satisfaction on a single item (“*This week my romantic relationship satisfied me*”, 1 = *Strongly disagree* to 7 = *Strongly agree*; Arriaga et al., 2006; $M = 5.868$, $SD = 1.391$). Arriaga et al. (2006) found that this item had a high correlation (.95) with the mean of the three items (Cronbach alpha = .89) used to measure relationship satisfaction in the Investment Model Scale, demonstrating the validity of this measurement.

2.3.1.4.4 Relationship Commitment. At each weekly session, participants reported their relationship commitment on a single item (“*This week I was determined to continue our relationship with my partner*”, 1 = *Strongly disagree* to 7 = *Strongly agree*; Arriaga et al., 2006; $M = 6.341$, $SD = 1.114$). Arriaga et al. (2006) found that this item had a high correlation (.95) with the mean of the four items (Cronbach alpha = .93) used to measure relationship commitment in the Investment Model Scale, demonstrating the validity of this measurement.

2.3.1.5 Data Analytic Strategy. Given the nested structure of our data, we used multilevel modeling across all studies using HLM v.7. We centered continuous variables around their grand mean and used robust standard errors to construct confidence intervals.

Our design had two factors: person and couple. We used effect-coded gender (-1 = male, 1 = female) as a fixed effect and two dummy-coded variables corresponding to males (0 = female, 1 = male) and females (0 = male, 1 = female) as random effects. The effect-coded gender variable was only used in the fixed portion of models and enabled us to

estimate fixed effects pooled across gender while dummy codes were only used in the random portion of models and enabled us to estimate random intercepts, slopes, and their covariance separately for each gender.

We estimated weekly perceived partner responsiveness using the following model:

$$\text{perceived partner responsiveness}_{ij} = \pi_{0j} + \pi_{1j}\text{gender} + \pi_{2j}\text{week} + e_{ij} \quad (1)$$

In our model, we also controlled for the linear effect of time by including survey week (centered around Week 4—i.e., halfway through the study) as a predictor of perceived partner responsiveness, to distinguish responsiveness variability from systematic linear growth. The Level-1 residual term e_{ij} corresponded to the participant's weekly deviation from their mean perceived partner responsiveness and the standard deviation of residuals provided an index of responsiveness variability.

Negative affect variability was estimated using the same approach except that the outcome was negative affect.

Associations of average responsiveness and responsiveness variability with attachment orientations were estimated using multilevel modeling. The model for the association between responsiveness variability and partner-specific attachment anxiety was:

$$\text{partner-specific attachment anxiety}_{ij} = \gamma_{00} + \gamma_{20} \text{gender} + \gamma_{30} \text{responsiveness variability} + (\text{female}) u_0 + (\text{male}) u_0 + e_{ij} \quad (2)$$

where gender was effect-coded, and male and female were dummy-coded to separate the random intercept into two components for men and women. To test the association between average responsiveness and partner-specific attachment anxiety, we repeated the model by having average responsiveness as the predictor, instead of responsiveness variability.

We repeated the analyses by having partner-specific attachment avoidance, global attachment-anxiety and global attachment avoidance as the outcome variable. For all models, we also repeated the analyses by adding both average responsiveness and responsiveness variability as predictors to test the unique role of each predictor. Finally, for all models, if the focal association was significant, we repeated the analysis by adding negative events, negative affect, relationship satisfaction and relationship commitment as predictors. This enabled us to examine whether the focal association still held while adjusting for covariates.

2.3.2 Results

One central prediction tested in the present work was that high responsiveness variability would predict greater attachment anxiety. As expected, high responsiveness variability predicted increases in both partner-specific attachment anxiety ($\gamma = 0.696, p < .001, 95\% \text{ CI} = [0.420, 0.972]$) and global attachment anxiety ($\gamma = 0.558, p < .001, 95\% \text{ CI} = [0.293, 0.823]$). Low average responsiveness also predicted increases both in

partner-specific attachment anxiety ($\gamma = -0.778, p < .001, 95\% \text{ CI} = [-0.888, -0.668]$) and global attachment anxiety ($\gamma = -0.561, p < .001, 95\% \text{ CI} = [-0.696, -0.426]$).

Another central prediction tested in the present work was that low average responsiveness would predict greater attachment avoidance. As expected, low average responsiveness predicted increases in both partner-specific attachment avoidance ($\gamma = -0.809, p < .001, 95\% \text{ CI} = [-0.882, -0.736]$) and global attachment avoidance ($\gamma = -0.561, p < .001, 95\% \text{ CI} = [-0.696, -0.426]$). Responsiveness variability was also significantly associated with increases in partner-specific attachment avoidance ($\gamma = 0.691, p < .001, 95\% \text{ CI} = [0.519, 0.863]$) and global attachment avoidance ($\gamma = 0.554, p < .001, 95\% \text{ CI} = [0.350, 0.758]$).

After we entered to the models both average responsiveness and responsiveness variability and also controlled for covariates, the association between average responsiveness and attachment styles still held, while the association between responsiveness variability and attachment styles did not hold, except the relationship between partner-specific attachment anxiety and responsiveness variability. Meanwhile, high responsiveness variability started to predict decreases in partner-specific attachment anxiety, suggesting a suppressor relationship between average responsiveness and responsiveness variability (see Table 2 and Table 3 for details).

Table 1. Correlations Among Variables for Study 1

Variables	Average PPR	PPR variability	Partner-specific attachment anxiety	Partner-specific attachment avoidance	Global attachment anxiety	Global attachment avoidance	Negative events	Negative affect	Satisfaction	Commitment
Average PPR		-.70**	-.45**	-.53**	-.39**	-.39**	-.18**	-.56**	.85**	.68**
PPR variability			.27**	.32**	.27**	.26**	.14**	.40**	-.55**	-.39**
Partner-specific attachment anxiety				.60**	.58**	.38**	.37**	.23**	-.37**	-.25**
Partner-specific attachment avoidance					.43**	.55**	.40**	.22**	-.49**	-.42**
Global attachment anxiety						.58**	.40**	.27**	-.32**	-.25**
Global attachment avoidance							.46**	.28**	-.35**	-.31**
Negative events								.32**	-.16**	-.12**
Negative affect									-.54**	-.40**
Satisfaction										.79**
Commitment										

Note. * $p < .05$. ** $p < .001$.

Table 2. Multilevel Models Predicting Partner-Specific Attachment Orientations for Study 1

Outcome: Partner-Specific Attachment Anxiety												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.746	0.065	(2.619, 2.873)	<.001	2.748	0.050	(2.650, 2.846)	<.001	2.752	0.047	(2.660, 2.844)	<.001
Gender	0.046	0.051	(-0.054, 0.146)	.367	0.043	0.046	(-0.047, 0.133)	.345	0.001	0.042	(-0.081, 0.083)	.986
Average PPR	-	-	-	-	-0.850	0.084	(-1.105, -0.685)	<.001	-0.739	0.138	(-1.009, -0.469)	<.001
PPR variability	0.696	0.141	(0.420, 0.972)	<.001	-0.162	0.139	(-0.434, 0.110)	.244	-0.279	0.139	(-0.551, -0.007)	.045
Negative events	-	-	-	-	-	-	-	-	0.466	0.432	(-0.381, 1.313)	.282
Negative affect	-	-	-	-	-	-	-	-	0.242	0.087	(0.071, 0.413)	.006
Satisfaction	-	-	-	-	-	-	-	-	-0.029	0.110	(-0.245, 0.187)	.790
Commitment	-	-	-	-	-	-	-	-	0.145	0.104	(-0.059, 0.349)	.163
Outcome: Partner-Specific Attachment Avoidance												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.508	0.037	(2.435, 2.581)	<.001	2.508	0.036	(2.437, 2.579)	<.001	2.511	0.033	(2.446, 2.576)	<.001
Gender	0.020	0.031	(-0.041, 0.081)	.521	0.024	0.031	(-0.037, 0.085)	.451	0.008	0.028	(-0.047, 0.063)	.785
Average PPR	-0.809	0.037	(-0.882, -0.736)	<.001	-0.896	0.050	(-0.994, -0.798)	<.001	-0.544	0.079	(-0.699, -0.389)	<.001
PPR variability	-	-	-	-	-0.200	0.074	(-0.345, -0.055)	.007	-0.141	0.082	(-0.302, 0.020)	.084
Negative events	-	-	-	-	-	-	-	-	0.543	0.302	(-0.049, 1.135)	.073
Negative affect	-	-	-	-	-	-	-	-	0.171	0.053	(0.067, 0.275)	.001
Satisfaction	-	-	-	-	-	-	-	-	-0.077	0.073	(-0.220, 0.066)	.291
Commitment	-	-	-	-	-	-	-	-	-0.233	0.081	(-0.392, -0.074)	.004

Note. Gender: -1 = male, 1 = female; all continuous variables were grand-mean centered.

Table 3. Multilevel Models Predicting Global Attachment Orientations for Study 1

Outcome: Global Attachment Anxiety												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.801	0.060	(2.683, 2.919)	<.001	2.802	0.054	(2.696, 2.908)	<.001	2.805	0.050	(2.707, 2.903)	<.001
Gender	0.081	0.054	(-0.025, 0.187)	.135	0.078	0.051	(-0.022, 0.178)	.124	0.032	0.047	(-0.060, 0.124)	.493
Average PPR	-	-	-	-	-0.590	0.102	(-0.790, -0.390)	<.001	-0.497	0.153	(-0.797, -0.197)	.001
PPR variability	0.558	0.135	(0.293, 0.823)	<.001	-0.065	0.156	(-0.371, 0.241)	.675	-0.153	0.137	(-0.422, 0.116)	.263
Negative events	-	-	-	-	-	-	-	-	0.368	0.481	(-0.575, 1.311)	.445
Negative affect	-	-	-	-	-	-	-	-	0.312	0.095	(0.126, 0.498)	.001
Satisfaction	-	-	-	-	-	-	-	-	0.130	0.142	(-0.148, 0.408)	.358
Commitment	-	-	-	-	-	-	-	-	-0.015	0.098	(-0.207, 0.177)	.879
Outcome: Global Attachment Avoidance												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.878	0.055	(2.770, 2.986)	<.001	2.878	0.055	(2.770, 2.986)	<.001	2.879	0.050	(2.781, 2.977)	<.001
Gender	0.049	0.044	(-0.037, 0.135)	.265	0.049	0.044	(-0.037, 0.135)	.258	0.009	0.038	(-0.065, 0.083)	.809
Average PPR	-0.561	0.069	(-0.696, -0.426)	<.001	-0.584	0.093	(-0.766, -0.402)	.001	-0.311	0.126	(-0.558, -0.064)	.013
PPR variability	-	-	-	-	-0.051	0.128	(-0.302, 0.200)	.689	0.007	0.114	(-0.216, 0.230)	.953
Negative events	-	-	-	-	-	-	-	-	0.888	0.370	(0.163, 1.613)	.016
Negative affect	-	-	-	-	-	-	-	-	0.459	0.069	(0.324, 0.594)	<.001
Satisfaction	-	-	-	-	-	-	-	-	0.153	0.102	(-0.047, 0.353)	.133
Commitment	-	-	-	-	-	-	-	-	-0.210	0.093	(-0.392, -0.028)	.023

Note. Gender: -1 = male, 1 = female; all continuous variables were grand-mean centered.

2.4 Study 2

The major aim of Study was to examine distinct roles of average responsiveness and responsiveness variability—this time across different situations rather than across time—in predicting attachment styles in a new romantic relationship.

2.4.1 Methods

2.4.1.1 Participants. We aimed to recruit at least 150 heterosexual dating couples (300 participants) who are in a relationship for one to six months. Three hundred thirty-four eligible participants initially enrolled in the study for course credit or monetary compensation. Thirty-two participants who broke up before three monthly sessions were completed, and four participants in which at least one partner did not participate in any of the three monthly sessions were excluded, leaving 298 participants (*Mean age* = 21.131, *SD* = 2.128).

2.4.1.2 Procedure. In three monthly sessions conducted online, participants were asked to report the extent to which they perceive their partner as responsive, in several different situations (e.g., when they are sharing a positive event with their partner, when they are discussing a common conflict, when they spend time together with their partner in a social setting, when they are feeling tired or under the weather, when they are getting physically intimate), while also reporting their attachment anxiety and their attachment avoidance. Participants' self-reports of perceived partner responsiveness were used to compute average responsiveness and *situational* responsiveness variability (see Figure 2).

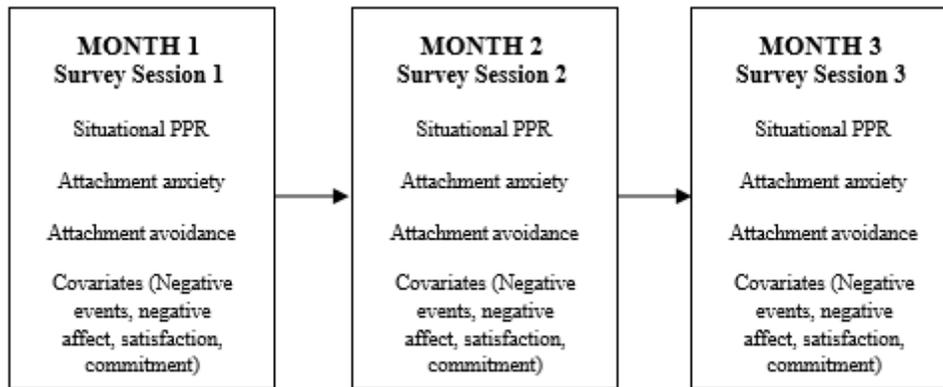


Figure 2: *Phases of Study 2*

2.4.1.3 Measures.

2.4.1.3.1 Perceived Partner Responsiveness. In 22 different daily situations (e.g., when they are sharing a positive event with their partner, when they are discussing a common conflict, when they spend time together with their partner in a social setting, when they are feeling tired or under the weather, when they are getting physically intimate, etc.), participants reported the extent they perceive their partners as responsive, using the same approach as in Study 1 ($M = 6.036$, $SD = 0.772$, Cronbach's $\alpha = .91$).

For each monthly session, we calculated *average responsiveness* by computing the mean of responsiveness across each different situation and *responsiveness variability* by computing the deviations from mean level of perceived partner responsiveness. The correlation between average responsiveness and responsiveness variability was found to be $-.673$ (see Table 4 for correlations among variables).

2.4.1.3.2 Partner-Specific Attachment Avoidance and Anxiety. At each monthly session, partner-specific attachment avoidance ($M = 2.324$, $SD = 1.004$, Cronbach's alpha = .76) and anxiety ($M = 3.584$, $SD = 1.247$, Cronbach's alpha = .76) were assessed using the same approach as in Study 1.

2.4.1.3.3 Global Attachment Avoidance and Anxiety. At each monthly session, global attachment avoidance ($M = 2.980$, $SD = 1.154$, Cronbach's alpha = .79) and anxiety ($M = 3.724$, $SD = 1.307$, Cronbach's alpha = .80) were assessed using the same approach as in Study 1.

2.4.1.4 Covariates. At each monthly session, negative events ($M = 2.915$, $SD = 1.544$), negative affect ($M = 2.976$, $SD = 1.359$, Cronbach's alpha = .88), relationship satisfaction ($M = 6.110$, $SD = 1.097$) and commitment ($M = 6.340$, $SD = 1.061$) were measured using the same approach as in Study 1, except that here we did not assess negative affect variability.

2.4.1.5 Data Analytic Strategy. Our multilevel design had two factors: person and couple. We used effect-coded gender (-1 = male, 1 = female) as a fixed effect to estimate fixed effects pooled across gender.

We estimated perceived partner responsiveness using the following model:

$$\text{perceived partner responsiveness}_{ij} = \pi_{0j} + \pi_{1j}\text{gender} + e_{ij} \quad (3)$$

In our model, the residual term e_{ij} reflects the cross-situational deviation of each

participant from their mean perceived responsiveness level and the standard deviation of residuals provided an index of responsiveness variability.

Associations of average responsiveness and responsiveness variability with attachment orientations were estimated using multilevel modeling. The model for the association between responsiveness variability and partner-specific attachment anxiety was:

$$\text{partner-specific attachment anxiety}_{ti} = \gamma_{0i} + \gamma_{1i} \text{ gender} + \gamma_{2i} \text{ partner-specific attachment anxiety}_{(t-1)i} + \gamma_{3i} \text{ responsiveness variability} + (\text{female}) u_0 + (\text{male}) u_0 + e_{ij} \quad (4)$$

where gender was effect-coded, and male and female were dummy-coded to separate the random intercept into two components for men and women. In our model, since we controlled for attachment anxiety at time t-1, we were able to measure the longitudinal relationship between responsiveness variability and *change* in attachment anxiety. To test the association between average responsiveness and partner-specific attachment anxiety, we repeated the model by having average responsiveness as the predictor, instead of responsiveness variability.

Same as in Study 1, we repeated the analyses for all outcome variables. For all models, we also repeated the analyses by adding all covariates, using the same approach as in Study 1.

2.4.2 Results

As expected, high responsiveness variability predicted increases in partner-specific attachment anxiety ($\gamma = 0.229, p = .012, 95\% \text{ CI} = [0.051, 0.407]$), while it did not predict global attachment anxiety ($\gamma = 0.165, p = .244, 95\% \text{ CI} = [-0.113, 0.443]$). Low average responsiveness predicted increases in partner-specific attachment anxiety ($\gamma = -0.104, p = .045, 95\% \text{ CI} = [-0.206, -0.002]$), while it did not predict global attachment anxiety ($\gamma = -0.098, p = .311, 95\% \text{ CI} = [-0.288, 0.092]$).

Also in line with expectations, low average responsiveness predicted increases in both partner-specific attachment avoidance ($\gamma = -0.498, p < .001, 95\% \text{ CI} = [-0.616, -0.380]$) and global attachment avoidance ($\gamma = -0.197, p = .002, 95\% \text{ CI} = [-0.322, -0.072]$). Responsiveness variability was also significantly associated with increases in partner-specific attachment avoidance ($\gamma = 0.414, p < .001, 95\% \text{ CI} = [0.222, 0.606]$), while it was not significantly associated with global attachment avoidance ($\gamma = 0.218, p = .050, 95\% \text{ CI} = [0.000, 0.436]$).

After we added average responsiveness and responsiveness variability together to the models and also controlled for covariates, responsiveness variability stopped predicting partner-specific attachment anxiety and partner-specific attachment avoidance. Similarly, average responsiveness did not predict partner-specific attachment anxiety or global attachment avoidance anymore.

Other than this, the results remained unchanged (see Table 5 and Table 6 for details).

Table 4. Correlations Among Variables for Study 2

Variables	Average PPR	PPR variability	Partner-specific attachment anxiety	Partner-specific attachment avoidance	Global attachment anxiety	Global attachment avoidance	Negative events	Negative affect	Satisfaction	Commitment
Average PPR		-.67**	-.24**	-.58**	-.11*	-.25**	-.08*	-.39**	.63**	.51**
PPR variability			.23**	.36**	.10*	.17*	.11*	.36**	-.45**	-.34**
Partner-specific attachment anxiety				.29**	.64**	.15**	.12*	.30**	-.13**	-.11**
Partner-specific attachment avoidance					.17**	.48**	.09*	.33**	-.46**	-.43**
Global attachment anxiety						.19**	.17**	.24**	-.04	-.04
Global attachment avoidance							.06	.19**	-.20**	-.17**
Negative events								.29**	-.10*	-.10*
Negative affect									-.39**	-.28**
Satisfaction										.61**
Commitment										

Note. * $p < .05$. ** $p < .001$.

Table 5. Multilevel Models Predicting Partner-Specific Attachment Orientations for Study 2

Outcome: Partner-Specific Attachment Anxiety												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	3.525	0.039	(3.449, 3.601)	<.001	3.526	0.038	(3.452, 3.600)	<.001	3.520	0.038	(3.446, 3.594)	<.001
Gender	0.080	0.034	(0.013, 0.147)	.020	0.080	0.034	(0.013, 0.147)	.021	0.038	0.035	(-0.031, 0.107)	.280
Average PPR	-	-	-	-	-0.006	0.076	(-0.155, 0.143)	.936	0.059	0.086	(-0.110, 0.228)	.490
PPR variability	0.229	0.091	(0.051, 0.407)	.012	0.222	0.135	(-0.043, 0.487)	.102	0.173	0.139	(-0.099, 0.445)	.216
Previous month's attachment	0.628	0.038	(0.554, 0.702)	<.001	0.628	0.038	(0.554, 0.702)	<.001	0.614	0.040	(0.536, 0.692)	<.001
Negative events	-	-	-	-	-	-	-	-	-0.002	0.026	(-0.053, 0.049)	.936
Negative affect	-	-	-	-	-	-	-	-	0.133	0.039	(0.057, 0.209)	<.001
Satisfaction	-	-	-	-	-	-	-	-	-0.047	0.048	(-0.141, 0.047)	.328
Commitment	-	-	-	-	-	-	-	-	-0.007	0.040	(-0.085, 0.071)	.868
Outcome: Partner-Specific Attachment Avoidance												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.321	0.048	(2.227, 2.415)	<.001	2.324	0.047	(2.232, 2.416)	<.001	2.297	0.037	(2.224, 2.370)	<.001
Gender	0.044	0.040	(-0.034, 0.122)	.268	0.043	0.040	(-0.035, 0.121)	.280	0.003	0.039	(-0.073, 0.079)	.945
Average PPR	-0.498	0.060	(-0.616, -0.380)	<.001	-0.541	0.093	(-0.723, -0.359)	<.001	-0.383	0.069	(-0.518, -0.248)	<.001
PPR variability	-	-	-	-	-0.088	0.145	(-0.372, 0.196)	.544	-0.085	0.119	(-0.318, 0.148)	.475
Previous month's attachment	0.035	0.032	(-0.028, 0.098)	.274	0.036	0.032	(-0.027, 0.099)	.257	0.053	0.029	(-0.004, 0.110)	.067
Negative events	-	-	-	-	-	-	-	-	-0.012	0.025	(-0.061, 0.037)	.628
Negative affect	-	-	-	-	-	-	-	-	0.078	0.034	(0.011, 0.145)	.021
Satisfaction	-	-	-	-	-	-	-	-	-0.175	0.047	(-0.267, -0.083)	<.001
Commitment	-	-	-	-	-	-	-	-	-0.214	0.054	(-0.320, -0.108)	<.001

Note. Gender: -1 = male, 1 = female; all continuous variables were grand-mean centered.

Table 6. Multilevel Models Predicting Global Attachment Orientations for Study 2

Outcome: Global Attachment Anxiety												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	3.610	0.072	(3.469, 3.751)	<.001	3.612	0.072	(3.471, 3.753)	<.001	3.609	0.071	(3.470, 3.748)	<.001
Gender	0.272	0.056	(0.162, 0.382)	<.001	0.272	0.056	(0.162, 0.382)	<.001	0.234	0.059	(0.118, 0.350)	<.001
Average PPR	-	-	-	-	-0.043	0.116	(-0.270, 0.184)	.708	-0.056	0.120	(-0.291, 0.179)	.637
PPR variability	0.165	0.142	(-0.113, 0.443)	.244	0.121	0.169	(-0.210, 0.452)	.474	0.083	0.161	(-0.233, 0.399)	.605
Previous month's attachment	0.025	0.061	(-0.095, 0.145)	.680	0.018	0.063	(-0.105, 0.141)	.781	0.008	0.060	(-0.110, 0.126)	.899
Negative events	-	-	-	-	-	-	-	-	0.006	0.034	(-0.061, 0.073)	.861
Negative affect	-	-	-	-	-	-	-	-	0.145	0.045	(0.057, 0.233)	.001
Satisfaction	-	-	-	-	-	-	-	-	0.034	0.054	(-0.072, 0.140)	.523
Commitment	-	-	-	-	-	-	-	-	0.014	0.047	(-0.078, 0.106)	.757
Outcome: Global Attachment Avoidance												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.999	0.041	(2.919, 3.079)	<.001	3.000	0.041	(2.920, 3.080)	<.001	2.994	0.041	(2.914, 3.074)	<.001
Gender	0.060	0.036	(-0.011, 0.131)	.101	0.059	0.036	(-0.012, 0.130)	.101	0.041	0.038	(-0.033, 0.115)	.285
Average PPR	-0.197	0.064	(-0.322, -0.072)	.002	-0.21	0.090	(-0.386, -0.034)	.017	-0.139	0.092	(-0.319, 0.041)	.131
PPR variability	-	-	-	-	-0.041	0.157	(-0.349, 0.267)	.793	-0.029	0.155	(-0.333, 0.275)	.475
Previous month's attachment	0.476	0.048	(0.382, 0.570)	<.001	0.475	0.048	(0.381, 0.569)	<.001	0.473	0.047	(0.381, 0.565)	<.001
Negative events	-	-	-	-	-	-	-	-	-0.009	0.028	(-0.064, 0.046)	.754
Negative affect	-	-	-	-	-	-	-	-	0.050	0.035	(-0.019, 0.119)	.154
Satisfaction	-	-	-	-	-	-	-	-	-0.048	0.049	(-0.144, 0.048)	.324
Commitment	-	-	-	-	-	-	-	-	-0.036	0.042	(-0.118, 0.046)	.397

Note. Gender: -1 = male, 1 = female; all continuous variables were grand-mean centered.

2.5 Study 3

The major aim of Study 3 was to investigate distinct roles of average responsiveness and responsiveness variability across days in predicting attachment styles and also personal well-being, this time in newly married couples as opposed to new romantic relationships.

2.5.1 Methods

2.5.1.1 Participants. We aimed to recruit at least 150 newly married couples (300 participants) who are in the first six months of their marriage. We especially focused on couples who are in the first few months of their marriage, because past research indicated that changes in relational outcomes are more prominent in key turning points (such as marriage) during which interdependence processes within the relationship are formed or redefined (Arriaga et al., 2018; Zayas, Gunaydin, & Shoda, 2015). Three hundred fifty-six eligible participants initially enrolled in the study for monetary compensation. Nineteen participants who did not complete at least two daily sessions and two monthly sessions after the first monthly session were excluded, leaving 337 participants (*Mean age* = 28.746, *SD* = 3.958).

2.5.1.2 Procedure. In ten monthly sessions conducted online, participants were asked to report their attachment anxiety, attachment avoidance and two dimensions of personal well-being, namely life satisfaction and psychological well-being. Also, in 21 daily diary sessions conducted one week after the first monthly session, participants reported the extent to which they perceive their partner as responsive. Participants' self-reports of perceived partner responsiveness were used to compute average responsiveness and responsiveness variability across days (see Figure

3).

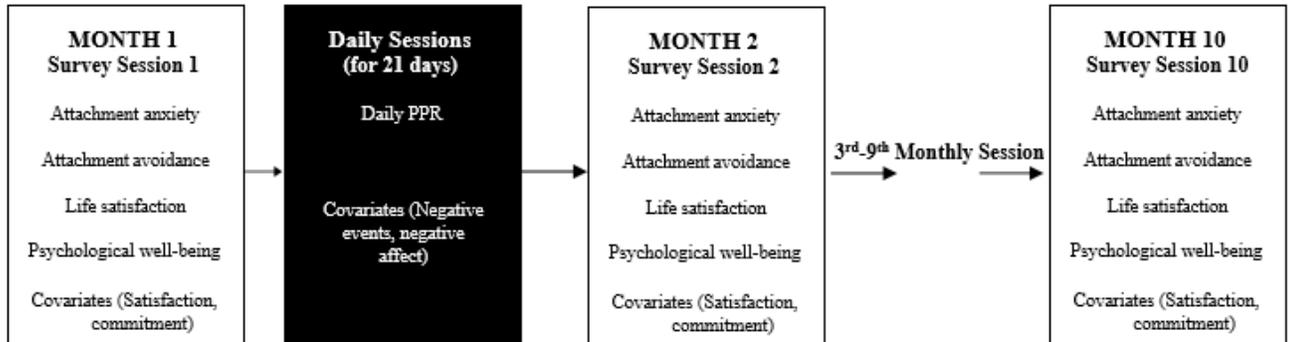


Figure 3: *Phases of Study 3*

2.5.1.3 Measures.

2.5.1.3.1 Perceived Partner Responsiveness. At each daily session, participants reported the extent they perceive their partners as responsive that day, using the same approach as in Study 1, except that the items referred to “today” instead of “this week” (e.g., “*Today my partner made me feel understood.*”; $M = 5.720$, $SD = 0.937$, Cronbach’s alpha = .94).

Average responsiveness was found by computing the mean of daily responsiveness across 21 days and *responsiveness variability* by computing the standard deviation of multilevel modeling residuals corresponding to daily deviations from an individual’s mean level of perceived partner responsiveness (Arriaga et al., 2006). The correlation between average responsiveness and responsiveness variability was found to be $-.586$ (see Table 7 for correlations among variables).

2.5.1.3.2 Partner-Specific Attachment Avoidance and Anxiety. At each monthly session, partner-specific attachment avoidance ($M = 2.034$, $SD = 0.973$, Cronbach's alpha = .76) and anxiety ($M = 2.602$, $SD = 1.130$, Cronbach's alpha = .68) were assessed using the same approach as in Study 1.

2.5.1.3.3 Global Attachment Avoidance and Anxiety. At each monthly session, global attachment avoidance ($M = 2.927$, $SD = 1.184$, Cronbach's alpha = .80) and anxiety ($M = 2.960$, $SD = 1.187$, Cronbach's alpha = .74) were assessed using the same approach as in Study 1.

2.5.1.3.4 Life Satisfaction (hedonic well-being). At each monthly session, participants reported their life satisfaction as an indicator of hedonic well-being using five items (e.g., "*I am satisfied with my life.*", 1 = *Strongly disagree* to 7 = *Strongly agree*; Diener, Emmons, Larsen, & Griffin, 1985; $M = 4.843$, $SD = 1.262$, Cronbach's alpha = .91).

2.5.1.3.5 Psychological Well-Being (eudaimonic well-being). At each monthly session, participants reported their psychological well-being as an indicator of eudaimonic well-being using ten items (e.g., "*In general, I feel I am in charge of the situation in which I live.*", 1 = *Strongly disagree* to 7 = *Strongly agree*; Ryff, 1989; $M = 5.814$, $SD = 0.767$, Cronbach's alpha = .86).

2.5.1.4 Covariates. At each daily session, negative events ($M = 0.721$, $SD = 0.598$) and negative affect ($M = 2.028$, $SD = 0.802$, Cronbach's alpha = .94) were measured using the same approach

as in Study 1. Also, at each monthly session, relationship satisfaction ($M = 6.371$, $SD = 1.017$) and commitment ($M = 6.469$, $SD = 0.955$) were measured using the same approach as in Study 1.

2.5.1.5 Data Analytic Strategy. Our multilevel design had two factors: person and couple. We used effect-coded gender (-1 = male, 1 = female) as a fixed effect and two dummy-coded variables corresponding to males (0 = female, 1 = male) and females (0 = male, 1 = female) as random effects. The effect-coded gender variable was only used in the fixed portion of models and enabled us to estimate fixed effects pooled across gender while dummy codes were only used in the random portion of models and enabled us to estimate random intercepts, slopes, and their covariance separately for each gender.

We estimated daily perceived partner responsiveness using the following model:

$$\text{perceived partner responsiveness}_{ij} = \pi_{0j} + \pi_{1j}\text{gender} + \pi_{2j}\text{day} + e_{ij} \quad (5)$$

In our model, we also controlled for the linear effect of time by including survey day (centered around Day 11—i.e., halfway through the study) as a predictor of perceived partner responsiveness, to distinguish responsiveness variability from systematic linear growth. The Level-1 residual term e_{ij} corresponded to the participant's daily deviation from their mean perceived partner responsiveness and the standard deviation of residuals provided an index of responsiveness variability.

Negative affect variability was estimated using the same approach except that the outcome was negative affect.

Associations of average responsiveness and responsiveness variability with attachment orientations were estimated using multilevel modeling. The model for the association between responsiveness variability and partner-specific attachment anxiety was:

$$\text{partner-specific attachment anxiety}_{ti} = \gamma_{0i} + \gamma_{1i} \text{gender} + \gamma_{2i} \text{time} + \gamma_{3i} \text{responsiveness variability} + (\text{female}) u_0 + (\text{male}) u_0 + e_{ij} \quad (6)$$

where gender was effect-coded, and male and female were dummy-coded to separate the random intercept into two components for men and women. To test the association between average responsiveness and partner-specific attachment anxiety, we repeated the model by having average responsiveness as the predictor, instead of responsiveness variability.

Same as in Study 1, we repeated the analyses for all outcome variables, this time including life satisfaction and psychological well-being. For all models, we also repeated the analyses by adding all covariates, using the same approach as in Study 1.

2.5.2 Results

Contrary to our expectations, high responsiveness variability did not predict either partner-specific attachment anxiety ($\gamma = 0.036, p = .661, 95\% \text{ CI} = [-0.125, 0.197]$) or global attachment

anxiety ($\gamma = 0.060, p = .501, 95\% \text{ CI} = [-0.116, 0.236]$). Meanwhile, low average responsiveness significantly predicted increases both in partner-specific attachment anxiety ($\gamma = -0.192, p < .001, 95\% \text{ CI} = [-0.282, -0.102]$) and global attachment anxiety ($\gamma = -0.134, p = .006, 95\% \text{ CI} = [-0.230, -0.038]$).

On the other hand, as expected, low average responsiveness predicted increases in both partner-specific attachment avoidance ($\gamma = -0.300, p < .001, 95\% \text{ CI} = [-0.388, -0.212]$) and global attachment avoidance ($\gamma = -0.178, p < .001, 95\% \text{ CI} = [-0.268, -0.088]$). Meanwhile, high responsiveness variability was significantly associated with increases in partner-specific attachment avoidance ($\gamma = 0.152, p = .023, 95\% \text{ CI} = [0.021, 0.283]$), while it was not associated with global attachment avoidance ($\gamma = 0.058, p = .509, 95\% \text{ CI} = [-0.114, 0.230]$).

After we added average responsiveness and responsiveness variability together to the models and also controlled for covariates, average responsiveness did not predict global attachment anxiety anymore. On the other hand, high responsiveness variability started to predict decreases in both partner-specific and global attachment avoidance, due to a suppressor relationship. Other results were robust to adjusting for the covariates (see Table 8 and Table 9 for details).

Table 7. Correlations Among Variables for Study 3

Variables	Average PPR	PPR variability	Partner-specific attachment anxiety	Partner-specific attachment avoidance	Global attachment anxiety	Global attachment avoidance	Life satisfaction	Psyc. well-being	Negative events	Negative affect	Satisfaction	Commitment
Average PPR		-.59**	-.25**	-.48**	-.20**	-.24**	.35**	.30**	-.14**	-.46**	.44**	.33**
PPR variability			.16**	.22**	.12**	.03	-.16**	-.12**	.15**	.27**	-.22**	-.10**
Partner-specific attachment anxiety				.46**	.58**	.23**	-.13**	-.13**	.05*	.20**	-.25**	-.19**
Partner-specific attachment avoidance					.29**	.40**	-.26**	-.23**	.07**	.30**	-.56**	-.42**
Global attachment anxiety						.30**	-.18**	-.20**	.12**	.27**	-.16**	-.13**
Global attachment avoidance							-.23**	-.23**	.01	.16**	-.19**	-.17**
Life satisfaction								.64**	-.08**	-.38**	.40**	.29**
Psyc. well-being									-.04*	-.32**	.30**	.26**
Negative events										.46**	-.08**	-.03
Negative affect											-.31**	-.23**
Satisfaction												.54**
Commitment												

Note. * $p < .05$. ** $p < .001$.

Table 8. Multilevel Models Predicting Partner-Specific Attachment Orientations for Study 3

Fixed Effects	Outcome: Partner-Specific Attachment Anxiety											
	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.469	0.045	(2.381, 2.557)	<.001	2.469	0.043	(2.385, 2.553)	<.001	2.471	0.043	(2.387, 2.555)	<.001
Gender	-0.138	0.034	(-0.205, -0.071)	<.001	-0.128	0.034	(-0.195, -0.061)	<.001	-0.124	0.035	(-0.193, -0.055)	<.001
Average PPR	-	-	-	-	-0.224	0.047	(-0.316, -0.132)	<.001	-0.172	0.052	(-0.274, -0.070)	.001
PPR variability	0.036	0.082	(-0.125, 0.197)	.661	-0.179	0.088	(-0.351, -0.007)	.041	-0.160	0.094	(-0.344, 0.024)	.090
Previous month's attachment	0.529	0.039	(0.453, 0.605)	<.001	0.504	0.039	(0.428, 0.580)	<.001	0.500	0.040	(0.422, 0.578)	<.001
Negative events	-	-	-	-	-	-	-	-	0.006	0.078	(-0.147, 0.159)	.935
Negative affect	-	-	-	-	-	-	-	-	-0.035	0.068	(-0.168, 0.098)	.604
Satisfaction	-	-	-	-	-	-	-	-	-0.087	0.039	(-0.163, -0.011)	.026
Commitment	-	-	-	-	-	-	-	-	-0.051	0.046	(-0.141, 0.039)	.275
Fixed Effects	Outcome: Partner-Specific Attachment Avoidance											
	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	1.993	0.036	(1.922, 2.064)	<.001	1.993	0.035	(1.924, 2.062)	<.001	1.999	0.031	(2.914, 3.074)	<.001
Gender	-0.092	0.025	(-0.141, -0.043)	<.001	-0.086	0.025	(-0.135, -0.037)	<.001	-0.080	0.024	(-0.033, 0.115)	<.001
Average PPR	-0.300	0.045	(-0.388, -0.212)	<.001	-0.358	0.055	(-0.466, -0.250)	<.001	-0.241	0.047	(-0.319, 0.041)	<.001
PPR variability	-	-	-	-	-0.169	0.070	(-0.306, -0.032)	.016	-0.190	0.061	(-0.333, 0.275)	.002
Previous month's attachment	0.464	0.037	(0.391, 0.537)	<.001	0.456	0.038	(0.382, 0.530)	<.001	0.402	0.035	(0.381, 0.565)	<.001
Negative events	-	-	-	-	-	-	-	-	-0.003	0.047	(-0.064, 0.046)	.955
Negative affect	-	-	-	-	-	-	-	-	0.051	0.053	(-0.019, 0.119)	.340
Satisfaction	-	-	-	-	-	-	-	-	-0.201	0.037	(-0.144, 0.048)	<.001
Commitment	-	-	-	-	-	-	-	-	-0.069	0.042	(-0.118, 0.046)	.104

Note. Gender: -1 = male, 1 = female; all continuous variables were grand-mean centered.

Table 9. Multilevel Models Predicting Global Attachment Orientations for Study 3

Outcome: Global Attachment Anxiety												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.973	0.045	(2.885, 3.061)	<.001	2.927	0.045	(2.839, 3.015)	<.001	2.973	0.044	(2.887, 3.059)	<.001
Gender	-0.044	0.038	(-0.118, 0.030)	.249	-0.035	0.039	(-0.111, 0.041)	.370	-0.035	0.038	(-0.109, 0.039)	.369
Average PPR	-	-	-	-	-0.151	0.057	(-0.263, -0.039)	.009	-0.078	0.063	(-0.201, 0.045)	.217
PPR variability	0.060	0.090	(-0.116, 0.236)	.501	-0.092	0.105	(-0.298, 0.114)	.383	-0.090	0.115	(-0.315, 0.135)	.436
Previous month's attachment	0.546	0.038	(0.472, 0.620)	<.001	0.529	0.038	(0.455, 0.603)	<.001	0.501	0.039	(0.425, 0.577)	<.001
Negative events	-	-	-	-	-	-	-	-	0.025	0.098	(-0.167, 0.217)	.802
Negative affect	-	-	-	-	-	-	-	-	0.122	0.073	(-0.021, 0.265)	.097
Satisfaction	-	-	-	-	-	-	-	-	-0.020	0.040	(-0.098, 0.058)	.618
Commitment	-	-	-	-	-	-	-	-	-0.059	0.039	(-0.135, 0.017)	.134
Outcome: Global Attachment Avoidance												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.896	0.041	(2.816, 2.976)	<.001	2.895	0.041	(2.815, 2.975)	<.001	2.897	0.040	(2.819, 2.975)	<.001
Gender	-0.067	0.041	(-0.147, 0.013)	.104	-0.059	0.041	(-0.139, 0.021)	.149	-0.068	0.041	(-0.148, 0.012)	.098
Average PPR	-0.178	0.046	(-0.268, -0.088)	<.001	-0.245	0.050	(-0.343, -0.147)	<.001	-0.203	0.062	(-0.325, -0.081)	.001
PPR variability	-	-	-	-	-0.205	0.089	(-0.379, -0.031)	.020	-0.297	0.097	(-0.487, -0.107)	.002
Previous month's attachment	0.515	0.038	(0.441, 0.589)	<.001	0.505	0.038	(0.431, 0.579)	<.001	0.504	0.038	(0.430, 0.578)	<.001
Negative events	-	-	-	-	-	-	-	-	-0.016	0.071	(-0.155, 0.123)	.819
Negative affect	-	-	-	-	-	-	-	-	-0.095	0.062	(-0.217, 0.027)	.126
Satisfaction	-	-	-	-	-	-	-	-	-0.071	0.046	(-0.161, 0.019)	.122
Commitment	-	-	-	-	-	-	-	-	-0.043	0.036	(-0.114, 0.028)	.233

Note. Gender: -1 = male, 1 = female; all continuous variables were grand-mean centered.

Another set of analyses in Study 3 examined the association of average responsiveness and responsiveness variability with personal well-being. Both high average responsiveness ($\gamma = 0.435, p < .001, 95\% \text{ CI} = [0.317, 0.553]$) and low responsiveness variability ($\gamma = -0.319, p = .002, 95\% \text{ CI} = [-0.521, -0.117]$) predicted increases in life satisfaction. After we added average responsiveness and responsiveness variability together to the models and also controlled for covariates, responsiveness variability did not predict life satisfaction anymore, while the association between average responsiveness and life satisfaction still held. Moreover, both high average responsiveness ($\gamma = 0.255, p < .001, 95\% \text{ CI} = [0.181, 0.329]$) and low responsiveness variability ($\gamma = -0.136, p = .046, 95\% \text{ CI} = [-0.269, -0.003]$) predicted increases in psychological well-being. After adding average responsiveness and responsiveness variability together to the models and also adjusting for covariates, the relationship between average responsiveness and psychological well-being stayed the same, while responsiveness variability did not predict psychological well-being anymore (see Table 10 for details).

Table 10. Multilevel Models Predicting Personal Well-Being for Study 3

Outcome: Life Satisfaction												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	4.764	0.061	(4.644, 4.884)	<.001	4.764	0.061	(4.644, 4.884)	<.001	4.765	0.056	(4.655, 4.875)	<.001
Gender	0.162	0.049	(0.066, 0.258)	<.001	0.156	0.049	(0.060, 0.252)	.002	0.139	0.045	(0.051, 0.227)	.002
Average PPR	0.435	0.060	(0.317, 0.553)	<.001	0.497	0.081	(0.338, 0.656)	<.001	0.222	0.080	(0.065, 0.379)	.006
PPR variability	-	-	-	-	0.190	0.135	(-0.075, 0.455)	.161	0.194	0.117	(-0.035, 0.423)	.097
Negative events	-	-	-	-	-	-	-	-	0.172	0.113	(-0.049, 0.393)	.129
Negative affect	-	-	-	-	-	-	-	-	-0.421	0.099	(-0.615, -0.227)	<.001
Satisfaction	-	-	-	-	-	-	-	-	0.192	0.065	(0.065, 0.319)	.003
Commitment	-	-	-	-	-	-	-	-	0.015	0.039	(-0.061, 0.091)	.706
Outcome: Psychological Well-Being												
Fixed Effects	without covariates				with average PPR and PPR variability				with all covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	5.800	0.033	(5.735, 5.865)	<.001	5.799	0.032	(5.736, 5.862)	<.001	5.797	0.030	(5.738, 5.856)	<.001
Gender	0.075	0.033	(0.010, 0.140)	.021	0.070	0.032	(0.007, 0.133)	.031	0.057	0.031	(-0.004, 0.118)	.063
Average PPR	0.255	0.038	(0.181, 0.329)	<.001	0.328	0.051	(0.228, 0.428)	<.001	0.174	0.059	(0.058, 0.290)	.003
PPR variability	-	-	-	-	0.218	0.082	(0.057, 0.379)	.008	0.167	0.089	(-0.007, 0.341)	.060
Negative events	-	-	-	-	-	-	-	-	0.040	0.056	(-0.070, 0.150)	.472
Negative affect	-	-	-	-	-	-	-	-	-0.253	0.059	(-0.369, -0.137)	<.001
Satisfaction	-	-	-	-	-	-	-	-	0.088	0.041	(0.008, 0.168)	.032
Commitment	-	-	-	-	-	-	-	-	0.019	0.035	(-0.050, 0.088)	.591

Note. Gender: -1 = male, 1 = female; all continuous variables were grand-mean centered.

2.6 Discussion

The major goal of the studies in the present chapter was to investigate the separate roles of average responsiveness and responsiveness variability in predicting attachment avoidance, attachment anxiety and personal well-being (life satisfaction as an indicator of hedonic well-being and psychological well-being as an indicator of eudaimonic well-being). To date, very few studies made a distinction between average responsiveness and responsiveness variability while predicting relationship outcomes (e.g., Beckes et al., 2017; Gunaydin et al., 2021) and none examined the role of these different types of responsiveness in well-being. As we examined the roles of average responsiveness and responsiveness variability, each finding gave us a clue on how and when these two types of responsiveness distinguished from each other and predicted different attachment styles. Additionally, by measuring average responsiveness and responsiveness variability in various relationship phases and also by assessing both time and situation based change in responsiveness, we compared different relationship stages and advanced our understanding on the advantages and drawbacks of different study designs. Finally, by including established couples (newlyweds) in our analyses rather than just focusing on new couples, we increased generalizability of our findings.

Based on the findings, average responsiveness emerged as a consistent and reliable predictor of the decrease in partner-specific attachment avoidance, as it was associated with the decrease in attachment avoidance both when control variables were included in the analysis and when they were excluded. However, despite showing evidence for the role of average

responsiveness in attachment avoidance, we were unable to find a meaningful association between high responsiveness variability and increased attachment anxiety, especially after we added average responsiveness and other covariates to the model. The reason for this finding might be the high correlation between average responsiveness and responsiveness variability, as entering two highly correlated variables in the same model might create drawbacks including suppressor relationships.

In Study 1 where change in responsiveness has been measured weekly, the correlation between average responsiveness and responsiveness variability might have increased as a result of long time intervals between the measurements of responsiveness. One plausible speculation might be that individuals have an overall perception towards the responsiveness of their partner, and this overall perception might dominate in the long run, even if they perceive momentary or daily changes in their partner's responsiveness. For example, while reporting partner's average responsiveness and responsiveness variability for the last week, participants might forget about momentary or daily changes in responsiveness and make their evaluations based on their overall perception of their partner's responsiveness, making it difficult to distinguish between average responsiveness and responsiveness variability. Stated otherwise, narratives we write about our relationship might override actual day-to-day experiences. Here, one interesting avenue for future research would be to investigate whether minor changes in relationship processes are underestimated in the long run and overall perceptions towards the relationship dominate while making retrospective evaluations for the relationship.

In fact, we tried to overcome this problem in Study 3, by employing daily measures of responsiveness. Given the single piece of extant work showing the unique role of high responsiveness variability in increased attachment anxiety within the course of an actual romantic relationship has measured responsiveness variability on a daily basis (Gunaydin et al., 2021), we measured responsiveness variability using daily assessments in Study 3. However, despite a slight decrease, we found that the correlation between average responsiveness and responsiveness variability was still high. One reason might be that we recruited newlyweds (vs. new couples) in Study 3. Given marriage is a more committed form of relationship (Stanley, Markman, & Whitton, 2002) and married couples usually have positive opinions and perceptions towards their partners (Burgoyne, Reibstein, Edmunds, & Routh, 2010), participants might underestimate the negative consequences of daily responsiveness variability and make their evaluations based on their overall positive perceptions towards their spouses. Research also showed that longer term couples experience lower variability in certain major relationship processes, including satisfaction, commitment, maintenance and love, in comparison to the newer couples (Totenhagen, Butler, Curran, & Serido, 2016), indicating that responsiveness variability might also be less observable in married couples. Our findings imply that the best way to capture daily responsiveness variability might be by recruiting fledgling couples, whose relationship is less committed and overall perceptions towards the partner have not yet been finalized.

Meanwhile, in Study 2, responsiveness variability was measured in different situations that

might be encountered within a relationship. The high correlation between responsiveness variability and average responsiveness might be due to individuals not being good at evaluating changes in responsiveness in different situations. In a similar vein, people might have an overall perception on the responsiveness of their partner, and they might evaluate their partner's behavior in a biased way, under the light of this overall perception. For instance, if someone perceives their partner as responsive on average, even if their partner acts unresponsively when they are feeling worried and stressful, they might have a tendency to perceive their partner's reaction as responsive. Also, as responsiveness in 22 different situations were measured all together on a single session, and as some situations are related to positive experiences (e.g., when they are sharing a positive event with their partner, when they are getting physically intimate, etc.) while some are related to more negative ones (e.g., when they are discussing a common conflict, when they are feeling tired or under the weather, etc.) these different situations might interfere with each other. Recent research showed that thinking of positive experiences with our partner promotes positive beliefs about the partner and the relationship (Cortes et al., 2020; Mikulincer & Shaver, 2020), so evaluating partner's responsiveness in a positive situation might foster positive beliefs about the partner, making individuals evaluate their partner's responsiveness in a different situation under a more positive light. This might reduce differences between situations, thus increasing the association between average responsiveness and responsiveness variability. A solution to address this problem might be to design a study where responsiveness in positive situations and responsiveness in negative situations are being measured at separate sessions.

Similarly, based on the findings on personal well-being, average responsiveness appeared as a reliable predictor of the increase in both hedonic and eudaimonic well-being, as it was associated with the increase in life satisfaction and psychological well-being both when control variables were included in the analysis and when they were excluded. However, despite showing evidence for the role of low responsiveness responsibility in fostering life satisfaction and psychological well-being, these associations did not persist after we added average responsiveness and other covariates to the models. This strengthens our speculation on overall perception towards the responsiveness of the partner might dominate over the momentary or daily changes, by also showing that average responsiveness appears as a more consistent predictor while determining major indicators of hedonic and eudaimonic well-being in life. However, in present research, we only focused on newlyweds while measuring the association between average responsiveness, responsiveness variability and personal well-being, and only considered the daily change of responsiveness. As we might expect married couples to buffer daily changes in their partners' responsiveness, at least to some extent (Totenhagen et al., 2016), our inability to show the persistent link between responsiveness variability and personal well-being might be due to the relationship duration that we focused. So, it might be a good alternative for future studies to investigate the distinct roles of average responsiveness and responsiveness variability in less committed relationships, and to also capture the situation based change in responsiveness.

Present research has a unique contribution to the literature, as it is the first comprehensive study that examined the specific roles of average responsiveness and responsiveness

variability across time and across different situations, and recruiting participants at different relationship stages. Current research also showed that besides playing a role in determining relational outcomes, average responsiveness and responsiveness variability also predict major aspects of personal well-being. In addition, the present research also examined the role of responsiveness in global attachment dimensions in close relationships. By also focusing on the relationship between average responsiveness, responsiveness variability and global attachment styles, we were able to show that the patterns of the association between two different types of responsiveness and partner-specific attachment styles also extend to global attachment orientations towards close relationship partners. Another interesting future avenue might be to assess the link of average responsiveness and responsiveness variability with relationship perceptions other than attachment styles. For instance, one study hinted that variability in intimacy (characterized by learning new things about our partner, discovering that our partner perceives us differently, or sharing novel interactions with our partner) increases passion (Baumeister & Bratslavsky, 1999). In a similar vein, responsiveness variability might be associated with increased passion, providing an interesting avenue for future research.

In the present research, we especially focused on new romantic relationships and new marriages. Being in a new relationship or experiencing a key turning point in the relationship might affect other close relationship process in several different ways. For example, stress related to the uncertainty during the first months of a new relationship might increase people's tendency to evaluate their other close relationships in a more positive light, to

alleviate their stress. Similarly, increased positive affect during the first months of a new relationship might cause people to be more optimistic about their other close relationships, which might affect attachment orientations in close relationships. Also, during the first months of a new relationship, people might avoid forming direct communication with their partners and they might not feel comfortable talking about every topic. So, they might use their other close relationships to share things that they avoid talking with their partners or to receive support and advice about their new relationship, which might cause them to evaluate their close relationships more positively. Future research might concentrate on replicating our analyses, this time in more settled relationships, such as couples who are in a relationship for a longer period of time or couples who have been married for a relatively longer period of time, both to see how roles of average responsiveness and responsiveness variability in attachment styles and in personal well-being might change, and to find out whether the association between two different types of responsiveness and global attachment styles might be different this time.

Designs employed in the current research did not allow us to fully tease apart whether different types of responsiveness contributed to attachment styles or vice versa. To calculate responsiveness variability, we had to collapse across perceptions of responsiveness at different time points. Thus, we were unable to measure whether average responsiveness or responsiveness variability at a given time point predicts attachment styles at a next time point. Upcoming research might adopt measurement burst designs to measure different types of responsiveness and attachment styles repeatedly over time, thereby testing the direction of

the link between average and variable responsiveness and attachment styles. Moreover, participants who completed our studies typically perceived their partner as highly responsive and demonstrated high security, leaving open the possibility that floor and ceiling effect mitigated predicted links between different types of responsiveness and attachment styles. Future work employing couples who are at the lower end of the responsiveness and security spectrum (for example, distressed couples) in addition to those at the higher end of the spectrum might provide a better test of the predictions proposed in this chapter.

CHAPTER 3

THE ROLE OF POSITIVE RELATIONAL EVENTS IN PARTNER-SPECIFIC ATTACHMENT AVOIDANCE VIA POSITIVE AFFECT

Positive relational experiences are among the crucial factors that contribute to a high-quality relationship (Hill, 1988; Reis & Gable, 2003; Strong & Aron, 2006). Engaging in a unique experience with (Aron et al., 2000), receiving help from (Overall, Fletcher, & Simpson, 2010), sharing intimacy (Stanton et al., 2017) and gratitude (Gordon, Arnette, & Smith, 2011), and receiving an enthusiastic reaction from partner to good things that happen to oneself (Gable & Reis, 2010; Gable et al., 2004) are known to predict increases in relational well-being, measured in terms of greater relationship quality, satisfaction, intimacy, and commitment. However, very few studies focused on how positive relationship experiences and the resulting positive affect might predict attachment styles.

According to past work, positive relationship events are expected to have special implications for attachment security. A comprehensive theoretical framework on attachment change (the Attachment Security Enhancement Model; ASEM; Arriaga et al., 2018) suggests that partner-related positive experiences foster trust towards the partner, which lowers attachment avoidance over time. Two studies that looked into support exchanges amongst couples moving to motherhood back up this claim. The first study (Simpson, Steven Rholes, Campbell, & Wilson, 2003) asked participants to report their perceptions of support (the

extent to which their husbands supported them for women, and the extent to which they supported their wives for men) and global attachment avoidance in two separate sessions (six weeks before and six months after the birth). For both women and men, baseline perceived support was observed to predict declines in global attachment avoidance from pre- to post-natal evaluation. The second study (Rholes et al., 2020) dealing with the transition to motherhood tracked participants for two years in five evaluation waves, during which they reported on their perceptions of support and global attachment avoidance. Participants also completed two videotaped sessions in which they took turns providing support to one another for a habit they wanted to modify. After these sessions, independent coders scored partners' support and responsiveness during the conversation. The findings revealed a connection between perceived and observer-rated support, and also observer-rated responsiveness, and lower global attachment avoidance over time.

Another study looked into close interactions between partners that included enjoyable activities (Stanton et al., 2017). When compared to participants who completed a discussion task involving playing word games and reading followed by individually completed tasks, participants who completed a discussion task requiring intimate disclosures and a gentle stretching exercise with their partner had higher relationship quality right after the interaction and lower levels of partner-specific attachment avoidance one month later. Overall, this research corroborates the ASEM by demonstrating that support and intimate interactions within romantic relationships are inversely correlated with attachment avoidance. So, in present research, we hypothesized that positive relationship events would

be related to reduced partner-specific attachment avoidance.

Additionally, existing theoretical frameworks emphasize the role of positive affect in relational well-being in general and attachment security in particular. According to the self-expansion model, new and exciting relational experiences make it easier to include one's partner in one's self, which leads to increased positive affect. As a result, positive affect is assumed to mediate the relationship between new relational experiences and relationship quality (Strong & Aron, 2006). Similarly, the broaden-and-build cycle of attachment security framework (Mikulincer & Shaver, 2020) posits that experiences with responsive attachment figures increase resilience and produce higher positive affect, which contributes to attachment security. The ASEM (Arriaga et al., 2018) also emphasizes the importance of positive affect in reducing attachment avoidance. This paradigm claims that experiencing positive affect during collaborative relationship events fosters confidence in the partner and others in general, hence minimizing attachment avoidance.

According to existing research, positive relationship events are related to increased positive affect. One study found that an index of positive relationship events—which included engaging in fun activities with, receiving positive feedback from, having positive communication with, and receiving and offering support to the partner—was linked to higher levels of positive affect (Maybery et al., 2006). Furthermore, participating in new and exciting joint activities with (Coulter & Malouff, 2013), getting support or gratitude from (Algoe & Zhaoyang, 2016), and communicating good news with one's romantic partner

(Lambert et al., 2013) uniquely led to increased positive affect. Based on available research, positive affect has also been associated with increased relational well-being, elaborated as enhanced relationship quality and commitment (Berry & Willingham, 1997). As positive relationship events lead to greater positive affect, positive affect is expected to mediate the association between positive relational experiences and decreased attachment avoidance to romantic partner. However, to date, relatively few studies focused on how positive relationship experiences might contribute to attachment orientations, and these studies did not investigate the role of positive affect in attachment avoidance or the mediating role of positive affect in the association between positive relationship events and attachment avoidance. In present research, we also aimed to fill this gap by looking at whether positive relationship events predict lower partner-specific attachment avoidance in new couples and newlyweds, and if so, whether positive affect mediates this association.

To this end, we conducted three studies, concentrating on how wide range of positive relationship events and resulting positive affect predict attachment avoidance, in newly-forming romantic relationships. Our research especially focused on recently formed relationships for several reasons. First, changes in the attachment orientations are known to be prominent in newly formed relationships or during key transition periods, as the attachment bond between partners is still under development (Fraley et al., 2011). Second, recently formed relationships are found to be more sensitive to specific relationship events (Arriaga, 2001). Lastly, avoidance is shown to be at its highest level during transition from casual flirting to serious, more emotionally-attached involvement (Knobloch & Carpenter-Theune, 2004; Solomon & Knobloch, 2001).

In Study 1, couples discussed a positive relationship event with their partner in the laboratory, after which they reported positive affect¹. Participants' attachment avoidance was assessed in three surveys separated by one month². We expected post discussion positive affect would predict decreases in attachment avoidance. Baseline general attachment avoidance and anxiety might also be related to the change in attachment avoidance across months (Stanton et al., 2017). Hence, to rule out alternative interpretations, we included baseline general attachment avoidance and anxiety as covariates.

Study 2 (new couples)³ and 3 (newlyweds)⁴ aimed to show the role of day-to-day positive relationship events in partner-specific attachment avoidance via the mediating role of positive affect. In both studies, couples filled out a 21-day diary to report daily positive affect and positive events as well as whether each positive event involved or was initiated by their partner to distinguish between relationship-specific vs. outside positive events. Participants also completed a pre-diary and an immediately post-diary survey in which they reported partner-specific attachment avoidance. We expected that positive relationship events would be linked with decreases in partner-specific attachment avoidance from pre- to immediately post diary and positive affect would mediate this association.

¹ Participants also completed a conflict discussion between baseline assessment and positive event discussion. Given the conflict discussion is beyond the scope of current research, it will not be discussed further.

² Data came from Study 2 in Chapter 2.

³ Data came from Gunaydin and her colleagues' (2021) study.

⁴ Data came from Study 3 in Chapter 2.

An important advantage of Studies 2 and 3 is assessing both relationship-specific and outside positive events. Past work showed that experiencing daily uplifts in non-social domains (e.g., job, exercise, pets) was associated with greater same-day feelings of love, satisfaction, closeness, and commitment to one's romantic partner (Totenhagen et al., 2012). This work suggests that positive events outside of one's romantic relationship may positively contribute to lower partner-specific attachment avoidance. To rule out this alternative, Studies 2 and 3 distinguished between relationship-specific and outside positive events, which allowed us to show for the first time that the predicted link between positive events and partner-specific attachment avoidance is unique to positive relationship events and is not observed for positive events outside of the relationship. Another important contribution of these studies is focusing on a wide range of day-to-day positive relational experiences. Given that experiences with our partner in our daily lives are different from those that arise during laboratory interactions, it is important to establish the association between positive relationship events and partner-specific attachment avoidance by studying day-to-day experiences. Finally, these studies aimed to uncover a novel mechanism explaining the association between positive relationship events and attachment avoidance by studying the mediating role of day-to-day positive affect.

3.1 Study 1

The major aim of Study 1 was to investigate whether positive affect resulting from positive relationship events predicts lower partner-specific attachment avoidance.

3.1.1 Methods

3.1.1.1 Participants. Data came from a longitudinal study on romantic relationship formation consisting of three monthly surveys and a laboratory session. We aimed to recruit at least 150 heterosexual dating couples (300 participants) who were in a relationship for one to six months and completed all four sessions. One hundred sixty-seven eligible couples ($N = 334$) enrolled in the study and completed the laboratory session consisting of the positive event discussion. Of these, male partner of one couple and both partners of one couple did not complete any of the monthly surveys, reducing the final analytic sample to 331 participants ($Mean\ age = 21.224, SD = 2.250$).

3.1.1.2 Procedure. In a laboratory session, participants first reported their baseline positive affect. Then, they were asked to discuss a positive relationship event with their partner, after which they reported how much positive affect they felt during this interaction. Participants also reported attachment avoidance and anxiety in three online surveys separated by one month, one held a week before the laboratory session and two held afterwards (see Table 11 for correlations among variables).

3.1.1.3 Measures.

3.1.1.3.1 Partner-Specific Attachment Avoidance and Anxiety. Attachment avoidance and anxiety were assessed by 10 items adapted from the Experiences in Close Relationships-Revised Inventory (ECR-R; Fraley et al., 2000). To measure each attachment dimension, participants responded to five items by considering their relationship with their current romantic partner (e.g.,

“*I find it difficult to allow myself to depend on my partner*” for attachment avoidance, “*I’m afraid that I will lose my partner’s love.*” for attachment anxiety, 1 = *Strongly disagree* to 7 = *Strongly agree*). Partner-specific attachment avoidance ($M = 2.360$, $SD = 1.024$) and anxiety ($M = 3.574$, $SD = 1.240$) scores were computed by averaging across items in each subscale. Items were reverse-scored where appropriate so that higher scores reflected greater attachment avoidance and anxiety. Within-person reliability was .83 for both subscales. Between-person reliability was .78 for attachment avoidance and .88 for attachment anxiety. The average correlation between anxiety and avoidance across three measurement sessions was .271 (range = .259-.286).

3.1.1.3.2 Post-Discussion Positive Affect. Following the procedures adapted from Campbell and colleagues (2010), participants were asked to discuss a positive relationship event during the laboratory session. They were instructed to “*recall one of their positive/happy memories.*” To help participants recall the memory, several examples were provided for what might be considered as a positive/happy memory (e.g., a romantic moment together, a novel experience, their first date, a happy day spent together, etc.). Couples were then given a few minutes to jointly choose a positive relationship event. After making their choice, they discussed this event for 10 minutes while being videotaped. Immediately after this interaction, participants reported how much positive affect they felt during the interaction by indicating the frequency with which they felt cheerful, happy, calm and peaceful, satisfied, and full of life (1 = *Not at all* to 7 = *A lot*; $M = 6.083$, $SD = 1.082$, Cronbach’s alpha = .93), adapted from previous studies using a brief measure of positive affect (e.g., Selcuk et al., 2016).

3.1.1.4 Covariates. Right after arriving at the laboratory, participants reported how much positive affect they felt (baseline positive affect), using the same items as the post-discussion positive event measure, except that momentary positive affect was asked rather than positive affect during the interaction ($M = 5.066$, $SD = 1.223$, Cronbach's alpha = .91).

3.1.1.5 Data Analytic Strategy. Given the nested structure of our data, we used multilevel modeling across all studies using HLM v.7. We centered continuous variables around their grand mean and used robust standard errors to construct confidence intervals. We constructed two-level models. In the fixed portion of the models, we included effect-coded gender (-1 = male vs. 1 = female) to obtain pooled estimates across gender. In the random portion of the models, we included two dummy variables, one corresponding to females (0 = male vs. 1 = female) and the other corresponding to males (0 = female vs. 1 = male) to estimate separate random intercepts for each gender. Thus, the multilevel model estimating partner-specific attachment avoidance was:

$$\text{partner-specific avoidance}_{ij} = \gamma_{00} + \gamma_{10} \text{ gender} + \gamma_{20} \text{ post-discussion positive affect} + (\text{male}) u_0 + (\text{female}) u_0 + e_{ij} \quad (1)$$

We also performed a model with the interaction between gender and positive affect included as a predictor. The interaction term was insignificant ($p = .706$) so we dropped it from the final model.

For the model described in Equation 1, if the focal association was significant, we repeated the

model by adding baseline positive affect and partner-specific attachment anxiety as predictors. This enabled us to examine whether the focal association still held while adjusting for covariates.

3.1.2 Results

Participants who reported experiencing greater positive affect during the discussion reported lower partner-specific attachment avoidance over three months ($\gamma = -0.280$, 95% CI [-0.392, -0.168]; Model 1a of Table 12). The association between positive affect and attachment avoidance held after adjusting for covariates, namely baseline positive affect and partner-specific attachment anxiety ($\gamma = -0.210$, 95% CI [-0.310, -0.110]; Model 1b of Table 12).

Table 11. Correlations Among Variables for Study 1

Variables	Post-discussion positive affect	Partner-specific attachment avoidance	Partner-specific attachment anxiety	Baseline positive affect	Gender
Post-discussion positive affect		-.30**	-.07*	.40**	.01
Partner-specific attachment avoidance			.27**	-.30**	.06
Partner-specific attachment anxiety				-.14**	.13**
Baseline positive affect					-.001
Gender					

Note. * $p < .05$. ** $p < .001$.

Table 12. Multilevel Models Predicting Partner-Specific Attachment Avoidance in Study 1

Fixed Effects	Model 1a. Without covariates				Model 1b. With covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	2.384	0.052	(2.282, 2.486)	<.001	1.615	0.104	(1.411, 1.819)	<.001
Gender	0.058	0.037	(-0.015, 0.131)	.125	0.020	0.037	(-0.053, 0.093)	.580
Positive affect	-0.280	0.057	(-0.392, -0.168)	<.001	-0.210	0.051	(-0.310, -0.110)	<.001
Partner-specific attachment anxiety	-	-	-	-	0.215	0.028	(0.160, 0.270)	<.001
Baseline positive affect	-	-	-	-	-0.129	0.040	(-0.207, -0.051)	.001
Random Effects	Variance				Variance			
Intercept (female)	0.584				0.491			
Intercept (male)	0.459				0.459			

Note. Gender was coded as -1 (male) vs. 1 (female); all continuous variables were grand-mean centered. The effect that is the focus of the present work is presented in boldface.

Model in Equation 1 was repeated by choosing the outcome variable as partner-specific attachment anxiety. Positive affect during the positive event discussion did not significantly predict partner-specific attachment anxiety over three months ($\gamma = -0.062$, 95% CI [-0.174, 0.050]).

3.2 Study 2 and 3

3.2.1 Methods

Study 1 revealed that positive affect generated after discussing a positive relationship event was associated with greater partner-specific attachment avoidance. However, this study had several limitations: 1) We assessed positive affect participants felt after discussing in the laboratory a single positive relationship event. Therefore, the study failed to capture positive affect linked with experiencing a *wide range* of relationship events as they occurred in *everyday life*, limiting the ecological validity of the findings. 2) The findings might not be exclusive to positive relationship events as we argued but may also be observed for positive events outside the relationship. Study 2 (new couples) and 3 (newlyweds) aimed to address these limitations by assessing in a daily diary a wider range of positive events (Almeida, McGonagle, & King, 2009) and by simultaneously examining positive events outside the relationship as well as positive events that involved or were initiated by participants' romantic partner. Daily measurements of positive affect also allowed us to test whether the association of positive relationship events with partner-specific attachment avoidance is mediated by positive affect.

3.2.1.1 Participants. Study 2 data came from a longitudinal study on romantic relationship formation consisting of a 21-day diary session, two laboratory sessions before and after the diary session, and four follow-ups. Based on the project's grant proposal, the study aimed to recruit at least 150 heterosexual dating couples (300 participants) who were in a relationship for one to three months and who completed the laboratory sessions and diaries. One hundred sixty-five couples initially participated to the study. Two couples did not continue to the study as they broke up during the diary phase, nine couples were not included in the analyses as at least one partner withdrew during the diary phase, and three couples were not included as at least one partner did not attend the immediate post-diary session, leaving 151 couples (*Mean age* = 20.629, *SD* = 2.128). These 302 participants attended to both pre- and immediate post-diary sessions.

Study 3 data came from an ongoing longitudinal study on newlyweds consisting of a 21-day diary session, two survey sessions before and after the diary session, and eight monthly follow-ups. We aimed to recruit at least 150 newlywed couples (300 participants) who were in the first six months of their marriage and who completed the diary session and at least 90% of the follow-ups. Three hundred fifty-six participants completed the pre-diary session. Of these, male partners of five couples, female partner of one couple, and both partners of seven couples did not complete immediate post-diary session, reducing the final analytic sample to 336 participants (*Mean age* = 28.816, *SD* = 3.638).

3.2.1.2 Procedure. Participants reported daily partner-related positive events and daily positive affect in a 21-days diary session. They also reported partner-specific attachment orientations

before and right after diary completion, allowing for an examination of whether positive relationship events predicted decreases in partner-specific attachment avoidance from pre- to immediately post-diary and whether this association is mediated by daily positive affect (see Table 13 and Table 14 for correlation among variables).

3.2.1.3 Measures.

3.2.1.3.1 Partner-Specific Attachment Avoidance and Anxiety. In Study 2, during two laboratory sessions before and right after the diary phase and four follow-up sessions, participants completed the 36-item Experiences in Close Relationships-Revised Inventory (ECR-R; Fraley et al., 2000), by considering their relationship with their current romantic partner. In Study 3, during two survey sessions before and right after the diary session and eight monthly follow-ups, participants completed the 10-item adapted version of the ECR-R. As participants were newlyweds, the items referred to “*my spouse*” (e.g., “*I find it difficult to allow myself to depend on my spouse*” for attachment avoidance, “*I’m afraid that I will lose my spouse’s love.*” for attachment anxiety, 1 = *Strongly disagree* to 7 = *Strongly agree*). Items were reverse-scored where appropriate so that higher scores reflected greater attachment avoidance and anxiety. Within-person reliability was .86 for attachment avoidance, and .79 for attachment anxiety for Study 2, and .86 for attachment avoidance, and .71 for attachment anxiety for Study 3. Between-person reliability of average of measures assessed over six sessions was .98 for both subscales for Study 2. Between-person reliability of average of measures assessed over two sessions was .70 for attachment avoidance, and .44 attachment anxiety for Study 3. The average correlation between anxiety and avoidance across six measurement sessions was .461 (range = .407 - .523)

for Study 2, and the average correlation between anxiety and avoidance across two measurement sessions was .433 for Study 3 (range = .401 - .464).

3.2.1.3.2 Positive Relationship Events. Each day during the diary session, participants reported whether they had experienced any of the following events: a positive interaction with someone, a positive event at work/school, a positive event at home, something good happening to a close other, and any other pleasant events not covered by the previous categories (Gunaydin et al., 2016; Ryff & Almeida, 2010). Participants also indicated whether each positive event involved or was initiated by their partner (Study 2) or spouse (Study 3). An index of positive relationship events was computed by averaging across the number of positive events that involved or were initiated by the partner/spouse over 21 days ($M = 0.821$, $SD = 0.510$ for Study 2; $M = 0.847$, $SD = 0.559$ for Study 3).

3.2.1.3.3 Positive Affect. Each day during the diary, participants reported positive affect on items used in Study 1 ($M = 4.728$, $SD = 0.960$ for Study 2; $M = 4.878$, $SD = 0.993$ for Study 3).

3.2.1.4 Covariates. The positive events measure described above was used also to calculate positive events outside the relationship. An index of outside positive events was computed by averaging across the number of positive events across 21 days that did not involve or were not initiated by the partner (Study 2, $M = 0.852$, $SD = 0.511$) or spouse (Study 3, $M = 0.664$, $SD = 0.500$).

3.2.1.5 Data Analytic Strategy. In both studies, we first tested whether positive relationship events predicted decreases in partner-specific attachment avoidance from pre-diary to immediately post-diary. The two-level model with individuals nested within dyads was as follows:

$$\text{immediate post-diary partner-specific avoidance}_{ij} = \gamma_{00} + \gamma_{10} \text{ gender} + \gamma_{20} \text{ pre-diary partner-specific avoidance} + \gamma_{30} \text{ positive relationship events} + e_{ij} \quad (2)$$

Since pre-diary avoidance was included as a predictor, the conditional effect of positive relationship events (γ_{30}) reflected the association between positive relationship events and *change* in partner-specific attachment avoidance from pre-diary to immediately post-diary. We also explored whether the association between positive events and immediate post-diary partner-specific avoidance differed by gender. The interaction term was insignificant both for Study 2 ($p = .448$) and Study 3 ($p = .555$), and hence was not included in the final model.

Next, we examined whether the association between positive relationship events and immediate post-diary partner-specific avoidance was mediated by positive affect during the diary period. Given the outcome (partner-specific attachment avoidance) was a person-level variable, we first computed person-mean positive affect for each participant. Then, we estimated positive affect from the same predictors described in Equation 3 (path a in Figure 4) and we estimated immediate post-diary attachment avoidance by adding positive affect to the model described in Equation 3 (path b in Figure 4). We tested the significance of the indirect association by

constructing a 95% confidence interval using the Monte Carlo method (Selig & Preacher, 2008).

Same as in Study 1, if any of the focal associations were significant we repeated the models by adding covariates into the models as predictors.

3.2.2 Results

Positive relationship events predicted decreases in partner-specific attachment avoidance from pre-diary to immediately post-diary in Study 2 ($\gamma = -0.259$, 95% CI [-0.424, -0.094]; Model 2a of Table 15) and in Study 3 ($\gamma = -0.183$, 95% CI [-0.322, -0.044]; Model 3a of Table 15). The association was robust to adjusting for covariates in Study 2 ($\gamma = -0.269$, 95% CI [-0.440, -0.098]); Model 2b of Table 15) and in Study 3 ($\gamma = -0.202$, 95% CI [-0.363, -0.041]); Model 3b of Table 15).

Positive relationship events significantly predicted average positive affect during the diary period which, in turn, predicted decreases in partner-specific attachment avoidance from pre-diary to immediately post-diary in Study 2 (indirect association = -0.057, 95% CI [-0.110, -0.013]; see Figure 4), and in Study 3 (indirect association = -0.093, 95% CI [-0.156, -0.042]; see Figure 4). The indirect association held when we re-estimated the paths by adjusting for covariates both in Study 2 (indirect association = -0.057, 95% CI [-0.109, -0.012]) and Study 3 (indirect association = -0.098, 95% CI [-0.158, -0.046]).

Table 13. Correlations Among Variables for Study 2

Variables	Positive relationship events	Positive affect	Post-diary partner-specific attachment avoidance	Post-diary partner-specific attachment anxiety	Pre-diary partner-specific attachment avoidance	Pre-diary partner-specific attachment anxiety	Outside positive events	Gender
Positive relationship events		.38**	-.34**	-.16*	-.28**	-.14*	.08	-.09
Positive affect			-.38**	-.22**	-.33**	-.15*	-.01	-.11
Post-diary partner-specific attachment avoidance				.41**	.73**	.31**	.04	-.01
Post-diary partner-specific attachment anxiety					.34**	.79**	-.05	-.09
Pre-diary partner-specific attachment avoidance						.43**	.01	-.02
Pre-diary partner-specific attachment anxiety							-.06	-.05
Outside positive events								.15*
Gender								

Note. * $p < .05$. ** $p < .001$.

Table 14. Correlations Among Variables for Study 3

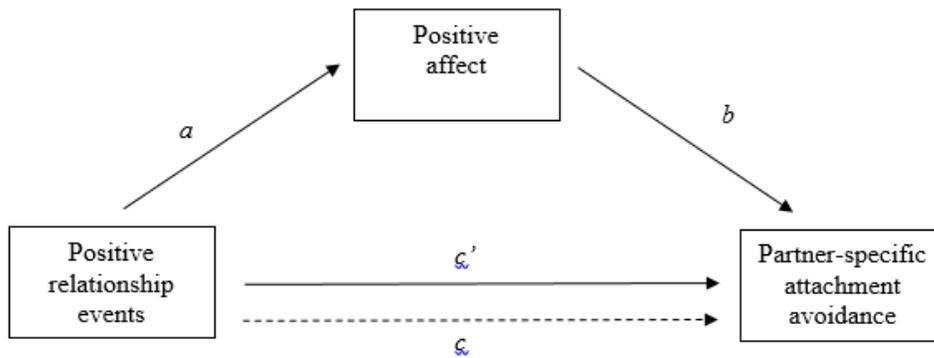
Variables	Positive relationship events	Positive affect	Post-diary partner-specific attachment avoidance	Post-diary partner-specific attachment anxiety	Pre-diary partner-specific attachment avoidance	Pre-diary partner-specific attachment anxiety	Outside positive events	Gender
Positive relationship events		.38**	-.25**	-.12*	-.23**	-.14*	.26	.07
Positive affect			-.38**	-.15*	-.29**	-.20**	-.02	.07
Post-diary partner-specific attachment avoidance				.46**	.64**	.31**	-.02	-.15*
Post-diary partner-specific attachment anxiety					.34**	.59**	-.01	-.09
Pre-diary partner-specific attachment avoidance						.40**	-.03	-.09
Pre-diary partner-specific attachment anxiety							.04	.04
Outside positive events								.17*
Gender								

Note. * $p < .05$. ** $p < .001$.

Table 15. Multilevel Models Predicting Partner-Specific Attachment Avoidance for Study 2 and 3

Study 2								
Fixed Effects	Model 2a. Without covariates				Model 2b. With covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	0.649	0.152	(0.351, 0.947)	<.001	0.637	0.199	(0.247, 1.027)	.002
Gender	-0.008	0.034	(-0.075, 0.059)	.812	-0.016	0.034	(-0.083, 0.051)	.636
Pre-diary partner-specific avoidance	0.826	0.059	(0.710, 0.942)	<.001	0.834	0.064	(0.709, 0.959)	<.001
Positive relationship events	-0.259	0.084	(-0.424, -0.094)	.002	-0.269	0.087	(-0.440, -0.098)	.002
Pre-diary partner-specific anxiety	-	-	-	-	-0.021	0.045	(-0.109, 0.067)	.643
Outside positive events	-	-	-	-	0.084	0.068	(-0.049, 0.217)	.214
Study 3								
Fixed Effects	Model 3a. Without covariates				Model 3b. With covariates			
	γ	<i>SE</i>	<i>CI</i>	<i>p</i>	γ	<i>SE</i>	<i>CI</i>	<i>p</i>
Intercept	0.898	0.120	(0.663, 1.133)	<.001	0.754	0.139	(0.482, 1.026)	<.001
Gender	-0.084	0.033	(-0.149, -0.019)	.013	-0.096	0.035	(-0.165, -0.027)	.006
Pre-diary partner-specific avoidance	0.612	0.052	(0.510, 0.714)	<.001	0.587	0.056	(0.477, 0.697)	<.001
Positive relationship events	-0.183	0.071	(-0.322, -0.044)	.011	-0.202	0.082	(-0.363, -0.041)	.014
Pre-diary partner-specific anxiety	-	-	-	-	0.048	0.038	(-0.026, 0.122)	.202
Outside positive events	-	-	-	-	0.110	0.098	(-0.082, 0.302)	.264

Note. Gender was coded as -1 (male) vs. 1 (female); all continuous variables were grand-mean centered. The effect that is the focus of the present work is presented in boldface.



Note. c' stands for the relationship between positive relationship events and partner-specific attachment avoidance when positive affect is added into the model. c stands for the same relationship when positive affect is not added into the model.

Path	Study 2		Study 3	
	B	95% CI	B	95% CI
a	0.499	[0.328, 0.670]	0.518	[0.355, 0.681]
b	-0.114	[-0.204, -0.024]	-0.180	[-0.270, -0.090]
c	-0.259	[-0.424, -0.094]	-0.183	[-0.322, -0.044]
c'	-0.198	[-0.372, -0.024]	-0.087	[-0.224, 0.050]

Figure 4: The Mediation Model with Positive Affect as a Mediator Between Positive Relationship Events and Partner-Specific Attachment Avoidance

Model in Equation 3 was repeated by choosing the outcome variable as partner-specific attachment anxiety. Positive relationship events did not significantly predict partner-specific attachment anxiety both in Study 2 ($\gamma = -0.109$, 95% CI [-0.240, 0.022]) and Study 3 ($\gamma = -0.057$, 95% CI [-0.259, 0.145]).

3.3 Discussion

The major goal of the present research was to investigate the role of positive relationship events and the resulting positive affect in predicting attachment avoidance. Based on the broaden-and-build cycle of attachment security (Mikulincer & Shaver, 2020), priming the presence of the romantic partner either by thinking about or sharing positive experiences with the partner has known to contribute to attachment security, by making individuals feel safer in their relationship through seeing their partner as a trustable source. In line with this, the ASEM believes shared positive interactions with the partner foster trust and intimacy, which specifically leads to lower attachment avoidance (Arriaga et al., 2018). To this end, we both contributed to the broaden-and-build cycle of attachment security and the ASEM frameworks, by showing for the first time in a daily, natural course of a romantic relationship that positive experiences and resulting positive affect predicted decreases in partner-specific attachment avoidance.

Another critical contribution of this work was the ability to distinguish between relationship-specific and outside positive events. Extant work illustrated that having daily positive experiences that are not related to the romantic relationship was also linked to positive relationship outcomes (Totenhagen et al., 2012). By adding both partner-specific and outside

positive events to our models, we were able to show the unique role of partner-specific positive events in reducing attachment avoidance. Also, by recruiting established couples besides focusing on new couples, we increased generalizability of our findings.

In Study 1, positive affect has been measured right after couples talked on a positive event that they shared together, and this positive affect felt during that interaction was found to predict lower partner-specific attachment avoidance over three months. However, one might argue that this study has limited ecological validity as it took place in a laboratory setting where participants might feel discomfort due to being observed and hence not act as they naturally would in daily life. Moreover, as participants have been told in advance that they are going to talk on a positive memory, this might inadvertently lead them to perceive this interaction as positive, thus generate higher positive affect. However, in real life, daily positive experiences might not always generate positive affect that is sufficient enough to reduce attachment avoidance.

Given the drawbacks of Study 1, the next two studies focused on the role of real life daily positive events and daily positive affect, in partner-specific attachment avoidance, while also controlling for positive events that are not related to the partner. However, in these studies we still do not know for sure whether generated daily positive affect is a direct result of daily positive relational experiences. Although it is reasonable to assume that increased positive affect on one day has a link with the positive event occurred that day, it is still difficult in this design to relate daily positive affect directly to the positive events that took place on that day. Future studies might address this issue by asking participants how much positive affect they felt related

to a specific positive event, right after asking them whether they have experienced a relational positive event that day.

The findings of the present research on how the attachment avoidance might be reduced by experiencing positive events within the relationship are expected to contribute to long term personal and relational well-being. Findings are especially promising for avoidantly attached individuals, who face with the great dilemma of being in a relationship despite perceiving intimacy as a threat (Edelstein & Shaver, 2004). Avoidants are known to experience lower positive affect in their relationship as they resist intimacy, closeness and interaction (Shaver & Mikulincer, 2002; Tidwell, Reis, & Shaver, 1996). In one meta-analysis, attachment avoidance was found to diminish cognitive, emotional and behavioral aspects of relationship quality, while also associated with lower satisfaction, connectedness and support (Li & Chan, 2012).

Avoidantly attached individuals are also unresponsive to positive events (Mikulincer & Sheffi, 2000) or even generate negative emotions for happy events (Mikulincer & Shaver, 2005). In one study, participants were asked to report their most negative and positive event each day for four consecutive days, and attachment avoidance was associated with lower levels of recalled positive emotions (Gentzler & Kerns, 2006). Similarly, in another study, individuals reported their daily interaction experiences for seven consecutive days, and attachment avoidance was linked to lower levels of reported intimacy, enjoyment, positive emotions and higher levels of negative emotions, not only in interactions with romantic partners, but also in other opposite-sex interactions (Tidwell et al., 1996). Avoidant individuals are usually unable to enjoy the positive

aspects of a relationship (Arriaga et al., 2018), and even found to inhibit the positive emotions associated with having sex (Birnbaum et al., 2006), the single activity in which mind wandering does not occur and the greatest positive affect is expected to be experienced (Killingsworth & Gilbert, 2010). However, despite withdrawing from closeness and intimacy, avoidant individuals in fact need acceptance and belonging (Carvallo & Gabriel, 2006), and seek intimacy (Slotter & Luchies, 2014), whenever they feel their partner may provide them. The ASEM posits that positive relationship events might be the context in which intimacy and support are provided by the partner and attachment avoidance is reduced as a result. Our findings in the present research support the ASEM expectations, and also build up hope for the future by showing that attachment avoidance is not inevitable.

Upcoming studies might repeat the analyses, this time by recruiting couples in more established relationships, such as being together or being married for a long period of time. On the one hand, in line with our findings, extant work on more established marriages (i.e., couples expecting their first child, with a mean marriage length of 3.8 years) showed that women receiving higher support from their partners during the prenatal period experience lower attachment avoidance (Simpson et al., 2003). However, on the other hand, considerable changes might be more likely to happen in new relationships compared to the more established ones as the attachment bond in between is still in progress in recently formed relationships (Fraley et al., 2011). Thus, it is also possible for the established couples to undergo a lower decline in their attachment avoidance when they experience positive relational activities. Therefore, replicating the current findings with longer term relationships or marriages constitutes a new avenue for future work.

The association between positive relationship events and attachment avoidance demonstrated in this chapter suggests that relationship interventions aimed at reducing attachment avoidance might do so by attempting to increase positive experiences and positive affect in a romantic relationship. Future work investigating positive affect tied to specific relationship events and replicating current findings with couples in longer-term relationships would no doubt contribute to such interventions by establishing the scope and boundary conditions of the current findings.

CHAPTER 4

A DAILY DIARY INVESTIGATION OF THE LINK BETWEEN TELEVISION WATCHING AND POSITIVE AFFECT⁵

Imagine that you arrive home after a long day at work and press the button of the television (TV) remote. By watching TV, are you setting yourself up for unhappiness? Or is the very reason you pressed that button because you are feeling unhappy to begin with and perhaps looking for a welcome distraction? It is not possible to fully tease these two possibilities apart based on past work. Although a number of studies have found a negative relationship between time spent watching TV and several indicators of hedonic well-being including positive affect (PA) and life satisfaction (e.g., Cunado & Perez de Gracia, 2012; Depp, Schkade, Thompson, & Jeste, 2010; Frey et al., 2007; Goodwin et al., 2005; Robinson & Martin, 2008; Ye, 2010; but see Hills & Argyle, 1998; Kataria & Regner, 2011), work in this area has been hampered by studies using largely cross-sectional designs and small samples. In this research, the question arises whether TV viewing leads to lower well-being, or is it that unhappy people watch more TV? Given that TV viewing is the most preferred leisure activity in the U.S. (Bureau of Labor Statistics, 2015) and worldwide (OECD, 2016), it is crucial to address this question. The present research aimed to do this by investigating the link between time spent watching TV and PA in a large national sample of U.S. adults.

⁵ Reprinted by permission from Springer Nature Customer Service Centre GmbH: Springer Nature, *Journal of Happiness Studies*, A daily diary investigation of the link between television watching and positive affect. Bayraktaroglu, D., Gunaydin, G., Selcuk, E. and Ong, A. D., copyright (2019)

On the one hand, it is possible that watching TV leads to lower PA, echoing criticisms of television that we hear in our everyday lives. Past research suggested several reasons why this might be the case. One strand of research has argued that watching TV prevents individuals from participating in other (potentially more beneficial) physical, social, intellectual or creative activities (Anastasea-Vlachou et al., 1996; Jordan & Robinson, 2008; Robinson & Martin, 2008), which often lead to feelings of regret over time wasted watching TV (Cunado & Perez de Gracia, 2012; Frey et al., 2007). Indeed, in a healthy sample of older adults, TV watching was linked with lower PA compared with engaging in other leisure activities such as pursuing one's hobbies and prosocial activities such as volunteering (Goodwin et al., 2005). Watching TV might also deprive individuals of time spent with loved ones—such as friends, family, and romantic partners—who are essential to one's personal well-being (Selcuk et al., 2016; Selcuk, Zayas, Gunaydin, Hazan, & Kross, 2012; Slatcher & Selcuk, 2017; Tasfiliz et al., 2018), potentially diminishing PA that could otherwise be derived from these social interactions (Bruni & Stanca 2008). Moreover, watching TV—as an indoor activity—might come at the expense of time spent outdoors and in nature, which is closely linked with hedonic well-being (Bratman, Daily, Levy, & Gross, 2015; Nisbet & Zelenski, 2011; Nisbet, Zelenski, & Murphy, 2011). Based on these arguments, the cross-sectional association between time spent watching TV and PA has often been taken as an indication that watching TV might undermine PA.

On the other hand, it is possible that when individuals experience lower PA, they spend greater time watching TV (Frey et al., 2007; Kubey & Csikszentmihalyi, 1990; Robinson & Martin,

2008). According to the broaden-and-build theory (Fredrickson, 2004), experiencing positive affective states leads to greater engagement in novel and interesting activities (e.g., Isen & Reeve, 2005) and greater variety-seeking (e.g., Fredrickson & Branigan, 2005). Therefore, it is possible that decrements in PA result in engaging in a narrower range of mundane activities—including watching TV. Another reason why individuals turn to TV at times of lower PA might simply be to feel better. Individuals engage in activities that help achieve their ideal affective states (Tsai, 2007)—which for most individuals are positive affective states (Tsai, Knutson, & Fung, 2006). Indeed, individuals report that they tend to watch TV to feel better (e.g., to relax, escape from everyday stress, and have fun; Thinkbox, 2013). This tendency might be particularly exacerbated at times of lower PA when people may be inclined to seek relief in the familiarity and predictability afforded by watching familiar TV shows filled with familiar celebrities at their predetermined airing time (Kubey & Csikszentmihalyi, 1990). Past work shows that individuals prefer familiar activities when they are under time or performance pressure (Litt, Reich, Maymin, & Shiv, 2011) and engage in behaviors aimed at maintaining a sense of meaningfulness and predictability when they feel threatened (Proulx & Heine, 2006). So individuals might prefer the familiarity and predictability of TV viewing over any other activity when they feel lower PA. Providing preliminary evidence for this possibility, individuals were found to prefer engaging in pleasant activities (including watching TV) when they feel unhappy (Taquet, Quoidbach, de Montjoye, Desseilles, & Gross, 2016). Although not directly manipulating or measuring affect, past experimental work also found that individuals turn to TV when they go through an experience that likely disrupts their PA—that is, when they receive negative (vs. positive) performance feedback on a test (Moskalenko & Heine, 2003). These studies suggest that rather

than being the cause of lower PA, individuals may turn to TV to a greater extent at times of lower PA in an effort to feel better.

In the current research, we seek to investigate the direction of the relationship between TV watching and PA. To increase the ecological validity of our findings, we examine this relationship in everyday life using data from a large, lifespan sample of adults (age range = 33–83 years) who reported time spent watching TV as well as PA for eight consecutive days. Although a previous study used the same sample of adults to investigate the link between time spent on leisure activities and PA (Qian, Yarnal, & Almeida, 2014), this study did not specify or distinguish between different types of activities but rather focused on participants' response to the question of how much time they spent on relaxing or doing leisure activities. However, activities that fall into the broad category of leisure may be novel or mundane, social or non-social, indoors or outdoors, and importantly may or may not include watching TV. In the present research we focused exclusively on TV watching. To replicate past work showing a negative association between TV watching and PA (e.g., Goodwin et al., 2005), we first investigated whether time spent watching TV predicted PA on the same day. More pertinent to the focal aim of the present research, we also examined whether time spent watching TV on a given day predicted PA the next day, and similarly, whether PA on a given day predicted time spent watching TV the following day. This approach allowed us to draw inferences about the possible causal sequence between TV watching and PA. In our analyses, we controlled for age, gender, income level, employment status, marital status, health status and personality traits, which are known to be related with both duration of TV watching and PA (Kataria & Regner, 2011;

McIlwraith, 1998; Qian et al., 2014; Ye, 2010).

4.1 Method

4.1.1 Participants and Procedure

The data come from the second wave of the Midlife Development in the United States (MIDUS; Ryff et al. 2007) and the National Study of Daily Experiences (NSDE; Ryff & Almeida, 2010) projects. The MIDUS project was launched in 1994 ($N = 7108$) to examine age-related changes in physical and mental well-being of adults in the United States. MIDUS II ($N = 4963$) was conducted in 2004–2006 as a 10-year follow-up on MIDUS I measures. After completion of MIDUS II, a subsample of participants were recruited in the NSDE II ($n = 2022$), an 8-day daily diary study, examining the affective consequences of daily life activities. Daily duration of TV watching and daily PA were measured in the NSDE via short telephone interviews for 8 consecutive days. To increase participation rate, respondents were informed about the time they would be called 1 week before the interview sessions began and were also given the opportunity to change or set up new appointments by calling a toll free number. Person-level covariates were measured in MIDUS II. Respondents indicated their age, gender, employment status, and marital status in a phone interview, and completed measures of household income, health status, and personality traits as part of a self-administered survey.

The sample for the present analyses consisted of 1668 participants who completed all measures of interest. Mean age of the current sample was 56 years ($SD = 12$); 44% of participants were female; 93% were White; 73% were married; 63% were employed; and 71% completed some college

education or more. Mean household total income was \$71,321 ($SD = \$58,068$).

In terms of person-level covariates, the current sample did not significantly differ from the remainder of MIDUS II respondents in employment status, income, extraversion, agreeableness, conscientiousness, and openness to experience (all $ps > 0.058$). However, participants in the current sample were slightly older ($M = 56.447$ years vs. $M = 54.919$ years, Cohen's $d = 0.124$, $p < 0.001$), more likely to be male (56 vs. 52%, $\chi^2(1) = 8.491$, $p = 0.004$, contingency coefficient = 0.041) and married (73 vs. 70%, $\chi^2(1) = 6.164$, $p = 0.013$, contingency coefficient = 0.035), rated themselves healthier (Cohen's $d = 0.120$, $p < 0.001$), and scored lower on neuroticism (Cohen's $d = 0.149$, $p < 0.001$).

Data collection was approved by the Education and Social/Behavioral Sciences and the Health Sciences Institutional Review Boards (IRBs) at the University of Wisconsin-Madison. Written consent was waived by the IRBs, so participants provided verbal consent. During the consent procedure, participants were assured that participation was voluntary and that the information they provide would be kept confidential. Data and documentation for MIDUS II data are available to the public at the Inter-university Consortium for Political and Social Research website (ICPSR, www.icpsr.umich.edu/icpsrweb).

4.1.2 Measures

4.1.2.1 Duration of TV Watching. Time spent watching TV each day was measured by asking participants to respond to the following open-ended question: “*Since this time we spoke*

yesterday, how much time did you spend watching television (including time spent watching videos?).” Given duration of TV watching was measured at the day level, its mean level was estimated in a two-level null-model ($M = 114.909$ min, $SE = 1.934$)⁶. The distribution of scores for duration of TV watching was positively skewed. Transformation of the data (i.e., by recoding values three standard deviations above the mean to the highest value within 3 standard deviations of the mean) did not alter the results.

4.1.2.2 Positive Affect. Participants reported the frequency with which they experienced several positive affective states each day (0 = *None of the time* to 4 = *All of the time*) using items adapted from well-known and validated affect and well-being scales—e.g., the Affect Balance Scale (Bradburn, 1969); the General Well-Being Scale (Fazio, 1977); the Non-Specific Psychological Distress and Positive Emotions Scale (Kessler et al., 2002); and the PANAS (Watson, Clark, & Tellegen, 1988). The affective states included “*in good spirits*,” “*cheerful*,” “*extremely happy*,” “*calm and peaceful*,” “*satisfied*,” “*full of life*,” “*close to others*,” “*like you belong*,” “*enthusiastic*,” “*attentive*,” “*proud*,” “*active*,” and “*confident*.” Similar to duration of TV watching, mean level of PA as estimated in a two-level null model ($M = 2.736$, $SE = 0.017$). Average Cronbach’s alpha across 8 days was 0.939 (range 0.919–0.948).

⁶ We estimated the mean level using a null multilevel model. Given that duration of TV watching was measured daily, multilevel modeling provides a better estimate of the mean than the arithmetic average of all observations combined. In a null (or also called intercept-only) model, the intercept is the sample average of the outcome—in this case, duration of TV watching. Mean PA was also estimated using the same approach.

4.1.3 Covariates

4.1.3.1 Demographic Factors. Age, gender (0 = *Male*, 1 = *Female*), employment status (0 = *Unemployed*, 1 = *Employed*), marital status (0 = *Not married*, 1 = *Married*), and household total income were used as demographic covariates.

4.1.3.2 Health Status. Perceived health status was measured using a single item asking participants to rate their health (0 = *Worst possible health* to 10 = *Best possible health*; $M = 7.477$, $SD = 1.511$).

4.1.3.3 Personality Traits. Big-five personality traits were measured using the Midlife Development Inventory Personality Scales (Lachman & Weaver, 1997), an instrument specifically developed for the MIDUS project. Participants were asked to indicate how much each item described them (1 = *A lot* to 4 = *Not at all*). The openness to experience subscale ($M = 2.923$, $SD = 0.530$, $\alpha = 0.773$) consisted of seven items (*creative, imaginative, intelligent, curious, broad-minded, sophisticated, adventurous*). The conscientiousness subscale ($M = 3.394$, $SD = 0.451$, $\alpha = 0.689$) consisted of five items (*organized, responsible, hardworking, thorough, carelessness-reverse coded*). The agreeableness subscale ($M = 3.445$, $SD = 0.490$, $\alpha = 0.802$) consisted of five items (*warm, caring, softhearted, sympathetic, helpful*). The extraversion subscale consisted of five items (*outgoing, friendly, lively, active, talkative*). The item “*active*” was common to both the extraversion and daily PA measures. Following prior work (Cacioppo, Hawkley, & Thisted, 2010; Gunaydin, Selcuk, & Ong, 2016), to prevent any relationship between extraversion and PA due to item overlap, this item was not included when calculating extraversion ($M = 3.106$, $SD =$

0.607, $\alpha=0.775$). Finally, the neuroticism subscale consisted of four items (*moody, worrying, nervous, calm-reverse coded*). The item “*calm*” overlapped with the daily PA measure and was not included when calculating neuroticism ($M=2.015$, $SD=0.677$, $\alpha=0.744$).

4.1.4 Data Analytic Strategy

The links between daily PA and TV watching were estimated using multilevel modeling (HLM v7 software; Raudenbush et al., 2011). We used the HLM2 option to model days nested within respondents, with uncentered predictors, random intercepts and slopes, and homogenous Level-1 error structure. We computed confidence intervals using robust standard errors and report unstandardized model coefficients. First, we examined whether duration of TV watching predicted PA on the same day. Of the possible total of 13,344 daily assessments (1668 respondents \times 8 days), 763 (5.7%) were missing, reducing Level 1 observations to 12,581 days for this analysis. The model equations were as follows:

$$\text{Level 1 : Positive affect}_t = \pi_{0i} + \pi_{1i}\text{TV watching}_t + e_{ti}$$

$$\text{Level 2 : } \pi_{0i} = \beta_{00} + r_{0i}$$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

Although this model allowed us to replicate the previously reported concurrent negative association between TV viewing and PA, it did not allow teasing apart directionality. To address the issue of directionality, we performed lagged analyses. The number of Level 1 units were

10,477 for these analyses⁷. We started by investigating whether duration of TV watching on the previous day predicted PA on the next day, controlling for PA on the previous day. The multilevel model was as follows:

$$\text{Level 1 : Positive affect}_t = \pi_{0i} + \pi_{1i}\text{TV watching}_{t-1} + \pi_{2i}\text{Positive affect}_{t-1} + e_{it}$$

$$\text{Level 2 : } \pi_{0i} = \beta_{00} + r_{0i}$$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

$$\pi_{2i} = \beta_{20} + r_{2i}$$

Similarly, we examined whether PA on the previous day predicted duration of TV watching on the next day, controlling for duration of TV watching on the previous day. The multilevel model was exactly the same as above except that this time duration of TV watching on the next day was the outcome variable.

Finally, we repeated all analyses by also including person-level covariates (age, gender, income level, employment status, marital status, health status, and personality traits) as predictors of the intercept (π_{0i}) at Level 2.

⁷ The number of Level 1 units in the lagged outcome analyses was less than that in the concurrent analyses because by definition Day 1 observations do not have a lagged value and hence are missing from the analyses. In addition, for a given day to be included in the analyses, the respondent should provide data both for that particular day and the previous day.

4.2 Results

4.2.1 Does Duration of Daily TV Watching Concurrently Predict Daily PA?

Replicating previous work (e.g., Goodwin et al., 2005), there was a negative concurrent association between duration of TV watching and PA ($\beta = -0.00014$, $p = 0.026$, 95% CI $[-0.00027, -0.00002]$). This association persisted after inclusion of person-level covariates ($\beta = -0.00014$, $p = 0.032$, 95% CI $[-0.00026, -0.00001]$).

4.2.2 Does Duration of Daily TV Watching Predict Change in Daily PA?

Duration of TV watching on the previous day did not significantly predict changes in PA from the previous day to the next ($\beta = 0.0001$, $p = 0.313$, 95% CI $[-0.0001, 0.0003]$; Model 1 of Table 16), and this result remained unchanged after inclusion of covariates in the model ($\beta = 0.0001$, $p = 0.329$, 95% CI $[-0.0001, 0.0003]$; Model 2 of Table 16).⁸

⁸ Another possibility is that the effects of TV viewing follow a nonlinear pattern with adverse effects on PA observed only after a certain duration of TV watching is surpassed. We repeated the analyses by adding a quadratic term of TV watching duration to the models as an additional predictor. The quadratic effect of TV watching duration did not significantly predict PA regardless of inclusion of covariates in the model (all p s > 0.396).

Table 16. Multilevel Models Predicting PA from Duration of TV Watching on the Previous Day

Predictors	Model 1		Model 2	
	Coefficient	<i>p</i>	Coefficient	<i>p</i>
<i>Intercept</i>				
Intercept	1.708 (0.035)	< 0.001	0.288 (0.131)	0.028
Age	–	–	0.005 (0.001)	< 0.001
Gender	–	–	0.035 (0.021)	0.093
Income level	–	–	–0.000 (0.000)	0.406
Employment status	–	–	–0.012 (0.024)	0.613
Marital status	–	–	0.017 (0.023)	0.450
Health status	–	–	0.049 (0.008)	< 0.001
Openness	–	–	–0.021 (0.023)	0.361
Conscientiousness	–	–	0.162 (0.025)	< 0.001
Extraversion	–	–	0.130 (0.019)	< 0.001
Agreeableness	–	–	0.074 (0.024)	0.002
Neuroticism	–	–	–0.115 (0.016)	< 0.001
<i>TV_{t-1} slope</i>				
Intercept	0.0001 (0.0001)	0.313	0.0001 (0.0001)	0.329
<i>PA_{t-1} slope</i>				
Intercept	0.384 (0.012)	< 0.001	0.334 (0.012)	< 0.001

Note. Standard errors are provided in parentheses. All continuous variables are uncentered. For gender, male was coded as 0 and female was coded as 1. For employment status, unemployed was coded as 0 and employed was coded as 1. For marital status, not married was coded as 0 and married was coded as 1.

4.2.3 Does Daily PA Predict Change in Duration of Daily TV Watching?

Positive affect on the previous day predicted decreases in duration of TV watching from the previous day to the next ($\beta = -4.237$, $p = 0.005$, 95% CI $[-7.181, -1.293]$; Model 1 of Table 17), and this association remained statistically significant after inclusion of covariates in the model ($\beta = -4.176$, $p = 0.009$, 95% CI $[-7.292, -1.060]$; Model 2 of Table 17). These findings indicate that when individuals feel lower PA, they seem to spend more time watching TV rather than the other way around⁹.

⁹ We repeated all analyses by replacing PA with negative affect (NA). There was no significant concurrent association between duration of TV watching and NA. In addition, duration of TV watching or the quadratic effect of duration of TV watching on the previous day did not significantly predict changes in NA from the previous day to the next. Finally, NA on the previous day did not significantly predict changes in duration of TV watching from the previous day to the next regardless of inclusion of covariates in the model (all $ps > 0.406$).

Table 17. Multilevel Models Predicting Duration of TV Watching from PA on the Previous Day

Predictors	Model 1		Model 2	
	Coefficient	<i>p</i>	Coefficient	<i>p</i>
<i>Intercept</i>				
Intercept	87.258 (4.666)	< 0.001	123.127 (18.467)	< 0.001
Age	–	–	0.487 (0.121)	< 0.001
Gender	–	–	7.634 (2.652)	0.004
Income level	–	–	– 0.0001 (0.00001)	< 0.001
Employment status	–	–	– 14.727 (3.199)	< 0.001
Marital status	–	–	– 6.411 (2.991)	0.032
Health status	–	–	– 3.043 (0.925)	0.001
Openness	–	–	– 2.901 (2.712)	0.285
Conscientiousness	–	–	– 1.036 (3.166)	0.744
Extraversion	–	–	0.011 (2.314)	0.996
Agreeableness	–	–	– 1.999 (2.964)	0.500
Neuroticism	–	–	– 1.648 (1.966)	0.402
<i>TV_{t-1} slope</i>				
Intercept	0.297 (0.011)	< 0.001	0.284 (0.011)	< 0.001
<i>PA_{t-1} slope</i>				
Intercept	– 4.237 (1.502)	0.005	– 4.176 (1.590)	0.009

Note. Standard errors are provided in parentheses. All continuous variables are uncentered. For gender, male was coded as 0 and female was coded as 1. For employment status, unemployed was coded as 0 and employed was coded as 1. For marital status, not married was coded as 0 and married was coded as 1.

4.3 Discussion

How is watching TV—the most preferred leisurely activity in the U.S. and worldwide—linked with PA? The present research aimed to answer this question using daily diary data from a large, lifespan sample of U.S. adults. Although we found a concurrent negative association between TV watching and PA as in past work, duration of TV watching on the previous day did not significantly predict changes in PA the following day. Importantly, PA on the previous day

predicted decreases in the duration of TV watching the next day. In other words, watching TV does not seem to decrease PA, but individuals tend to watch TV to a greater extent when they experience reduced PA. These findings go beyond past cross-sectional work by shedding light on the direction of the relationship between duration of TV watching and PA.

We also tested whether our results held controlling for factors known to predict duration of TV watching and PA. Of these covariates, age, gender, income level, employment status, marital status, and health emerged as significant predictors of TV viewing, whereas Big-Five personality traits were not significantly associated with TV viewing. Specifically, being older, female, single, and unemployed as well as having lower income and poorer health predicted longer durations of TV watching. But importantly, even controlling for these factors, we found that individuals watched more TV when they experienced reduced PA on the previous day. Not only do these findings speak to the robustness of the current effects, but they also inform future work by documenting factors that should be accounted for in further studies investigating the link between PA and TV viewing.

Why do individuals watch TV to a greater extent when they feel reduced PA? Based on the broaden-and-build theory, it is possible that when individuals experience lower PA, they have lower motivation to seek out and engage in novel, creative, or exciting activities (Fredrickson 2004), in which case they might spend more time on relatively more mundane, familiar, and predictable leisure time activities such as watching TV (Kubey & Csikszentmihalyi, 1990). It is also possible that individuals turn to watching TV as a distraction strategy to lift their mood.

Indeed, past work found greater preference for watching TV when individuals experienced life events associated with lower PA—such as feeling lonely (Perse & Rubin, 1990), having conflict with household members (Rosenblatt & Cunningham, 1976), or receiving negative feedback (Moskalenko & Heine, 2003). If watching TV is used as a distraction from daily hassles, our findings indicate that it is not a particularly effective one: Watching TV neither improves nor dampens next-day PA.

Given watching TV does not seem to be a particularly effective way of increasing PA, why would individuals pursue this strategy to feel better? One possibility is that individuals make an affective forecasting error when trying to estimate the hedonic benefits of watching TV (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998; Wilson & Gilbert, 2005). That is, individuals might predict that watching TV will help them feel better when in fact it does not. Past work has shown that engaging in cognitively challenging activities (Erber, 1996) and actively trying to divert attention from emotional stimuli (Webb, Miles, & Sheeran, 2012) are far more effective distraction tactics than passively engaging in relatively unchallenging activities—such as TV watching. However, individuals may not be able to factor in the passive and cognitively unchallenging nature of TV watching when estimating its potential hedonic benefits, which might contribute to errors in affective forecasting. Another possibility is that any mood-lifting benefits of watching TV are offset by its costs—including spending less time engaging in PA-inducing activities such as exercising, pursuing one's hobbies (Jordan & Robinson, 2008; Tkach & Lyubomirsky, 2006), interacting with loved ones (Bruni & Stanca, 2008), and spending time in nature (Bratman et al., 2015; Nisbet & Zelenski, 2011). A final possibility is that watching TV

only provides a short-lived distraction that does not extend to the next day. Indeed, engaging in distraction tactics provides hedonic benefits only for a limited period of time (e.g., Kross & Ayduk, 2008). There is also evidence indicating that watching TV leads to small, short-term increases in happiness (Taquet et al., 2016) and relaxation (Kubey & Csikszentmihalyi, 1990), but these feelings of relaxation tend to go away after TV viewing ends. These findings are consistent with past work indicating that effects of positive affect are short-lived (Bachmann, Grunschel, & Fries, 2018; Sheldon, Ryan, & Reis, 1996). Future studies should simultaneously assess short- versus long-term effects of TV watching to investigate this possibility.

Another interesting avenue for future research is to examine whether the link between TV watching and PA depends on types of TV shows individuals prefer to watch. For instance, watching a drama or news broadcast on TV may reduce PA on subsequent days while watching a comedy or upbeat music video may increase PA. Indeed, asking participants to watch clips that differ in affective valence is often used to manipulate affective states in the laboratory (Park & Banaji, 2000; Valdesolo & DeSteno, 2006). Another factor that may play a role in hedonic benefits of TV watching is whether individuals actively watch TV or passively consume it while engaging in other activities—such as jogging on a treadmill, cooking, or chatting with others. Indeed, past work showed that nearly half of the time adolescents spent watching TV, they multitasked or attended to other things (Christensen, Bickham, Ross, & Rich, 2015). However, most of the time (72%) TV viewing is reported as the primary activity when it is paired with another activity (Kubey & Csikszentmihalyi, 1990). The current research did not ask participants whether or not they engaged in other activities while watching TV. But based on past findings,

we may expect that our participants were active consumers of TV, while the role of active versus passive forms of TV viewing in affective outcomes remains an open empirical question.

Moreover, whether individuals watch TV alone or in the company of others may determine hedonic benefits of TV viewing. One study found that social experiences made people happier than solitary experiences (Caprariello & Reis, 2013), suggesting that watching TV in the company of others (vs. alone) may possibly be associated with greater PA. Indeed, individuals reported feeling happier when watching TV with their family than alone (Kubey & Csikszentmihalyi, 1990). Another study found that sharing media (including TV) with romantic partners was associated with increased relationship quality, especially for individuals who lacked an overlapping social network with their partner (Gomillion, Gabriel, Kawakami, & Young, 2017). These studies suggest that watching TV with one's romantic partner or family may positively contribute to relational well-being—and ultimately to personal well-being. Given watching TV is a readily available and very popular leisure activity, future studies revealing under what circumstances TV watching might yield hedonic benefits will be valuable to help bolster personal well-being.

Finally, while the current study addressed the link between PA and TV watching, arousal might also play a role in time spent watching TV. When individuals have little energy left they might not bring themselves to pursue relatively more effortful PA-inducing leisure activities such as exercising, spending time in nature, or socializing. Instead, they might turn to TV as an easily accessible leisure activity that requires little effort. This view predicts that lower arousal or

energy, independent of PA, would lead to greater durations of TV watching—a possibility that needs to be examined in future work.

Using daily diary data the present research indicated that spending greater time watching TV does not undermine PA—as critics of TV often claim—but rather experiencing lower PA makes us sit in front of the TV for longer hours. A strength of the current work is testing the links between PA and TV watching in a large national sample of U.S. adults. Future research should examine whether these findings generalize to clinical or patient populations. In conclusion, these findings provide strong evidence that diminished daily PA is associated with prolonged TV watching and suggest interesting avenues for future work that would help clarify the hedonic costs and benefits of TV watching.

CHAPTER 5

GENERAL DISCUSSION AND FUTURE DIRECTIONS

Engaging in close interactions with others, especially our romantic partner (Campbell et al., 2005; Glenn & Weaver, 1981; Kansky, 2018; Lyubomirsky et al., 2005) has long been acknowledged as a fundamental driver of well-being in life (Baumeister & Leary, 1995; Campbell et al., 1976; Deci & Ryan, 1991; Maybery et al., 2006; Ryff & Singer, 2000). Present dissertation primarily sheds light on how relational processes are linked with important predictors of personal and relational well-being. Chapter 2 focused on the association between perceived partner responsiveness and indicators of both personal well-being (life satisfaction and psychological well-being) and relational well-being (attachment anxiety and avoidance). Moreover, Chapter 3 investigated whether positive relational experiences are linked with attachment avoidance and whether an indicator of personal well-being (positive affect) mediates the association. Finally, Chapter 4 examined how watching TV, the most commonly preferred daily activity that might steal from the time that might otherwise be allocated to positive relational activities, might predict personal well-being (i.e., positive affect).

One major finding of the present dissertation is the strong association of partner related interactions with increased relational well-being (as indicated by heightened attachment

security). These interactions might either be positive experiences shared with a partner or situations highlighting positive aspects of the partner and the relationship (i.e., contexts where we perceive our partner as responsive and caring). Daily positive relationship events were found to increase positive affect—a major component of hedonic well-being. Similarly, average perceived partner responsiveness predicted heightened life satisfaction and psychological well-being, which are components of hedonic and eudaimonic well-being, respectively. Thus, a commonality between activities shared with a partner and situations where partner is perceived as responsive is that they both contribute to different aspects of personal well-being. Based on this, one might argue that personal well-being is an important mechanism explaining the link between partner related interactions and relational well-being. Past work showed that positive activities in which partner is perceived as responsive, such as seeing partner react responsively while capitalizing on positive events or receiving support from partner during a shared positive activity are known to improve several relational well-being indicators, including attachment security (Cortes et al., 2020; Gable & Reis, 2010; Overall et al., 2010). Thus, future studies might also explore the mediating role of perceived partner responsiveness in the association between positive relationship events and attachment avoidance.

In present research, we did not differentiate between different types of positive relationship events. Future studies might focus on the types of positive relational activities to make an inference on whether some types of activities might play a greater role in personal and relational well-being. Moreover, frequency of positive activities might also matter. In one study, engaging in a positive activity three times per week was found to be less effective than engaging in the

activity once per week, as many cultural routines and habits are conducted once a week (Lyubomirsky et al., 2005). Thus, future work might also examine the role of the frequency of positive relational activities in determining well-being.

A limitation of the current work (which also extends to many diary studies testing romantic processes) is that reporting perceived responsiveness or positive experiences in one's relationship on a regular basis might change how participants experience their relationships. So, another future direction might be to add control couples who just fill out outcomes of interest (i.e., attachment styles) to see whether the very act of reporting responsiveness or positive relationship experiences on a daily basis might change attachment patterns.

Based on the findings of the present dissertation, one strategy to improve personal and relational well-being appears to be to include partner related positive experiences—either shared with the partner or reminding positive aspects of the relationship— more frequently in our daily schedule. This brings about the question of whether a passive, mundane and mainly solitary experience, watching TV, has an adverse effect on personal and relational well-being. However, our findings indicated that watching TV does not lower personal well-being but in fact, individuals suffering from reduced personal well-being engage in watching TV to a greater extent, possibly with the intention of increasing positive affect. However, despite not lowering well-being, watching TV does not contribute to well-being either, suggesting that individuals make a wrong assumption by expecting watching TV to improve their mood. Here, given relationship related activities play a greater role in increasing positive affect, one might question why individuals prefer watching TV

as a mood-lifting activity, rather than engaging in relational activities. One reason might be that watching TV is easily accessible, costless, undemanding, and addictive in nature, while engaging in relational activities requires time and effort, is dependent on the presence of others, and requires long-term commitment. So, people may fall into the trap of assuming watching TV (vs. engaging in relational activities) would help them restore positive affect (Gilbert et al., 1998; Wilson & Gilbert, 2005). A viable solution here might be to encourage individuals to change the way they watch TV—to encourage them watch TV with their partner.

When being watched together with our partner rather than being watched alone, TV watching might instead increase the time spent with romantic partner (Caprariello & Reis, 2013; Kubey & Csikszentmihalyi, 1990; Turcotte, 2007), increasing the possibility for enhanced positive affect. Especially for couples who lack an extensive social life or social network, watching TV together might turn into an important positive experience. Besides, as watching TV with the romantic partner would also increase the time spent with the partner at home, the frequency and diversity of shared positive activities with the partner might also increase when TV is watched with the partner. Thus, future studies might explore whether including the partner when watching TV—and also engaging in other mundane, solitary activities—might improve relational and personal well-being, by transforming these activities into positive relational events. In addition, future research might also focus on the proportion of TV watching with the partner to other positive relationship events. For instance, although watching movies with the partner might be considered a positive experience, if the couple does not engage in more fulfilling, novel relational activities such as going to a concert, eating at a restaurant, or traveling to a new place with the partner this

experience might not positively contribute to relational well-being.

Based on the novel finding that watching TV does not reduce positive affect, but instead, people already suffering from diminished positive affect watch TV to a greater extent, we might speculate that watching TV does not appreciably steal from the time that may be allocated to positive relationship activities. If it did, it might have taken a toll on participants' daily positive affect. It could be the case that individuals turn to watching TV to lift their mood because relational (or more meaningful solitary activities) are unavailable to them at the time. Upcoming studies should measure the time allocated to daily relationship events to understand whether or not TV watching diminishes positive relationship events.

Another interesting research direction might be to examine individual differences that might affect the pleasure derived from positive relationship events. For instance, older people are known to enjoy positive activities to a greater extent, as they take these activities more seriously and devote more resources to them (Sin & Lyubomirsky, 2009). Westerners were also found to benefit more from positive activities as they value happiness to a greater extent (Diener, Suh, Smith, & Shao, 1995; Tsai et al., 2006). Similarly, individualistic cultures tend to prefer self-oriented activities while collectivistic cultures prefer other-oriented activities (Boehm, Lyubomirsky, & Sheldon, 2011). Based on this, we might expect people in individualistic cultures to gain more from activities conducted with the partner (having a romantic dinner together, watching movies or TV together, etc.), while people in collectivistic cultures might gain more from activities also including others (e.g., attending a friend's wedding or participating a

family gathering with the partner, etc.). Besides culture, personality might also be another determinant of the pleasure derived from positive relational events. Research found that certain personality types fit to certain activities, causing individuals to obtain different levels of positive affect from different activities (Lyubomirsky & Layous, 2013). Similarly, research showed that people who are initially low in positive affect gain the most from positive activities, as they have a greater room for improvement (Froh, Kashdan, Ozimkowski, & Miller, 2009). Thus, future studies might try to replicate these analyses with different age groups and across different cultures, and also test for the moderating role of personality traits.

Future studies might also examine the short- and long-term effects of relational interactions on well-being to understand whether the attachment security inducing role of perceived partner responsiveness and positive experiences persist over time. In fact, from a hedonic adaptation framework (Lyubomirsky, 2011; Sheldon, Boehm, & Lyubomirsky, 2012), one might expect the contribution of positive relational experiences and perceived partner responsiveness to attachment security to diminish over time. One plausible solution to this might be to vary the scope of positive relational events (by, for example, changing the type or the frequency of the activities; Lyubomirsky & Layous, 2013).

In addition to suggesting many intriguing directions for future work, findings of the present research are expected to benefit intervention studies that aim to contribute to physical and psychological well-being by shedding light on the roles of average responsiveness, responsiveness variability, and daily relational and solitary experiences in well-being. In addition,

making the distinction between average responsiveness and responsiveness variability, and focusing on how partner interactions might foster attachment security paves the way for better understanding causes of relational problems, thus potentially informing clinical applications that intend to improve romantic relationship processes and reduce the risk of breakup.

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