

Running head: PERSONALITY–RELATIONSHIP TRANSACTIONS IN COUPLES

Daily Responsiveness, Expectations, and Self-Disclosure:

How the Average Levels and Within-Person Variability of Three Relationship Components

Mediate Personality–Relationship Transactions in Romantic Couples

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Abstract

The associations between couple members' personality and their relationship satisfaction can be conceptualized as reciprocal transactions. To better understand these transactions, we focused on both partners' interpersonal vulnerabilities (i.e., neuroticism, low self-esteem, insecure attachment); daily emotional, cognitive, and behavioral relationship components (i.e., perceived responsiveness, positive expectations, self-disclosure); and relationship satisfaction. Specifically, we examined whether the average levels and within-person variability of the relationship components mediated the transactions between interpersonal vulnerabilities and relationship satisfaction. Data came from 689 female-male couples aged 18 to 81 years who participated in three measurement occasions across 12 months, including a 14-day diary phase. We used mediated dyadic bivariate latent change score models to test the level-change and change-change transactions and mediations. The findings partly supported our hypotheses: Couple members with interpersonal vulnerabilities had lower average levels (but not higher within-person variability) of the relationship components, and less satisfied couple members had lower average levels and higher within-person variability of these components. The lower average levels but not the variability mediated between a lower level of relationship satisfaction and an increase in avoidant attachment. No other mediations were observed. We discuss the importance of studying daily relationship components for better understanding reciprocal transactions in couples.

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Daily Responsiveness, Expectations, and Self-Disclosure:

How the Average Levels and Within-Person Variability of Three Relationship Components Mediate Personality–Relationship Transactions in Romantic Couples

What is love? After all, it is quite simple. Love is everything that enhances, widens, and enriches our life. In its heights and in its depths. Love has a few problems as a motorcar. The only problems are the driver, the passengers, and the road.

Franz Kafka in *Conversations with Kafka* by Gustav Janouch

Using the metaphor of a road trip, Franz Kafka described love as a motorcar that carries travelers on their common journey through life. To better understand the journey a couple travels together, researchers have studied the interplay between couple members' personality and their relationship functioning (Cooper & Sheldon, 2002; Karney & Bradbury, 1995; Lavner & Bradbury, 2010; Weidmann, Ledermann, & Grob, 2016). McNulty (2016) described neuroticism, low self-esteem, and insecure attachment (i.e., anxious attachment and avoidant attachment) as *interpersonal vulnerabilities*¹ that act as risk factors for romantic relationships (see also Erol & Orth, 2017; Karney & Bradbury, 1995, 1997; McNulty, 2008; Mikulincer & Shaver, 2003). In the present study, we target these interpersonal vulnerabilities in the couple's daily context. Specifically, we test three emotional, cognitive, and behavioral relationship components occurring in the daily life of couples (i.e., perceived responsiveness, positive expectations, self-disclosure²), and address whether the components' average levels and within-person variability mediate the transactions between couple members' interpersonal vulnerabilities and their relationship satisfaction (see also Gerstorf, Siedlecki, Tucker-Drob, & Salthouse, 2009; Laurenceau, Feldman Barrett, & Rovine, 2005; Schoebi et al., 2012).

Personality–Relationship Transactions

As described in the dynamic transactionism paradigm (Asendorpf & Wilpers, 1998; Magnusson, 1990; Magnusson & Allen, 1983; Neyer & Asendorpf, 2001; Neyer, Mund, Zimmermann, & Wrzus, 2014), personality and (romantic) relationships are linked through transactional ties and codevelop dynamically, continuously, and reciprocally. These transactional ties have been studied as personality–relationship transactions in terms of selection effects (i.e., effects of personality on relationships) and socialization effects (i.e., effects of relationships on personality).³ Personality–relationship transactions have been found for all interpersonal vulnerabilities: Regarding selection effects, neuroticism, low self-esteem, and insecure attachment have been shown to relate to lower relationship satisfaction of both the target and the partner (Conradi, Noordhof, Dingemans, Barelds, & Kamphuis, 2017; Erol & Orth, 2017; MacGregor, Fitzsimons, & Holmes, 2013; Malouff, Thorsteinsson, Schutte, Bhullar, & Rooke, 2010; Mondor, McDuff, Lussier, & Wright, 2011; Weidmann et al., 2016). Regarding socialization effects, romantic relationship experiences have been found to relate to neuroticism, low self-esteem, and insecure attachment (Davila, Karney, & Bradbury, 1999; Denissen & Penke, 2008; Luciano & Orth, 2017; Mund, Finn, Hagemeyer, Zimmermann, & Neyer, 2015; Neyer & Asendorpf, 2001; Robins, Caspi, & Moffitt, 2002; Stanton, Campbell, & Pink, 2017).

With the goal of “opening the process black box” (Back, 2015, p. 91) of social relationships, a growing body of studies has examined the emotional, cognitive, and behavioral relationship components that underlie selection effects and, to a lesser degree, socialization effects in couples (e.g., Campbell, Simpson, Boldry, & Kashy, 2005; Donnellan, Assad, Robins, & Conger, 2007; Finn, Mitte, & Neyer, 2013; Marigold, Holmes, & Ross, 2007; S. L. Murray, Holmes, & Griffin, 2000; Overall, Girme, Lemay, & Hammond, 2014; Sadikaj, Moskowitz, & Zuroff, 2015; Vater & Schröder-Abé, 2015). However, we see three potential shortcomings of previous studies. First, when studying mediators, most previous studies have focused on one of the two possible transactional directions instead of treating

selection and socialization effects together (for an exception, see Luciano & Orth, 2017). Second, to more precisely capture the developmental premise of dynamic transactionism in couples—namely that personality and relationships codevelop over time (e.g., Magnusson, 1990; Magnusson & Allen, 1983)—it is necessary to examine *changes* in both personality and relationships (Mund & Neyer, 2014). Third, to date, there is a lack of research addressing how both the average levels and the within-person variability of relationship components act as mediators for selection and socialization effects. We maintain that, to arrive at a fine-grained understanding of personality–relationship transactions in couples, it is necessary to (1) examine selection and socialization effects together, (2) study transactions in terms of level-change and change-change effects, and (3) consider the average levels and the within-person variability of relationship components as mediators.

The Relevance of Variability

People are thought of as dynamic, variable, and flexible (Nesselroade, 1991), a concept which has been studied as within-person *variability* in the field of personality psychology and beyond (e.g., Eid & Diener, 1999; Klein, Wendling, Huettner, Ruder, & Peper, 2006; Ram, Rabbitt, Stollery, & Nesselroade, 2005). As with people, romantic relationships are dynamic and flexible (Vangelisti, 2002). While variability has both adaptive and maladaptive implications for a person’s individual life (e.g., Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Eizenman, Nesselroade, Featherman, & Rowe, 1997; Fleeson & Wilt, 2010; Martin & Hofer, 2004; Siegler, 2007), variability in the couple context is considered largely detrimental, for two reasons. First, variability of one’s emotions, thoughts, and behaviors toward the romantic partner might be experienced as unsettling. This, in turn, might create doubts regarding one’s commitment toward the partner, which can feed back into the general evaluation of the relationship (Solomon, Knobloch, Theiss, & McLaren, 2016). Second, and more interpersonally, perceiving the partner as variable in their emotions, thoughts, or behaviors might create feelings of uncertainty and unpredictability (Sadikaj,

Rappaport, et al., 2015). This might imperil essential needs of security and trust, and result in lower relationship satisfaction (Mikulincer & Shaver, 2013; Simpson, 2007).

In line with this reasoning, previous research has evidenced the detrimental role of variability for romantic relationships: Variability in commitment and relationship satisfaction has been found to relate to relationship instability (Arriaga, 2001; Arriaga, Reed, Goodfriend, & Agnew, 2006), and variability in relationship quality has been shown to be linked to increased psychological distress and decreased life satisfaction (Whitton, Rhoades, & Whisman, 2014). Less focus, however, has been given to the role of variability of daily relationship components and why such variability emerges; two aspects that we will address in the present investigation. As will be illustrated below, we consider higher interpersonal vulnerabilities and lower relationship satisfaction to be predictors for higher within-person variability of daily perceived responsiveness, positive expectations, and self-disclosure.

Interpersonal Vulnerabilities

The interpersonal vulnerabilities of neuroticism, low self-esteem, anxious attachment, and avoidant attachment constitute a challenge for the romantic couple (McNulty, 2016). Common to these characteristics is a sense of insecurity and a disposition for experiencing negative affect: Neuroticism reflects a general insecurity, such as the tendency to experience negative affect, irritability, and increased fearfulness (Costa & McCrae, 1987; Steel, Schmidt, & Shultz, 2008). Similarly, low self-esteem represents an insecure attitude toward the self and a low perceived self-worth with an increased likelihood to experience negative affect (Leary & Baumeister, 2000; Rosenberg, 1965; Schimmack & Diener, 2003). Likewise, insecure attachment reflects an insecurity about the romantic partner's availability and the relationship in general and is linked to more negative and less positive affect (Hazan & Shaver, 1994; Wei, Liao, Ku, & Shaffer, 2011). Each of these vulnerabilities likely has ramifications for the couple members in their daily emotional, cognitive, and behavioral relationship components.

Neuroticism

Neuroticism with its conceptual roots in early works such as those of Cattell (1957), Eysenck (1970), or Tellegen (1985), describes the extent to which a person is worried, anxious, and susceptible to negative affect (Costa & McCrae, 1992). Nowadays, neuroticism is mostly studied as one of the Big Five personality traits (Costa & McCrae, 1992). Attributes of this trait appear to play out in the daily context of a romantic relationship: In terms of emotional relationship components, persons high in neuroticism tend to show their emotions more readily (Lavee & Ben-Ari, 2004) and blame their partners for the feelings that the target person has (Vater & Schröder-Abé, 2015). As for cognitive relationship components, persons high in neuroticism tend to harbor negative attributions about their romantic partner and their relationship (Karney, Bradbury, Fincham, & Sullivan, 1994), interpret ambiguous situations and partner behaviors more negatively, and anticipate that an upcoming interaction with their partner will be negative (Finn et al., 2013; McNulty, 2008). In terms of behavioral relationship components, individuals high in neuroticism are less likely to intimately disclose their thoughts and feelings to their partner, regardless of how self-disclosing the partner is (Cunningham & Strassberg, 1981), and tend to show more relational withdrawal behavior (Caughlin & Vangelisti, 2000). They tend to act more negatively toward their partner (Donnellan et al., 2007) and are less forgiving (Braithwaite, Mitchell, Selby, & Fincham, 2016). From an interpersonal perspective, partners of persons high in neuroticism are apt to display more negative behavior in joint interactions (Donnellan et al., 2007; McNulty, 2008).

Regarding variability, people high in neuroticism tend to show more variability of mood and affect (Eid & Diener, 1999; Geukes, Nestler, Hutteman, Küfner, & Back, 2017; Hepburn & Eysenck, 1989; Kuppens et al., 2007; G. Murray, Allen, & Trinder, 2002; Williams, 1981), and to experience variability of interpersonal behavior, including sociability, self-disclosure, and friendliness (Geukes, Nestler, Hutteman, Küfner, et al., 2017). So far, there is limited knowledge about the variability of cognitions. But, given that emotions, cognitions, and behaviors are closely tied (e.g., Schoebi et al., 2012), it is likely that people

high in neuroticism are not only variable in their emotions and behaviors, but also in their cognitions.

Low Self-Esteem

Self-esteem, defined as the subjective evaluation or appraisal of the self (Donnellan, Trzesniewski, & Robins, 2011; Leary & Baumeister, 2000), has a far-reaching impact on romantic relationships. In regulating the dependence on their partner (S. L. Murray et al., 2000), people with low self-esteem tend to doubt their partners' positive regard (S. L. Murray, Holmes, & Griffin, 1996a, 1996b), which also manifests in the daily context of a romantic relationship: In terms of emotional relationship components, people with low self-esteem tend to report lower partner caregiving responsiveness, expressed as reporting their partners to be less accessible, responsive, and engaged (Knapp et al., 2016). As for cognitive relationship components, people with low self-esteem are more apt to perceive their partner negatively and to expect that they (the target person) will experience emotional hurt (S. L. Murray et al., 1996a, 1996b, 2000). Regarding behavioral relationship components, people with low self-esteem tend to disclose fewer feelings of affection because they undervalue the beneficial consequences of sharing affection with their partner (Luerssen, Jhita, & Ayduk, 2017) and they disclose less personal information, such as incidences of failure, to their partner (Cameron, Holmes, & Vorauer, 2009). From an interpersonal view, partners of targets with low self-esteem tend to be less responsive (Cortes & Wood, 2018).

Little research has examined variability of relationship components among individuals with low self-esteem, with one exception: Female partners with low self-esteem have been found to experience higher reactivity to negative daily relationship experiences, measured as greater covariation between general relationship satisfaction and the satisfaction with more specific relationship aspects (e.g., support, affection, or sex) (Neff & Karney, 2009). We are unaware of other evidence linking low self-esteem and variability of relationship components.

Insecure Attachment

Attachment in romantic relationships describes the likelihood of individuals seeking closeness to their romantic partner in order to feel secure and safe (Fraley & Shaver, 2000). Whereas individuals with secure attachment are comfortable with experiencing emotional closeness, individuals with insecure attachment find it difficult to regulate closeness in their relationships (Brennan, Clark, & Shaver, 1998; Mikulincer & Shaver, 2007).⁴ Anxious attachment and avoidant attachment are subsumed under insecure attachment, but they have different implications for individuals and their romantic partners.

Anxious attachment. Individuals with anxious attachment are inclined to hyper-activate their attachment system in times of stress or need (Mikulincer & Shaver, 2007). In terms of emotional relationship components, they tend to ascribe more negative relationship-related emotions to their partners than the partners report themselves (Overall, Fletcher, Simpson, & Fillo, 2015) and experience their partners as less responsive (Shallcross, Howland, Bemis, Simpson, & Frazier, 2011). Regarding cognitive relationship components, individuals with anxious attachment tend to worry more about being rejected, disapproved of, or unloved during social interactions (e.g., Pietromonaco & Barrett Feldman, 1997; Tidwell, Reis, & Shaver, 1996). They perceive conflict situations in a more negative light (Fraley, Hudson, Heffernan, & Segal, 2015; Shallcross et al., 2011), hold less positive expectations about their relationship partner, and frame their relationship less favorably (Campbell et al., 2005; Mikulincer & Horesh, 1999). As for behavioral relationship components, people with anxious attachment are less likely to show constructive relationship behavior, such as problem-solving or compromising, during conflict situations (Pistole, 1989), are more likely to escalate their conflicts in severity (Campbell et al., 2005), and are less likely to provide caregiving for a partner in distress (B. C. Feeney & Collins, 2001; Millings & Walsh, 2009). Regarding self-disclosure specifically, results of previous studies do not paint a clear picture: Whereas some research has demonstrated that individuals with anxious attachment are less likely to intimately self-disclose to their partner (Keelan, Dion, & Dion, 1998), other studies

have found that individuals with anxious attachment indiscriminately and effusively self-disclose so as to rapidly connect with others and to reduce their fears of rejection (Shaver & Mikulincer, 2006). Partners who receive this kind of self-disclosure may be unprepared and therefore react less responsively (Mikulincer & Nachshon, 1991).

Little research has been dedicated to examining variability of relationship components among individuals with anxious attachment, with the following exceptions: Individuals with anxious attachment have been found to be more emotionally reactive (Wei, Vogel, Ku, & Zakalik, 2005), and to be more variable in their relationship perceptions in general (Campbell et al., 2005) and their perceptions of closeness in relationships in particular (Lee & Gillath, 2016). Less is known about the link between anxious attachment and variability of behavior.

Avoidant attachment. Individuals with avoidant attachment are inclined to downregulate or even deactivate their attachment system in times of stress or need (Mikulincer & Shaver, 2007). With regard to emotional relationship components, individuals with avoidant attachment tend to show less emotional involvement, to have a reduced ability to identify others' negative emotions, to be less responsive to their partner, and to underestimate the responsiveness of their partner (Shallcross et al., 2011). As for cognitive relationship components, individuals with avoidant attachment suppress unwanted distress-related thoughts to preserve their independence and to avoid contemplating abandonment (Shallcross et al., 2011). Regarding behavioral relationship components, individuals with avoidant attachment prefer independence to dependence and are reluctant to seek emotional intimacy, because they find such intimacy uncomfortable (Collins & Read, 1990; Hazan & Shaver, 1987; Simpson & Rholes, 2012); they are less likely to self-disclose to and trust their partner (Emery, Gardner, Carswell, & Finkel, 2018); and when they self-disclose to their partner, they feel uncomfortable (e.g., Bradford, Feeney, & Campbell, 2002; Keelan et al., 1998) and. They likely employ an emotional cut-off strategy by not talking about their emotions, by not turning to their loved ones for support, and by withdrawing from their

partner (J. A. Feeney & Karantzas, 2017; Wei et al., 2005); they tend to react defensively or withdraw during conflict situations (J. A. Feeney & Karantzas, 2017) and report lower levels of positive and constructive communication patterns (J. A. Feeney, 1994; Fitzpatrick, Fey, Segrin, & Schiff, 1993).

Similar to the paucity of research findings for variability among individuals with anxious attachment, there is also a lack of research addressing variability among individuals with avoidant attachment. Although lower variability among individuals with avoidant attachment might be expected because of their tendency to employ an emotional cut-off strategy and to show less emotional involvement (J. A. Feeney & Karantzas, 2017; Mikulincer, Shaver, & Pereg, 2003; Wei et al., 2005), the two studies that have examined avoidant attachment and variability found the opposite: People with avoidant attachment experienced, on a week-to-week basis, higher variability of their felt closeness to important people in their lives (Lee & Gillath, 2016) and higher variability of their partners' commitment (Arriaga et al., 2006).

The Present Study

The general consensus arising from previous studies is that neuroticism, low self-esteem, anxious attachment, and avoidant attachment constitute a challenge for romantic relationships, which is reflected in the lower average levels and (partially) in the higher variability of emotional, cognitive, and behavioral relationship components. In the present study, we target the mediating role of the average levels and variability of relationship components for personality–relationship transactions in romantic couples.

For each domain of relationship component (i.e., emotional, cognitive, behavioral), we focus on one aspect that has been found to be beneficial for relationship satisfaction. For the emotional component, we focus on *perceived responsiveness*, which captures subjective feelings of being understood, validated, and cared for by the partner (Laurenceau et al., 2005). For the cognitive component, we examine *positive expectations* about the partner; that is, the

degree to which the target expects that their partner will be affectionate, cheerful, and not irritable the next day (Schoebi et al., 2012). For the behavioral component, we focus on reported *self-disclosure*, defined as the process “of making the self known to other persons” (Jourard & Lasakow, 1958, p. 91) by sharing information, thoughts, and feelings.

Selection Effects

Given that people with interpersonal vulnerabilities are inclined to be more reactive, vigilant, and insecure (e.g., Ravary & Baldwin, 2018; Suls & Martin, 2005; Wei et al., 2005; Weston & Jackson, 2018), we see interpersonal vulnerabilities as predictors of lower average levels and higher within-person variability of beneficial relationship components. The lower levels and higher variability are considered to mediate selection effects between interpersonal vulnerabilities (i.e., level and change) and relationship satisfaction (i.e., change). Our hypotheses were as follows (see Figure 1):

Level-change effect: Higher levels of interpersonal vulnerabilities predict a decrease in relationship satisfaction (Hypothesis 1).

Change-change effect: Increases in interpersonal vulnerabilities predict a decrease in relationship satisfaction (Hypothesis 2).

Mediation: (i) Higher levels of and increases in interpersonal vulnerabilities predict lower average levels and higher variability of relationship components; (ii) lower average levels and higher variability of relationship components predict a decrease in relationship satisfaction; (iii) lower average levels and higher variability of relationship components mediate the described level-change and change-change effects between interpersonal vulnerabilities and relationship satisfaction (Hypothesis 3).

Socialization Effects

Couple members who are more satisfied with their relationship are expected to experience a more positive daily relationship life. The research that exists so far supports this

idea: In general, people who are satisfied with their life shift their attention toward positive (versus neutral) social stimuli (Raila, Scholl, & Gruber, 2015), and couple members who are satisfied with their relationship tend to remember more instances of positive relationship interactions and fewer instances of negative relationship interactions (Halford, Keefer, & Osgarby, 2002). These cognitions are likely related to the emotions and behaviors in the couple's daily life.

We therefore think it is likely that lower relationship satisfaction predicts lower average levels of beneficial relationship components. Given that we are not aware of any literature that links relationship satisfaction to the variability of relationship components, we explore this association and expect lower relationship satisfaction to predict higher variability of relationship components. We expect, in turn, that the lower average levels and higher variability will predict increases in interpersonal vulnerabilities: Experiencing lower average levels and higher variability of beneficial relationship components across multiple days might, over time, foster a person's trait perception of themselves via reflective processes (Wrzus & Roberts, 2017). Such self-reflections might indicate an "overreactivity to all kinds of problems" (Suls & Martin, 2005, p. 18), promoting the perception that the person has, indeed, become vulnerable. Our hypotheses were as follows (see Figure 1):

Level-change effect: A lower level of relationship satisfaction predicts increases in interpersonal vulnerabilities (Hypothesis 4).

Change-change effect: A decrease in relationship satisfaction predicts increases in interpersonal vulnerabilities (Hypothesis 5).

Mediation: (i) A lower level of and a decrease in relationship satisfaction predict lower average levels and higher variability of relationship components, (ii) lower average levels and higher variability of relationship components predict increases in interpersonal vulnerabilities, (iii) average levels and variability of relationship

components mediate the described level-change and change-change effects between relationship satisfaction and interpersonal vulnerabilities (Hypothesis 6).

General Note

As outlined, we tested the selection and socialization effects with regard to their level-change effects (Hypotheses 1 and 4), their change-change effects (Hypotheses 2 and 5) and their mediational effects (Hypotheses 3 and 6). For the level-change effects, we expected them to hold in both the short term (i.e., across 6 months) and the long term (i.e., across 12 months). For the change-change and mediational effects, we conceptualized a 6-month change in both the predictor and the criterion. For the mediational effects, we tested the direct effects between the predictor and the mediator (denoted by [i] in Hypotheses 3 and 6) and between the mediator and the criterion (denoted by [ii] in Hypotheses 3 and 6) additional to the indirect effects (denoted by [iii] in Hypotheses 3 and 6). Our hypotheses were not preregistered.

Partner Effects

Due to the interdependence of couple members, we tested for and expected partner effects in addition to actor effects for all the hypothesized links. We expected partner effects given that relationship experiences are, by definition, enacted within the couple and are therefore expected to relate to both partners. Partner effects were hypothesized to be in the same direction as actor effects, but to be smaller in size (e.g., Orth, 2013; Weidmann et al., 2016).

Method

Recruitment and Procedure

The data came from the *Processes in Romantic Relationships and Their Impact on Relationship and Personal Outcomes (CouPers)* study,⁵ a multi-wave longitudinal online study of romantic couples conducted at the University of Basel, between 2016 and 2018. The primary purpose of the CouPers study was to investigate the associations between personality

and romantic relationship outcomes as well as daily relationship components. Participants who reported being in a relationship were recruited from the student population, the local community, and via Facebook advertisements⁶ targeted at residents of Switzerland, Germany, and Austria who had set their relationship status to “partnered”. Eligibility to participate was dependent on being over 18 years old, having a partner over 18 years old also willing to participate,⁷ a relationship duration of at least a month, and competence with the German language.

The CouPers study consisted of four measurement occasions and participants entered the study in one of 12 monthly cohorts. At subsequent measurement occasions, participants were permitted to move to a different cohort (if their partner also moved) or to skip an occasion if they were unable to participate at the scheduled time. For the present study, we use data from the first three measurement occasions, which were separated by an interval of 4 to 6 months;⁸ we refer to these measurement occasions as T1, T2, and T3. Each measurement occasion included 14 consecutive days of online diary surveys with an additional battery of personality and outcome surveys on day 1 and day 14. To model our mediations for the present study, we used the diary surveys from T2. Participants were compensated with a shopping or cinema voucher to the value of 20 EUR/CHF per measurement occasion if they completed the extensive surveys on days 1 and 14 and at least seven of the 14 diary surveys, and could request personalized feedback on a measure that was pre-selected by the research team. Ethical approval for the study was granted by the ethics committee of the Department of Psychology at the University of Basel.

Sample

At the beginning of the CouPers study, 1,313 couples consented for surveys to be emailed to both partners. During the study, 10 new partners began participating. Three participants asked that their data be deleted, and further 437 participants asked to withdraw (because of e.g., having too little time to participate). For the present study, we focused on

those participants who (1) participated as a couple at T1, T2, and T3; (2) responded to the questionnaires about interpersonal vulnerabilities and relationship satisfaction at a minimum of one measurement occasion; (3) responded to at least two diary surveys (necessary to model variability in the relationship components) at T2; and (4) were in a female-male relationship (necessary for the structural equation approach; exclusion of $N = 52$ female-female and male-male couples). For the relationship–component data, we discarded repeated completions on the same day and retained only data provided within a 12-hour window between 4:00 p.m., when the email reminders were sent, and 4:00 a.m.

At T1, the mean age of female participants was 31.80 ($SD = 13.55$) years with a range of 18 to 78 years and the mean age of male participants was 33.81 ($SD = 14.14$) years with a range of 18 to 81 years. The mean relationship duration was 8.83 ($SD = 10.61$) years with a range of 2 months to 52 years.⁹ Using options from the Swiss census, participants reported their marital status: Single, never married participants (“ledig”) constituted 59.7% of the sample; other participants were married (35.8%), in a registered partnership (0.7%), divorced (3.0%), separated (0.2%), or widowed (0.5%). Almost a third of the participants had children (29.4%). Further, 71.4% lived with their partner (or with their partner and children), 9.9% with their parent(s) (and sibling[s]), 9.1% lived alone, 8.2% lived in shared accommodation, 0.4% lived with their children (but not with their partner), and 1.2% reported different living arrangements. Participants reported residing in Germany (61.0%), Switzerland (27.0%), Austria (11.7%), and other countries (0.3%).

Measures

Interpersonal vulnerabilities. The interpersonal vulnerabilities were measured on the first day at T1, T2, and T3.

Neuroticism. Neuroticism was assessed with the Big Five Inventory (John & Srivastava, 1999) in its German version (Lang, Lüdtke, & Asendorpf, 2001) using the 8 relevant items. For each item, participants rated the extent to which they agreed with

statements ascribed to themselves (e.g., “I see myself as someone who worries a lot.”). Items were rated on a 5-point Likert scale with response options from 1 (*strongly disagree*) to 5 (*strongly agree*). The omega reliabilities for the neuroticism measures were .84, .86, and .86, at T1, T2, and T3, respectively.

Low self-esteem. Self-esteem was assessed with the Rosenberg Self-Esteem Scale (Rosenberg, 1965) in its German version (von Collani & Herzberg, 2003). Participants rated ten items (e.g., “On the whole, I am satisfied with myself.”) on a 5-point Likert scale, ranging from 1 (*not at all*) to 5 (*absolutely*). We recoded the self-esteem items such that higher ratings indicated lower self-esteem, which allows us to more easily interpret self-esteem as a vulnerability characteristic (comparable to neuroticism and insecure attachment). The omega reliabilities for this scale were .90 at T1, .91 at T2, and .91 at T3.

Insecure attachment. Insecure attachment was measured with the Experiences in Close Relationships–Relationship Structures Questionnaire (Fraley, Heffernan, Vicary, & Brumbaugh, 2011) in its German version (Ehrenthal, Dinger, Lamla, Funken, & Schauenburg, 2009). Participants were asked about their experiences in romantic relationships and provided answers on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The three items measuring anxious attachment (e.g., “I’m afraid my partner may abandon me”) had omega reliabilities of .73 at T1, .77 at T2, and .77 at T3, and the six items assessing avoidant attachment (e.g., “I don’t feel comfortable opening up to my partner”) had omega reliabilities of .74 at T1, .77 at T2, and .77 at T3.

Daily relationship components. The relationship components were assessed across 14 consecutive days at T2.

Perceived responsiveness. Participants rated on a daily basis how responsive they felt their partner to be using four items with a 5-point Likert scale, ranging from 1 (*very little*) to 5 (*a great deal*) (Laurenceau et al., 2005). Items captured the degree to which the person felt (1) understood, (2) validated, (3) accepted, and (4) cared for by the partner. The omega reliability

was .95 for the average level and .90 for the variability.

Positive expectations. Participants reported their daily expectations about their partner. Items began “Tomorrow, I expect my partner to be...” and ended with the items “affectionate”, “cheerful”, and “irritable” (Schoebi et al., 2012). Items were rated on a 5-point Likert scale with response options from 1 (*not at all*) to 5 (*very much*). The item “irritable” was recoded so that higher ratings implied lower expectations of partner irritability. The omega reliability was .83 for the average level and .71 for the variability.

Self-disclosure. On a daily basis, participants rated the following three items regarding their self-disclosing behavior: “Today, I have disclosed facts and information to my partner”, “Today, I have disclosed my thoughts to my partner”, and “Today, I have disclosed my feelings to my partner” (Laurenceau et al., 2005). Items were rated on a 5-point Likert scale, ranging from 1 (*very little*) to 5 (*a great deal*). The omega reliability was .92 for the average level and .87 for the variability.

Operationalizing average levels and variability. To operationalize the average level and variability of each relationship component in our statistical models, we created two latent factors per component per couple member: The average-level factor was built on four indicator variables for the responsiveness latent factor, and on three indicator variables for the expectations and self-disclosure factors. Each indicator variable reflects the average score of the corresponding item measured across 14 days. Similarly, the variability factor was built on four indicator variables for the responsiveness variability factor, and on three indicator variables for the expectations and self-disclosure variability factors (Gerstorf et al., 2009). Each indicator variable reflects the standard deviation of the corresponding item measured across 14 days. Both factors represent within-person constructs. For each relationship component, we computed the omega reliabilities of the average-level and the variability latent factor.

Relationship outcome. Relationship satisfaction was assessed on the last days at T1, T2, and T3.

Relationship satisfaction. Relationship satisfaction was assessed with the Relationship Assessment Scale (Hendrick, 1988) in its German version (Sander & Böcker, 1993). Participants rated seven items (e.g., “How well does your partner meet your needs?”) on a 5-point Likert scale with higher values indicating higher relationship satisfaction. Omega reliabilities were .87 at T1, .88 at T2, and .89 at T3.

Data–Analysis Approach

Mediated dyadic bivariate latent change score models. For all hypotheses, we computed mediated dyadic bivariate latent change score models, which represent a dyadic extension of the latent difference score models introduced by Grimm, An, McArdle, Zonderman, and Resnick (2012). In all models, we controlled for the couple’s relationship duration. To circumvent convergence issues due to the complexity of the models, we computed separate models for each interpersonal vulnerability and for each relationship component, resulting in a total of twelve models (see Figures 2 and 3 for the actor and partner level-change effects and Figures 4 and 5 for the actor and partner change-change effects).

As predictors, we included the latent level and the latent change factors of the interpersonal vulnerability and, as criterion, the latent change factor of relationship satisfaction for both couple members (selection effects). The same principle applied to relationship satisfaction as predictor and the respective interpersonal vulnerability as criterion (socialization effects). To model these latent factors, we used the item-to-construct balance parceling method (Little, Cunningham, Shahar, & Widaman, 2002): For neuroticism, low self-esteem, avoidant attachment, and relationship satisfaction, three parcels were formed per latent factor. Given that anxious attachment was measured with only three items, these three items were used as the indicator variables of the latent anxious attachment factor. Descriptive statistics and internal consistencies of the parcels and indicator variables are provided in

Tables S1–S4. The residuals of the corresponding parcels were allowed to covary within couple members across time and across couple members at same measurement occasion.

As described in our hypotheses, we were interested in two types of level-change effects (i.e., short-term and long-term) and one change-change effect: Short-term level-change effects indicate the prediction across 6 months in that a prior level (i.e., T1 or T2) predicts a subsequent change (i.e., change between T1 and T2 if the prior level was at T1 or change between T2 and T3 if the prior level was at T2). Long-term level-change effects indicate the prediction across 12 months in that a prior level (i.e., T1) predicts a distal change (i.e. change between T2 and T3). The change-change effects indicate the prediction of change between T1 and T2 on a change between T2 and T3. A positive regression coefficient for the level-change and change-change effects signifies that a higher level of or an increase in the predictor relates to an increase in the criterion. In contrast, a negative regression coefficient for the level-change and change-change effects denotes that a higher level of or an increase in the predictor relates to a decrease in the criterion (Mund & Neyer, 2014). The tested mediations capture the indirect effects of the long-term level-change effects and the change-change effects.

Missing data were handled with the full-information maximum likelihood (FIML) approach. Because of the non-normal distribution of some of our variables (e.g., low self-esteem, anxious attachment, avoidant attachment, and relationship satisfaction), a maximum likelihood estimator with robust standard errors (MLR) was used. Testing a large number of effects increases the Type 1 error rate, and so we only interpret effects if they are significant on a $p < .01$ level and report 99% confidence intervals (for a similar approach, see Mund & Neyer, 2014; Parker, Lüdtke, Trautwein, & Roberts, 2012). Analyses were conducted using the lavaan package (Rosseel, 2012) in R, version 3.5.1 (R Development Core Team, 2016).¹⁰

Indirect effects. To test for mediations, we simultaneously included the average levels and the variability of a relationship component (i.e., perceived responsiveness, positive

expectations, and self-disclosure) in the model. We used bias-corrected bootstrapping with 5,000 samples to estimate confidence intervals.

Model fit. Goodness-of-fit of the models was examined with the following fit indices: The comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). The model is considered to fit the data well if CFI is above .97, and RMSEA and SRMR are below .05. Acceptable fit is indicated by a CFI above .95, RMSEA below .08, and SRMR below .10 (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Fit indices of all models are presented in Table S5.¹¹

To reach the most parsimonious models possible, we followed three steps: First, we set the recurring regression paths within the same construct as equal across time. Using the example of neuroticism, this implies that the short-term level-change effect between the level of neuroticism at T1 and its change from T1 to T2 was set as equal with the short-term level-change effect between the level of neuroticism at T2 and its change from T2 and T3. Second, we set the actor effects as equal between couple members and the partner effects as equal between couple members. For example, the long-term actor level-change effect between the level of neuroticism at T1 and change in relationship satisfaction from T2 to T3 was set as equal between female and male partners. Third, we set the regression paths as equal across the interpersonal vulnerability and relationship satisfaction. For example, the long-term level-change effect between the level of neuroticism at T1 and change in neuroticism from T2 to T3 and the long-term level-change effect between the level of relationship satisfaction at T1 and change in relationship satisfaction from T2 to T3 were set as equal; the same was applied to their transactional effects (i.e., level of neuroticism at T1 on change in relationship satisfaction from T2 to T3 and level of relationship satisfaction at T1 on change in neuroticism from T2 to T3). In this manner, we gained 76 degrees of freedom without significantly worsening the model fit (for the comparisons of the constrained and unconstrained models, see Table S5).¹²

Measurement invariance. We tested for measurement invariance within each mediated dyadic bivariate latent change score model. This allowed us to examine whether loadings for the interpersonal vulnerability and relationship satisfaction can be set as equal across couple members (i.e., sex), across measurement occasions (i.e., time), and across couple members and measurement occasions (i.e., sex and time). The results are shown in Tables S6–S9. Depending on the respective result for the test of measurement invariance, we constrained the loadings to be invariant across sex, time, or sex and time.

Results

Descriptive Statistics

Descriptive statistics (i.e., means and standard deviations) for women and men are shown in Table 1. Women, compared to men, had significantly higher scores in neuroticism and low self-esteem at all measurement occasions, significantly lower scores in avoidant attachment at all measurement occasions, and significantly higher scores in anxious attachment at T1. Women, compared to men, reported significantly higher relationship satisfaction at T2 and T3, had significantly higher average levels of positive expectations, and significantly higher variability of perceived responsiveness and self-disclosure. Bivariate correlations for women's and men's study variables as well as intercorrelations between these variables are shown in Table S10.

The standardized mean-level differences and stabilities of interpersonal vulnerabilities and relationship satisfaction across measurement occasions are presented in Table 2. Significant mean-level differences were found for women's neuroticism (between T1 and T3), for both couple members' low self-esteem (between T1 and T2 and between T1 and T3), and for both couple members' relationship satisfaction (between T1 and T2 and between T1 and T3). All stabilities were significant on a $p < .01$ level and ranged between .50 and .84 for interpersonal vulnerabilities and between .72 and .82 for relationship satisfaction.

Personality–Relationship Transactions

Selection and socialization effects. Table 3 presents the transactional actor and partner effects between the interpersonal vulnerability and relationship satisfaction. Given that the transactional paths could be set as equal in both directions (see Table S5), the results show both selection and socialization effects. The left part of the table displays the short-term level-change effects (Hypotheses 1 and 4); the middle part shows the long-term level-change effects (Hypotheses 1 and 4); the right part displays the change-change effects (Hypotheses 2 and 5).

For neuroticism and low self-esteem, no significant short-term level-change, long-term level-change, or change-change effects emerged (all $ps > .01$). For anxious attachment, significant negative short-term level-change effects were found on a partner basis. That is, higher levels of anxious attachment predicted a decrease in the partner's relationship satisfaction across 6 months (i.e., selection effect) and a higher level of relationship satisfaction predicted a decrease in the partner's anxious attachment across 6 months (i.e., socialization effect). No long-term level-change or change-change effects were found for anxious attachment. For avoidant attachment, significant negative short-term level-change effects were found on an actor basis. That is, a higher level of avoidant attachment predicted a decrease in relationship satisfaction across 6 months (i.e., selection effect) and a higher level of relationship satisfaction predicted a decrease in avoidant attachment across 6 months (i.e., socialization effect). No significant long-term level-change or change-change effects were found for avoidant attachment (all $ps > .01$).

Interim summary. To summarize the results for personality–relationship transactions, we found no significant effects in the transactions with neuroticism or low self-esteem. We observed, however, significant effects in the transactions with insecure attachment: Negative short-term level-change effects emerged in the transaction with anxious attachment on a partner basis and negative short-term level-change effects emerged in the transactions with avoidant attachment on an actor basis.

Mediators of Personality–Relationship Transactions

Selection effects. As for Hypothesis 3, we report our findings for the mediations of selection effects along three lines: (i) Interpersonal vulnerabilities as predictors of relationship components; (ii) relationship components as predictors of change in relationship satisfaction; (iii) relationship components as mediators in the long-term level-change and change-change effects between interpersonal vulnerabilities and later relationship satisfaction (see Tables 4–5 and Tables S11–S14).

(i) Interpersonal vulnerabilities as predictors of relationship components. The left and middle part of Table 4 show the effects of interpersonal vulnerabilities (i.e., level and change) on the average levels of the relationship components.

For neuroticism, neither the level nor the change emerged as a significant predictor of the average levels of relationship components (all $ps > .01$). For low self-esteem, significant negative effects between the level of low self-esteem and the average levels of perceived responsiveness (actor effect) and positive expectations (partner effect) were observed. That is, low self-esteem predicted a lower average level of perceived responsiveness and a lower average level of the partner’s positive expectations. No other effects were found for low self-esteem (all $ps > .01$). For anxious attachment, significant negative effects between the level of and change in anxious attachment and the average level of perceived responsiveness were observed (actor effect): Higher levels of and an increase in anxious attachment predicted a lower average level of perceived responsiveness. No other effects were found for anxious attachment (all $ps > .01$). For avoidant attachment, a significant negative effect between the level of avoidant attachment and the average level of self-disclosure was found as well as a significant negative effect between change in avoidant attachment and the average level of perceived responsiveness (actor effects). In other words, a higher level of avoidant attachment predicted a lower average level of self-disclosure; an increase in avoidant attachment

predicted a lower average level of perceived responsiveness. No other effects were significant in the transaction with avoidant attachment (all $ps > .01$).

The left and middle parts of Table 5 display the effects of interpersonal vulnerabilities (i.e., level and change) on the variability of the relationship components. No significant effects were observed (all $ps > .01$).

(ii) Relationship components as predictors of the change in relationship satisfaction.

The right part of Table 4 shows the effects of the relationship components' average levels on change in relationship satisfaction. For neuroticism and avoidant attachment, no significant effects were found (all $ps > .01$). For low self-esteem, a significant positive actor effect emerged between the average level of positive expectations and change in relationship satisfaction, indicating that a higher average level of positive expectations predicted an increase in relationship satisfaction. For anxious attachment, significant positive actor effects were found between the average levels of perceived responsiveness and positive expectations and change in relationship satisfaction. That is, higher average levels of perceived responsiveness and positive expectations predicted an increase in relationship satisfaction. No other effects were significant (all $ps > .01$).

The right part of Table 5 displays the effects of the relationship components' variability on change in relationship satisfaction. No significant effects were observed (all $ps > .01$).

(iii) Relationship components as mediators. The indirect effects of the relationship components' average levels and variability for selection effects are shown in Tables S11–S14. Across all models, no significant indirect effects emerged (all $ps > .01$).

Interim summary. To summarize the selection effects between interpersonal vulnerabilities, relationship components (i.e., average levels and variability), and change in relationship satisfaction, we found: (1) significant direct effects between interpersonal vulnerabilities and the average levels of relationship components (but no significant direct

effects for variability); (2) significant direct effects between the average levels of relationship components and change in relationship satisfaction (but no significant direct effects for variability); (3) no significant indirect effects for the relationship components' average levels or their variability.

Socialization effects. Again, as for Hypothesis 6, we report our findings for the mediations of socialization effects along three lines: (i) Relationship satisfaction as predictor of relationship components; (ii) relationship components as predictors of change in interpersonal vulnerabilities; (iii) relationship components as mediators in the long-term level-change and change-change effects between relationship satisfaction and later interpersonal vulnerabilities (see Tables 6–7 and Tables S15–S18).

(i) Relationship satisfaction as predictor of the relationship components. The left and middle parts of Table 6 show the effects of relationship satisfaction (i.e., level and change) on the average levels of the relationship components. Correspondingly, the left and middle part of Table 7 display the effects of relationship satisfaction (i.e., level and change) on the variability of the relationship components.

We found that the level of and change in relationship satisfaction were significant positive predictors for the average levels of all relationship components and a negative predictor for the variability of perceived responsiveness and positive expectations (actor effects). That is, a higher level of relationship satisfaction and an increase in relationship satisfaction predicted higher average levels of perceived responsiveness, positive expectations, and self-disclosure, and lower variability of perceived responsiveness and positive expectations. Regarding partner effects, change in relationship satisfaction emerged as a positive predictor for the average levels of perceived responsiveness and positive expectations; it was a negative predictor of the variability of perceived responsiveness and self-disclosure. That is, an increase in the target's relationship satisfaction predicted higher

average levels of their partner's perceived responsiveness and positive expectations, and lower variability of their partner's perceived responsiveness and self-disclosure.

(ii) Relationship components as predictors of the change in interpersonal vulnerabilities. The right part of Table 6 displays the effects between the relationship components' average levels and change in interpersonal vulnerabilities, while the right part of Table 7 shows the effects between the relationship components' variability and change in interpersonal vulnerabilities.

For neuroticism, low self-esteem, and anxious attachment as criteria, no significant effects for the average levels and variability of relationship components were found (all $ps > .01$). For avoidant attachment, however, we found that the average levels of perceived responsiveness and positive expectations were significant negative predictors of change in avoidant attachment (actor effects). That is, higher average levels of perceived responsiveness and positive expectations predicted a decrease in avoidant attachment. No other actor or partner effects for the average levels and variability of relationship components were significant (all $ps > .01$).

(iii) Relationship components as mediators. The indirect effects of the relationship components' average levels and variability for the socialization effects are shown in Tables S15–S18. For neuroticism, low self-esteem, and anxious attachment as criteria, no significant indirect effects emerged (all $ps > .01$). For avoidant attachment, however, four significant negative actor-actor indirect effects emerged: The average levels of perceived responsiveness and positive expectations mediated between relationship satisfaction (i.e., level and change) and change in avoidant attachment. That is, a higher level of and an increase in relationship satisfaction were related to higher average levels of perceived responsiveness and positive expectations, which predicted decreased avoidant attachment. No significant indirect effects were found for the relationship components' variability (all $ps > .01$).

Interim summary. To summarize the socialization effects between relationship satisfaction, relationship components (i.e., average levels and variability), and change in interpersonal vulnerabilities, we found: (1) significant direct effects between relationship satisfaction and both the average levels and the variability of relationship components; (2) significant direct effects between the average levels and change in avoidant attachment (but no significant direct effects for variability or for the other interpersonal vulnerabilities); (3) significant indirect effects for the average levels in the link between relationship satisfaction and change in avoidant attachment (but no significant indirect effects for variability or for the other interpersonal vulnerabilities).

Discussion

To better understand selection and socialization effects in couples, the present study targeted reciprocal transactions between interpersonal vulnerabilities and relationship satisfaction. To reach a more fine-grained understanding, we (1) simultaneously examined selection and socialization effects, (2) studied transactions in terms of level-change effects (i.e., short-term and long-term effects) and change-change effects, and (3) considered the average levels and variability of relationship components as mediators for these transactions. Before we will discuss our findings in more detail, we briefly summarize and discuss our key findings below.

As for (1), given that we were able to set selection and socialization paths as equal, we found selection and socialization effects to be similar in size; a finding that is contrary to that of Neyer and Asendorpf (2001), who argued that selection effects are generally stronger and more frequent than socialization effects. As for (2), we observed selection and socialization effects on a short-term level-change basis, but not on a long-term level-change or change-change basis. As we will discuss, for the non-significant long-term level-change effects, we see possible reasons in the inclusion of both the mediator variables and the short-term level-change effects in the same model. For the non-significant change-change effects, we think it

is likely that our study period may have been too short to comprehensively capture the change-change premise of the dynamic transactionism paradigm (e.g., Magnusson, 1990; Magnusson & Allen, 1983). As for (3), we found that average levels of relationship components acted as mediators for socialization effects with avoidant attachment, but we did not find that average levels acted as mediators for socialization effects with other interpersonal vulnerabilities or for selection effects. Similarly, we did not find variability to act as mediator for either selection or socialization effects. As we will elaborate below, we think it is likely that interactive effects between the average levels and variability are promising mediators for further understanding personality–relationship transactions in couples (see also Gerstorf et al., 2009).

Selection Effects

Our results support previous research on interpersonal vulnerabilities (e.g., Li & Chan, 2012) inasmuch as higher levels of anxious and avoidant attachment were consistently linked to a decrease in relationship satisfaction. Partner effects emerged for anxious attachment, signifying that higher levels of anxious attachment were tied to a decrease in the partner's relationship satisfaction. Surprisingly, neuroticism and low self-esteem were not linked to change in relationship satisfaction, but we advise interpreting these findings with caution until they are replicated.

Mediation. To better understand the above selection effects, we tested daily relationship components as mediators. We considered their average levels and variability across a 14-day diary phase.

Average levels. We found no significant indirect effects for the average levels. We observed, however, direct links between (i) interpersonal vulnerabilities and average levels, and (ii) average levels and relationship satisfaction.

As for (i), we found direct effects between low self-esteem and the average levels of the relationship components as well as between both anxious and avoidant attachment and the

average levels; we found no direct effects between neuroticism and the average levels of relationship components. Specifically, for low self-esteem, and in line with previous research (Knapp et al., 2016), we found that lower self-esteem was related to the target's lower average level of perceived responsiveness. This finding might be due to the partner's actual lower responsiveness, as shown in a recent study (Cortes & Wood, 2018). In addition, partners of targets with low self-esteem reported a lower average level of positive expectations. For anxious attachment, we found that a higher level of and an increase in anxious attachment were linked to a lower average level of the target's perceived responsiveness. For avoidant attachment, we found the latter of these findings, indicating that an increase in avoidant attachment was linked to a lower average level of the target's perceived responsiveness. Both of these results align with previous findings (Shallcross et al., 2011), showing that insecure attachment may manifest in lower perceived responsiveness in the daily couple life. For avoidant attachment, we additionally found that a higher level of avoidant attachment was linked to a lower average level of self-disclosure, which is also in line with previous research (Bradford et al., 2002; Emery et al., 2018): Considering that self-disclosure relates to intimacy (Laurenceau, Barrett, & Pietromonaco, 1998) and that people high in avoidant attachment tend to feel uncomfortable with intimacy (Mikulincer & Shaver, 2007), it is unsurprising that self-disclosure reflects an uncomfortable undertaking for people high in avoidant attachment (Keelan et al., 1998).

As for (ii), the most consistent finding between relationship components' average levels and later relationship satisfaction emerged for positive expectations, signifying that higher average levels of positive expectations were related to an increase in relationship satisfaction. It has been argued that expectations function as part of self-fulfilling prophecies in social relationships (Jussim, 1991), which also applies to the context of a romantic relationship (e.g., Downey, Freitas, Michaelis, & Khouri, 1998): Positive expectations lead to more beneficial behaviors and consequently fuel more positive evaluations of the relationship,

as assessed by relationship satisfaction. Positive expectations as a cognitive relationship component may have been more consistently linked to relationship satisfaction than emotional or behavioral relationship components because expectations and relationship satisfaction are both cognitive-evaluative constructs and might therefore share overlapping grounds in their assessment. Future studies are encouraged to examine the link between relationship components and other aspects of relationship satisfaction, such as emotional, physical, spiritual, or intellectual relationship satisfaction (e.g., Taormina & Ho, 2012) to fully understand how relationship components are linked to change in relationship satisfaction.

Variability. Similar to the findings for the average levels, we did not find significant indirect effects for variability. In contrast to the findings for the average levels, we also did not find direct effects between interpersonal vulnerabilities and variability or between variability and relationship satisfaction. The lack of direct effects stands in contrast to previous research linking interpersonal vulnerabilities to variability of emotion, cognition, and behavior (e.g., Geukes, Nestler, Hutteman, Küfner, et al., 2017; Lee & Gillath, 2016; Neff & Karney, 2009; Wei et al., 2005). Our findings, however, align with previous research indicating that variability itself may have little unique power to predict outcomes beyond the impact of average levels (Gerstorf et al., 2009). Hence, future research is encouraged to test how the average levels and variability of relationship components interact with each other in predicting outcomes, such as relationship satisfaction (see also Baird, Le, & Lucas, 2006; Carstensen et al., 2000; Gerstorf et al., 2009; Salthouse, Siedlecki, & Krueger, 2006). Applied to the context of a romantic relationship, variability in low average levels of a relationship component might be interpreted as positive, because it indicates attempts to respond to the partner. Variability in high average levels of a relationship component, however, might be negatively interpreted, because it reflects a deviation from the positive and may, therefore, be unsettling. As such, we await future research testing both the unique and interactive effects of

average levels and variability of daily relationship components on change in relationship satisfaction. So far, based on the present findings, we conclude that variability of relationship components is neither disadvantageous nor beneficial for romantic relationships.

Socialization Effects

In line with previous research (e.g., Davila et al., 1999; Mund et al., 2015; Mund & Neyer, 2014; Neyer & Asendorpf, 2001; Robins et al., 2002), we found that a lower level of relationship satisfaction was linked to an increase in the target's avoidant attachment and to an increase in the partner's anxious attachment across 6 months. Again, it was contrary to our prediction that we found no significant effects for neuroticism and low self-esteem. A possible reason why we found effects for insecure attachment but no effects for neuroticism and low self-esteem might be the conceptual proximity between insecure attachment and relationship satisfaction, meaning that insecure attachment and ratings of relationship satisfaction may overlap conceptually. However, in our models we included insecure attachment and relationship satisfaction and their residual variance at each measurement occasion, which should have statistically controlled their conceptual overlap in the found effects.

So far, we conclude from the present findings that relationship satisfaction as domain-specific satisfaction may fuel intra- and interpersonal change in insecure attachment; a finding that adds to the theoretical discussion of well-being acting as a catalyst for personality development (Fetvadjiev & He, 2018; Soto, 2015; Specht, Egloff, & Schmukle, 2013). Future research is needed to examine other aspects of domain-specific satisfaction, such as work satisfaction, as promoters of romantic partners' personality development.

Mediation. To better understand the above socialization effects, we tested relationship components as mediators. Again, we considered their average levels and variability across a 14-day diary phase.

Average levels. As for the average levels, we found significant (i) direct links between relationship satisfaction and the average levels, (ii) direct links between the average levels and later interpersonal vulnerabilities, and (iii) indirect effects.

As for (i), a higher level of and an increase in relationship satisfaction were linked to the target's higher average levels of perceived responsiveness, positive expectations, and self-disclosure. In addition, an increase in relationship satisfaction was linked to the partner's higher average levels of perceived responsiveness and positive expectations. These findings suggest that couple members' daily emotion, cognition, and behavior are closely tied to how satisfied couple members are with their relationship (i.e., level), and how satisfied they have become (i.e., change).

As for (ii), significant effects between the average levels and later interpersonal vulnerabilities were observed for perceived responsiveness and avoidant attachment as well as for positive expectations and avoidant attachment: Targets who reported higher average levels of perceived responsiveness and positive expectations decreased in their avoidant attachment.

As for (iii), the above average levels of perceived responsiveness and positive expectations acted as mediators in the link between relationship satisfaction (i.e., level and increase) and the decrease in avoidant attachment. These results are in line with previous research (Zhang & Labouvie-Vief, 2004) in that insecure attachment, compared to personality traits, is more strongly shaped by relational experiences. We think it is likely that more satisfied people both perceive their partners as more responsive and hold more positive expectations toward their partners. These higher average levels may help the target to see the partner as a safe haven in times of need (Mikulincer & Shaver, 2007), which ultimately decreases avoidant attachment in targets. The observed indirect effects for avoidant attachment were exclusively intrapersonal, which indicates that the mechanism through which relationship satisfaction predicted change in avoidant attachment occurred through a person's

own emotions and cognitions rather than through the partner's emotions, cognitions, or behaviors.

To maintain personality changes, such as change in avoidant attachment, people need to embed their newly developed patterns in repeated daily situations and daily experiences (Wrzus & Roberts, 2017). Here, frequently recurring relationship experiences might be a promising target because they are identifiable and potentially habitual, offering a favorable catalyst for change (Hennecke, Bleidorn, Denissen, & Wood, 2014; Wrzus & Roberts, 2017). From the present findings, we conclude that the daily life of a romantic relationship can serve as a context through which surface characteristics, as found in this study (i.e., avoidant attachment), and core characteristics, as found in other studies (see also Finn, Mitte, & Neyer, 2015) may change.

Variability. Similar to the findings for selection effects, it was also for socialization effects that we found no significant indirect effects for variability. In contrast to the findings for selection effects, we found a direct effect between relationship satisfaction (i.e., level and increase) and variability of perceived responsiveness and positive expectations. This variability, however, was not predictive of changes in interpersonal vulnerabilities, which is in contrast to our prediction that variability could guide a person's self-perception over time through reflective processes (Wrzus & Roberts, 2017) and thereby change interpersonal vulnerabilities.

A General Note on Partner Effects

It was for anxious attachment that we found partner effects in selection and socialization effects: Lower levels of anxious attachment were tied to an increase in the partner's relationship satisfaction, and a higher level of relationship satisfaction was tied to a decrease in the partner's anxious attachment. Given that no other partner effect emerged for selection and socialization effects, this finding highlights the interpersonal susceptibility of anxious attachment for both couple members. On the one hand, anxious attachment links to

interpersonal detriments (e.g., Overall, Girme, & Hammond, 2014). On the other hand, the susceptibility of anxious attachment might be explained by the dyadic regulation model of insecurity buffering (Simpson & Overall, 2014): More satisfied partners may buffer the targets' insecurities, which results in a decrease in anxious attachment over time. A decrease in anxious attachment, in turn, may increase both partners' relationship satisfaction, which makes these transactions a virtuous cycle for both couple members.

In terms of relationship components, partners of targets with low self-esteem reported lower average levels of positive expectations. These lower expectations might result from the negative perceptions that targets with low self-esteem hold of their partners (S. L. Murray, Rose, Bellavia, Holmes, & Kusche, 2002). Given that no other partner effect on relationship components emerged, low self-esteem can be understood as the interpersonal vulnerability that is most closely tied to the other partner's daily cognitions.

The Lack of Finding Long-Term Level-Change and Change-Change Effects

As described, we found selection and socialization effects on a short-term level-change basis, but not on a long-term level-change or a change-change basis. Finding significant long-term level-change effects might have been less likely in our analyses because, in our models, we simultaneously considered short-term and long-term level-change effects, and average-level and variability factors as mediators. Similarly, we see at least two possible reasons why we found no change-change effects. First, a study period of 12 months with intervals of 4-6 months between the measurement occasions to operationalize change in the predictor and the criterion might have been too short to detect any changes. Given that the stabilities of interpersonal vulnerabilities ($r = .50-.84$) and relationship satisfaction ($r = .72-.82$) were rather high and the mean-level changes were rather low ($d = -.07-.21$ for interpersonal vulnerabilities and $d = .05-.26$ for relationship satisfaction) between measurement occasions, it might have been unlikely to find more pronounced changes in

these variables. It is possible that longer time intervals might reveal change-changes effects, as were found by Mund and Neyer (2014) over a period of 15 years.

Second, little was known about the life circumstances of the participating couples. Based on the Vulnerability–Stress–Adaptation model (Karney & Bradbury, 1995), it is reasonable to assume that important life transitions (such as marriage, childbirth, or unemployment) represent phases in which interpersonal vulnerabilities are more likely to shape partners' relationship satisfaction, and vice versa. During stressful times, couple members with interpersonal vulnerabilities as well as unsatisfied couple members might lack the appropriate adaptive relationship skills to cope with the challenges. Such a lack might, eventually, result in a decrease in relationship satisfaction and in increases in interpersonal vulnerabilities. In less stressful times, however, the transactional link between interpersonal vulnerabilities and relationship satisfaction might have stabilized at a plateau, implying that changes are less likely to occur. Hence, a promising avenue for future research would be to examine external stressors and the life-transitional aspects that might potentially moderate personality–relationship transactions.

Strengths, Limitations, and Outlook

This study has several strengths. First, from a theoretical and methodological standpoint, our study is unique in that (i) personality–relationship transactions were conceptualized in terms of short-term level-change, long-term level-change, and change-change effects, (ii) three daily relationship components were separately tested as mediators for selection and socialization effects, and (iii) each component's average level and variability were simultaneously included in the model. Specifically, we examined these transactions in mediated dyadic bivariate latent change score models, which incorporated latent (change) factors that allowed us to compute effects free from measurement error.

Second, our sample was comprised of 689 couples aged from 18 to 81 years, recruited from both a student community and a broader community, and therefore reflects a relatively

heterogeneous sample in terms of age, relationship duration, marital status, and parental status. In addition, both members of each couple were involved in the study and reported on a daily basis how they experienced their relationship. These online-based questionnaires allowed us to reach participants beyond the immediate geographic location of the study base with couples participating from three German-speaking countries (i.e., Austria, Germany, and Switzerland). These sample characteristics strengthen the generalizability of the results.

Third, we included individual characteristics on a dimension from core characteristics (i.e., neuroticism) to surface characteristics (i.e., low self-esteem and insecure attachment) (Asendorpf & van Aken, 2003). This broad conceptualization provided us with a more comprehensive view on selection and socialization effects, and allowed us to examine whether personality–relationship transactions are differently manifested in core and surface characteristics.

Despite these strengths, certain limitations need to be addressed. First, given that this study was an internet-based investigation, participants were required to have a certain level of computer expertise, which might have limited our sample (Poynton, 2005). To reach populations that are less comfortable with computers, future studies might include a training and/or testing phase for people (of any age) who are less familiar with using a computer and/or tablet.

Second, we focused on one interpersonal vulnerability per model. Even though our sample size was large, the amount of effects tested in a single comprehensive model would have led to less reliable estimates. Focusing on one interpersonal vulnerability allowed us to reduce the complexity of the models, and to focus on what was central to our rationale: testing the mediators of level-change and change-change transactions in couples. Future studies with even larger samples and other research questions might include all interpersonal vulnerabilities in one model to obtain the unique contribution of the respective vulnerability (see for example, Geukes, Nestler, Hutteman, Dufner, et al., 2017).

Third, in our statistical model, there was a temporal overlap between the respective latent change factors and the relationship components. The reason for this is that our modeling of the latent change factors included T2 as the measurement occasion, during which the relationship components were also assessed. However, given that the stabilities of the interpersonal vulnerabilities and relationship satisfaction were high, we do not expect the temporal overlap to meaningfully affect our results.

Fourth, this study relied on self-report measures, which implies that associations between variables might be confounded by the source of information (Bank, Dishion, Skinner, & Patterson, 1990). To address the issues associated with shared method variance, prospective studies might add partner-reports or observational data to self-report measures. For instance, couple members might be video recorded during an act of self-disclosure to investigate both partners' concrete behavior as a self-disclosing or listening person in a couple conversation.

Fifth, our data did not allow us to link interpersonal vulnerabilities, relationship components, and relationship satisfaction to external circumstances, life events, or demands in the everyday life of couple members (Bronfenbrenner, 1994; Karney & Bradbury, 2005; McNulty, 2016). Similarly, our 14-day diary phase for testing relationship components represented a snapshot of the couple's daily life. To gain a more generalizable picture of the couple's daily life, relationship components might be considered and aggregated across multiple intervals. Such an undertaking would help future researchers to address the moderating aspects of external factors on personality–relationship transactions and their mediators in couples.

Sixth, aside from testing predictors and outcomes of variability, it would be worthwhile to investigate the concept of variability per se. For instance, as people have different conceptions of subjective well-being (Ryff, 1989), they also have different conceptions of relational well-being (Kurdek, 1992). While for some people variability of

relationship components might be indicative of an alive and dynamic relationship, for others daily variability might be indicative of subliminal relationship difficulties. Future studies are encouraged to test how these individual conceptions of relational well-being moderate the associations between variability of relationship components and relationship satisfaction.

Finally, from each relationship component, we focused on one aspect even though other relevant aspects exist (e.g., Baucom, Epstein, Sayers, & Sher, 1989; Girme, Overall, Simpson, & Fletcher, 2015; Lavee & Ben-Ari, 2004), and potentially interact with each other (e.g., Vangelisti, 2002). Expanding the present hypotheses to different aspects within the same relationship-component category and to other categories likely enhances the generalizability of the findings and provides insights into the specificity of each relationship component.

Conclusion

Franz Kafka described love as a road trip shared by passengers. In the present study, we sought to add to the understanding of why some couple members travel a fairly smooth journey, whereas others experience bumps in the road. To that aim, we examined mediators of level-change and change-change effects in personality–relationship transactions: In terms of selection effects, we found that people with low self-esteem and insecure attachment experienced lower average levels of beneficial daily relationship components, but not, as predicted, higher variability. Contrary to our prediction, neither the average levels nor the variability of the relationship components mediated the found selection effects. In terms of socialization effects, as predicted, we found that people who were less satisfied with their relationship experienced lower average levels and more variability of the beneficial relationship components. As for the mediations, we found the average levels (but not the variability) to mediate the socialization effects with avoidant attachment.

We close with three key lessons learned from the present study. First, the present findings speak more to the relevance of the relationship components' average levels for

personality–relationship transactions than to the relevance of the relationship components' variability. Second, for predicting these average levels, relationship satisfaction tends to be more central than interpersonal vulnerabilities. Third, avoidant attachment seems to be the interpersonal vulnerability that is most susceptible to change through the couple's daily life; a finding that ascribes romantic relationships a central role in adult attachment development.

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Footnotes

- 1 In the following, we use the term *interpersonal vulnerabilities* based on McNulty (2016, p. 278) when we refer to neuroticism, low self-esteem, anxious attachment, and avoidant attachment as personality characteristics that have been found to be related to lower relationship satisfaction.
- 2 We wish to note that the distinction between emotions, cognitions, and behaviors is warranted for organizational reasons. Within the dynamic of a romantic relationship, emotions, cognitions, and behaviors are closely tied (e.g., Schoebi, Perrez, & Bradbury, 2012) and should be understood as interconnected process chains (Back & Vazire, 2015).
- 3 We use these terms to simplify and structure the complexity of the effects tested. In line with previous conceptualizations (Mund, Finn, Hagemeyer, & Neyer, 2016; Neyer et al., 2014), we refer to selection effects for all effects that occur from (actor and partner) self-rated interpersonal vulnerabilities on (actor and partner) self-rated relationship components or relationship satisfaction. We refer to socialization effects for all effects that occur from (actor and partner) self-rated relationship components or relationship satisfaction to (actor and partner) self-rated interpersonal vulnerabilities.
- 4 Even though attachment has been conceptualized in a categorical fashion (Bartholomew, 1997), recent research has substantiated the dimensional approach as better suited to describe interindividual differences in adult attachment (Fraley et al., 2015). We therefore adhere to the dimensional approach of adult attachment.
- 5 At the time of submission, two other papers that used data from the CouPers study are under review for publication. None of these papers used the emotional, cognitive, and behavioral relationship components investigated in the present paper.
- 6 Of the 1,378 participants whose data were used for the current study, 564 were recruited through Facebook (i.e., Facebook sample), 531 through other channels (i.e.,

non-Facebook sample), while, for the remaining 283 participants, we do not have data about how they learned of the study. The Facebook and non-Facebook samples were significantly different in terms of age, relationship duration, income, marital status, and parenthood status. Participants from the Facebook sample were significantly younger ($M = 29.70$ vs. $M = 37.72$ years, $t[1092] = -9.46$, $p < .001$, $|d| = .57$), reported shorter relationship durations ($M = 6.91$ years vs. $M = 12.35$ years, $t[1046] = -7.96$, $p < .001$, $|d| = .49$), and had a significantly lower income than the participants from the non-Facebook sample ($z = -6.92$, $p < .001$). The Facebook and the non-Facebook samples also differed in their marital status ($\chi^2 [1] = 15.79$, $p < .001$) in that participants from the Facebook sample were more likely to be unmarried (63.65% vs. 51.79%). Finally, participants from the Facebook-sample were less likely to have children (23.94% vs. 37.85%, $\chi^2 [1] = 24.91$, $p < .001$).

- 7 Although not in the scope of the present study, please note that participants were allowed to remain in the CouPers study if they separated from their partner, if they entered a new relationship, or if their partner withdrew from the study.
- 8 Please note that due to our monthly-cohort design, in which some cohorts were consolidated in later waves, the time interval between measurement occasions ranged from 4 to 6 months.
- 9 Given the considerable variation in couples' relationship duration, we examined the correlations between relationship duration and the study's variables (see Table S10), and controlled for relationship duration in the analyses.
- 10 The authors embrace an open, transparent, and reproducible data-analysis approach: We uploaded a comprehensive overview of all variables assessed in the CouPers study and an example data-analysis script on the Open Science Framework (OSF) (accessible through <https://osf.io/hxka2/>). In terms of sharing our data, however, we must be more circumspect, for the following reasons: Given that relationship duration is included in

the data set and that this is a strongly identifiable variable, openly sharing our data might enable participants to find their own and their partner's data. Hence, we will upload our dataset to FORSbase (the Swiss Center for Expertise in the social science; <https://forsbase.unil.ch>) upon publication. On FORSbase, researchers can register and request access to our data. This allows us to handle the delicate undertaking of sharing couple data, while not compromising our confidentiality towards our participants (see also Finkel, Eastwick, & Reis, 2015).

- 11 Of 12 dyadic bivariate latent change score models tested, the model fits were in the good to acceptable range. In three models, the CFI was below .95. In these models, however, neither the RMSEA nor the SRMR were outside the acceptable model fit range (see Table S5). In the three models with self-disclosure as mediator, the variance of the second parcel of male partners had a negative value close to zero, and was therefore set to zero, leading to an additional degree of freedom (*df*). In addition, in the model with avoidant attachment and self-disclosure, the variance of the second parcel of female partners also had a negative value close to zero, which was set to zero, leading to an additional *df*.
- 12 Given that the chi-square test to compare two models (i.e., the constrained model against the unconstrained model) is sensitive to large sample sizes, we followed the recommendation given by MacCallum, Browne, and Cai (2006) and used the test of small difference in fit.

Table 1

Means and Standard Deviations of the Study Variables for Women and Men

Measure	Women		Men		<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Interpersonal vulnerability					
Neuroticism T1	3.13	.75	2.55	.70	.54
Neuroticism T2	3.10	.77	2.53	.70	.53
Neuroticism T3	3.07	.79	2.51	.71	.50
Low self-esteem T1	1.81	.59	1.67	.51	.20
Low self-esteem T2	1.75	.57	1.62	.52	.18
Low self-esteem T3	1.73	.57	1.60	.50	.17
Anxious attachment T1	2.30	1.30	2.13	1.18	.11
Anxious attachment T2	2.28	1.25	2.18	1.19	.07
Anxious attachment T3	2.13	1.27	2.17	1.22	-.03
Avoidant attachment T1	1.96	.89	2.16	.91	-.18
Avoidant attachment T2	1.97	.92	2.20	.92	-.22
Avoidant attachment T3	1.91	.91	2.17	.92	-.24
Relationship outcome					
Relationship satisfaction T1	4.39	.53	4.34	.53	.10
Relationship satisfaction T2	4.35	.56	4.27	.57	.16
Relationship satisfaction T3	4.33	.60	4.26	.61	.15
Relationship components T2					
Average level					
Perceived responsiveness	3.92	.67	3.87	.64	.09
Positive expectations	4.10	.62	4.00	.64	.15
Self-disclosure	3.39	.64	3.34	.67	.08
Variability					
Perceived responsiveness	.72	.31	.68	.31	.11
Positive expectations	.59	.29	.59	.30	.002
Self-disclosure	.91	.31	.83	.30	.21

Note. Cohen's *d* denotes the standardized mean-level difference between both partners' measures, it represents Cohen's *d* for paired samples. Significant mean differences ($p < .01$) are displayed in bold.

Table 2

Standardized Mean-Level Difference and Stability of Interpersonal Vulnerabilities and Relationship Satisfaction for Women and Men

Measure	Mean-level difference						Stability					
	Women			Men			Women			Men		
	d_{12}	d_{23}	d_{13}	d_{12}	d_{23}	d_{13}	r_{12}	r_{23}	r_{13}	r_{12}	r_{23}	r_{13}
Interpersonal vulnerability												
Neuroticism	.06	.08	.14	.03	.02	.06	.82	.84	.82	.77	.81	.78
Low self-esteem	.18	.07	.21	.10	.03	.12	.84	.83	.80	.74	.78	.72
Anxious attachment	.02	.08	.09	-.05	-.02	-.02	.68	.67	.63	.56	.62	.59
Avoidant attachment	-.01	.06	.05	-.05	-.02	-.07	.53	.62	.54	.58	.61	.50
Relationship outcome												
Relationship satisfaction	.16	.05	.16	.20	.08	.26	.82	.82	.74	.78	.78	.72

Note. Cohen's d denotes the standardized mean-level difference, it represents Cohen's d for paired samples. Significant mean differences ($p < .01$) between measurement occasions are displayed in bold. r reflects the test-retest correlation between measurement occasions. Significant correlations ($p < .01$) are shown in bold.

Table 3

Actor and Partner Effects for Selection and Socialization Effects Between Interpersonal Vulnerabilities (Neuroticism, Low Self-Esteem, Anxious Attachment, and Avoidant Attachment) and Relationship Satisfaction

Model	Selection and socialization effects																
	Level-change effects						Change-change effects										
	Short-term			Long-term			Actor			Partner							
	<i>b</i>	99% CI		<i>b</i>	99% CI		<i>b</i>	99% CI		<i>b</i>	99% CI						
Neuroticism																	
Responsiveness	-.03	[-.07, .01]		-.01	[-.05, .02]		.03	[-.03, .09]		-.01	[-.06, .04]		-.03	[-.14, .07]		-.03	[-.13, .08]
Positive expectations	-.03	[-.07, .01]		-.01	[-.05, .02]		.02	[-.04, .08]		-.01	[-.06, .04]		-.04	[-.15, .07]		-.03	[-.13, .07]
Self-disclosure	-.03	[-.07, .01]		-.01	[-.05, .02]		.02	[-.03, .08]		-.01	[-.06, .04]		-.03	[-.13, .07]		-.02	[-.12, .08]
Low self-esteem																	
Responsiveness	-.03	[-.07, .01]		-.02	[-.06, .02]		.01	[-.06, .07]		.00	[-.06, .06]		.02	[-.09, .13]		-.01	[-.10, .08]
Positive expectations	-.03	[-.07, .01]		-.02	[-.06, .02]		.00	[-.06, .06]		.01	[-.05, .07]		.02	[-.09, .12]		-.01	[-.10, .08]
Self-disclosure	-.03	[-.07, .01]		-.02	[-.06, .02]		.00	[-.06, .06]		.01	[-.05, .07]		.01	[-.09, .12]		-.01	[-.10, .08]
Anxious attachment																	
Responsiveness	-.04	[-.08, .01]		-.04	[-.08, -.003]		.01	[-.05, .06]		.02	[-.04, .07]		.01	[-.08, .11]		.02	[-.06, .10]
Positive expectations	-.03	[-.08, .01]		-.05	[-.09, -.01]		.00	[-.06, .05]		.02	[-.04, .07]		.00	[-.09, .09]		.02	[-.06, .10]
Self-disclosure	-.04	[-.08, .01]		-.05	[-.09, -.01]		-.01	[-.07, .04]		.01	[-.05, .06]		-.01	[-.10, .09]		.01	[-.07, .09]
Avoidant attachment																	
Responsiveness	-.14	[-.21, -.07]		-.04	[-.10, .02]		.08	[-.03, .19]		.00	[-.09, .09]		.03	[-.11, .17]		.01	[-.09, .11]
Positive expectations	-.14	[-.21, -.07]		-.04	[-.10, .02]		.08	[-.03, .18]		.00	[-.09, .09]		.02	[-.12, .16]		.01	[-.09, .11]
Self-disclosure	-.14	[-.22, -.07]		-.04	[-.10, .02]		.06	[-.05, .16]		-.01	[-.10, .08]		.01	[-.13, .15]		.00	[-.10, .10]

Note. Short-term level-change effects denote effects of a level at T1 on a change between T1 and T2 and of level at T2 on a change between T2 and T3. Long-term level-change effects denote effects of a level at T1 on a change between T2 and T3. Change-change effects denote effects of a change between T1 and T2 on a change between T2 and T3. Significant effects ($p < .01$) are shown in bold.

Table 4

Direct Actor and Partner Effects for Selection Effects Between Interpersonal Vulnerabilities (Neuroticism, Low Self-Esteem, Anxious Attachment, and Avoidant Attachment), Average Levels of Relationship Components (Perceived Responsiveness, Positive Expectations, and Self-Disclosure), and Change in Relationship Satisfaction

Model	Selection effects											
	Level of vulnerability → Average level relationship component				Change in vulnerability → Average level relationship component				Average level relationship component → Change in satisfaction			
	Actor		Partner		Actor		Partner		Actor		Partner	
	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI
Neuroticism												
Responsiveness	-.01	[-.06, .04]	.02	[-.04, .07]	-.09	[-.27, .08]	-.02	[-.20, .16]	.03	[-.05, .11]	.00	[-.07, .07]
Positive expectations	-.02	[-.08, .05]	-.07	[-.14, .01]	-.21	[-.42, .004]	-.23	[-.46, -.004]	.05	[-.03, .12]	.01	[-.05, .08]
Self-disclosure	.02	[-.04, .08]	.04	[-.02, .09]	.04	[-.15, .24]	.01	[-.19, .20]	-.01	[-.07, .05]	.00	[-.06, .06]
Low self-esteem												
Responsiveness	-.11	[-.19, -.04]	.02	[-.05, .09]	-.02	[-.21, .17]	-.02	[-.20, .16]	.06	[-.02, .14]	-.02	[-.09, .05]
Positive expectations	-.04	[-.14, .05]	-.10	[-.19, -.01]	-.07	[-.30, .17]	-.08	[-.30, .15]	.08	[.01, .15]	.00	[-.07, .06]
Self-disclosure	-.04	[-.12, .03]	.04	[-.03, .11]	-.01	[-.19, .17]	.05	[-.14, .24]	.01	[-.05, .07]	-.01	[-.07, .04]
Anxious attachment												
Responsiveness	-.09	[-.14, -.03]	.01	[-.05, .06]	-.09	[-.17, -.01]	-.04	[-.13, .04]	.09	[.002, .18]	.02	[-.05, .10]
Positive expectations	-.05	[-.12, .02]	-.01	[-.07, .06]	-.03	[-.12, .07]	-.01	[-.11, .08]	.09	[.01, .17]	.03	[-.04, .10]
Self-disclosure	.00	[-.06, .06]	-.02	[-.08, .04]	.02	[-.07, .10]	-.04	[-.12, .04]	.01	[-.05, .07]	.00	[-.06, .06]
Avoidant attachment												
Responsiveness	-.11	[-.21, .003]	.02	[-.08, .12]	-.17	[-.28, -.06]	-.03	[-.13, .07]	.06	[-.04, .16]	.01	[-.07, .09]
Positive expectations	-.05	[-.19, .09]	.00	[-.13, .12]	-.11	[-.25, .02]	-.01	[-.13, .10]	.07	[-.02, .15]	.02	[-.05, .09]
Self-disclosure	-.13	[-.25, -.01]	-.04	[-.14, .06]	-.11	[-.22, .01]	-.05	[-.15, .05]	-.02	[-.08, .04]	-.01	[-.07, .05]

Note. The level of vulnerability stems from T1 and the average level of the relationship component stems from T2; change in vulnerability refers to changes between T1 and T2, and change in satisfaction refers to changes between T2 and T3. Significant effects ($p < .01$) are shown in bold.

Table 5

Direct Actor and Partner Effects for Selection Effects Between Interpersonal Vulnerabilities (Neuroticism, Low Self-Esteem, Anxious Attachment, and Avoidant Attachment), Variability of Relationship Components (Perceived Responsiveness, Positive Expectations, and Self-Disclosure), and Change in Relationship Satisfaction

Model	Selection effects											
	Level of vulnerability →				Change in vulnerability →				Variability relationship component →			
	Variability relationship component		Variability relationship component		Variability relationship component		Change in satisfaction		Change in satisfaction		Change in satisfaction	
	Actor		Partner		Actor		Partner		Actor		Partner	
	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI
Neuroticism												
Responsiveness	.02	[-.01, .06]	.01	[-.03, .05]	.07	[-.04, .18]	.05	[-.06, .16]	.00	[-.13, .14]	-0.02	[-.15, .11]
Positive expectations	.02	[-.02, .05]	.03	[-.01, .06]	.05	[-.06, .15]	.09	[-.01, .18]	.11	[-.05, .27]	.05	[-.11, .22]
Self-disclosure	.01	[-.02, .04]	-0.01	[-.04, .02]	-0.03	[-.13, .07]	-0.03	[-.12, .07]	.02	[-.10, .14]	-0.01	[-.13, .11]
Low self-esteem												
Responsiveness	.02	[-.03, .07]	-0.02	[-.07, .03]	-0.05	[-.16, .06]	.04	[-.06, .14]	.01	[-.13, .14]	-0.04	[-.17, .09]
Positive expectations	.01	[-.03, .06]	.00	[-.04, .05]	-0.01	[-.12, .09]	.05	[-.05, .15]	.12	[-.04, .29]	.02	[-.15, .18]
Self-disclosure	-0.02	[-.06, .02]	-0.04	[-.08, .004]	.02	[-.08, .11]	.01	[-.09, .11]	.03	[-.09, .15]	-0.03	[-.15, .09]
Anxious attachment												
Responsiveness	.01	[-.02, .05]	-0.01	[-.04, .03]	.01	[-.03, .06]	.01	[-.04, .06]	.01	[-.13, .14]	-0.03	[-.16, .10]
Positive expectations	.02	[-.02, .05]	-0.01	[-.04, .03]	.02	[-.02, .07]	.00	[-.05, .04]	.11	[-.05, .27]	.02	[-.14, .19]
Self-disclosure	-0.01	[-.04, .02]	-0.01	[-.04, .02]	.00	[-.04, .04]	-0.03	[-.07, .02]	.02	[-.10, .14]	-0.03	[-.15, .10]
Avoidant attachment												
Responsiveness	.02	[-.04, .08]	-0.05	[-.11, .01]	.05	[-.01, .11]	.00	[-.07, .07]	.00	[-.14, .14]	-0.03	[-.16, .10]
Positive expectations	-0.01	[-.07, .05]	.00	[-.06, .06]	.03	[-.04, .09]	.04	[-.02, .11]	.10	[-.07, .26]	.04	[-.12, .20]
Self-disclosure	-0.02	[-.07, .04]	-0.02	[-.07, .04]	.01	[-.05, .06]	-0.01	[-.06, .05]	.00	[-.12, .12]	-0.04	[-.16, .08]

Note. The level of vulnerability stems from T1 and the variability of the relationship component stems from T2; change in vulnerability refers to changes between T1 and T2, and change in satisfaction refers to changes between T2 and T3. Significant effects ($p < .01$) are shown in bold.

Table 6

Direct Actor and Partner Effects for Socialization Effects Between Relationship Satisfaction, Average Levels of Relationship Components (Perceived Responsiveness, Positive Expectations, and Self-Disclosure), and Change in Interpersonal Vulnerabilities (Neuroticism, Low Self-Esteem, Anxious Attachment, and Avoidant Attachment)

Model	Socialization effects											
	Level of satisfaction → Average level relationship component				Change in satisfaction → Average level relationship component				Average level relationship component → Change in vulnerability			
	Actor		Partner		Actor		Partner		Actor		Partner	
	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI
Neuroticism												
Responsiveness	.82	[.72, .92]	.06	[-.03, .14]	.80	[.63, .97]	.22	[.05, .38]	-.04	[-.11, .03]	.00	[-.07, .06]
Positive expectations	.71	[.59, .82]	.05	[-.06, .15]	.63	[.44, .83]	.27	[.08, .46]	-.03	[-.11, .05]	.01	[-.06, .08]
Self-disclosure	.41	[.31, .50]	-.01	[-.11, .08]	.35	[.19, .50]	.07	[-.09, .23]	-.03	[-.09, .04]	.00	[-.06, .06]
Low self-esteem												
Responsiveness	.79	[.69, .89]	.06	[-.03, .15]	.79	[.63, .96]	.22	[.05, .38]	-.03	[-.08, .03]	.00	[-.05, .06]
Positive expectations	.70	[.59, .82]	.04	[-.06, .15]	.62	[.43, .82]	.27	[.08, .46]	-.03	[-.09, .03]	.01	[-.05, .07]
Self-disclosure	.38	[.28, .48]	-.01	[-.10, .08]	.34	[.18, .49]	.08	[-.08, .24]	-.02	[-.07, .04]	.01	[-.04, .05]
Anxious attachment												
Responsiveness	.79	[.68, .89]	.03	[-.07, .12]	.77	[.61, .93]	.17	[.01, .33]	-.13	[-.28, .02]	-.03	[-.19, .12]
Positive expectations	.70	[.57, .82]	.05	[-.06, .17]	.63	[.44, .81]	.24	[.06, .43]	-.13	[-.26, .004]	.00	[-.14, .14]
Self-disclosure	.40	[.29, .50]	-.04	[-.14, .06]	.35	[.20, .50]	.05	[-.11, .21]	-.07	[-.19, .04]	.09	[-.03, .21]
Avoidant attachment												
Responsiveness	.73	[.58, .87]	.07	[-.07, .20]	.71	[.54, .88]	.19	[.02, .35]	-.14	[-.27, -.02]	.03	[-.08, .14]
Positive expectations	.68	[.50, .86]	.06	[-.09, .22]	.57	[.37, .77]	.24	[.04, .43]	-.14	[-.26, -.03]	.06	[-.05, .16]
Self-disclosure	.27	[.13, .42]	-.07	[-.20, .07]	.28	[.12, .44]	.02	[-.14, .18]	-.05	[-.14, .05]	.05	[-.04, .13]

Note. The level of satisfaction stems from T1 and the average level of the relationship component stems from T2; change in satisfaction refers to changes between T1 and T2, and change in vulnerability refers to changes between T2 and T3. Significant effects ($p < .01$) are shown in bold.

Table 7

Direct Actor and Partner Effects for Socialization Effects Between Relationship Satisfaction, Variability of Relationship Components (Perceived Responsiveness, Positive Expectations, and Self-Disclosure), and Change in Interpersonal Vulnerabilities (Neuroticism, Low Self-Esteem, Anxious Attachment, and Avoidant Attachment)

Model	Socialization effects											
	Level of satisfaction → Variability relationship component				Change in satisfaction → Variability relationship component				Variability relationship component → Change in vulnerability			
	Actor		Partner		Actor		Partner		Actor		Partner	
	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI	<i>b</i>	99% CI
Neuroticism												
Responsiveness	-.13	[-.19, -.07]	-.03	[-.09, .03]	-.17	[-.27, -.06]	-.10	[-.21, .01]	-.01	[-.14, .13]	-.11	[-.24, .02]
Positive expectations	-.12	[-.18, -.07]	-.03	[-.08, .03]	-.15	[-.24, -.06]	-.09	[-.19, .02]	-.02	[-.22, .18]	-.08	[-.26, .09]
Self-disclosure	-.01	[-.06, .04]	-.04	[-.08, .01]	-.03	[-.11, .05]	-.08	[-.17, .01]	.02	[-.13, .17]	.03	[-.11, .18]
Low self-esteem												
Responsiveness	-.14	[-.19, -.08]	-.04	[-.11, .02]	-.18	[-.28, -.08]	-.09	[-.21, .02]	-.03	[-.14, .07]	.00	[-.10, .10]
Positive expectations	-.12	[-.18, -.07]	-.04	[-.09, .02]	-.16	[-.25, -.07]	-.07	[-.18, .03]	-.06	[-.21, .09]	.06	[-.09, .20]
Self-disclosure	-.02	[-.06, .03]	-.05	[-.09, .002]	-.03	[-.10, .05]	-.07	[-.16, .02]	-.04	[-.16, .07]	.04	[-.06, .15]
Anxious attachment												
Responsiveness	-.14	[-.20, -.08]	-.04	[-.10, .03]	-.16	[-.26, -.07]	-.09	[-.20, .02]	.08	[-.17, .34]	-.06	[-.33, .22]
Positive expectations	-.12	[-.18, -.07]	-.04	[-.10, .02]	-.15	[-.24, -.06]	-.08	[-.18, .02]	.03	[-.32, .37]	.02	[-.33, .37]
Self-disclosure	-.01	[-.06, .04]	-.05	[-.10, .01]	-.03	[-.11, .05]	-.09	[-.17, -.003]	.04	[-.22, .29]	.19	[-.06, .44]
Avoidant attachment												
Responsiveness	-.12	[-.21, -.04]	-.08	[-.16, .003]	-.15	[-.25, -.05]	-.11	[-.22, -.003]	-.11	[-.31, .09]	.08	[-.10, .27]
Positive expectations	-.14	[-.22, -.05]	-.04	[-.12, .04]	-.14	[-.23, -.05]	-.07	[-.17, .03]	-.21	[-.47, .04]	.20	[-.07, .46]
Self-disclosure	-.02	[-.09, .05]	-.05	[-.12, .02]	-.03	[-.12, .05]	-.09	[-.17, .002]	-.10	[-.29, .08]	.15	[-.05, .34]

Note. The level of satisfaction stems from T1 and the variability of the relationship component stems from T2; change in satisfaction refers to changes between T1 and T2, and change in vulnerability refers to changes between T2 and T3. Significant effects ($p < .01$) are shown in bold.

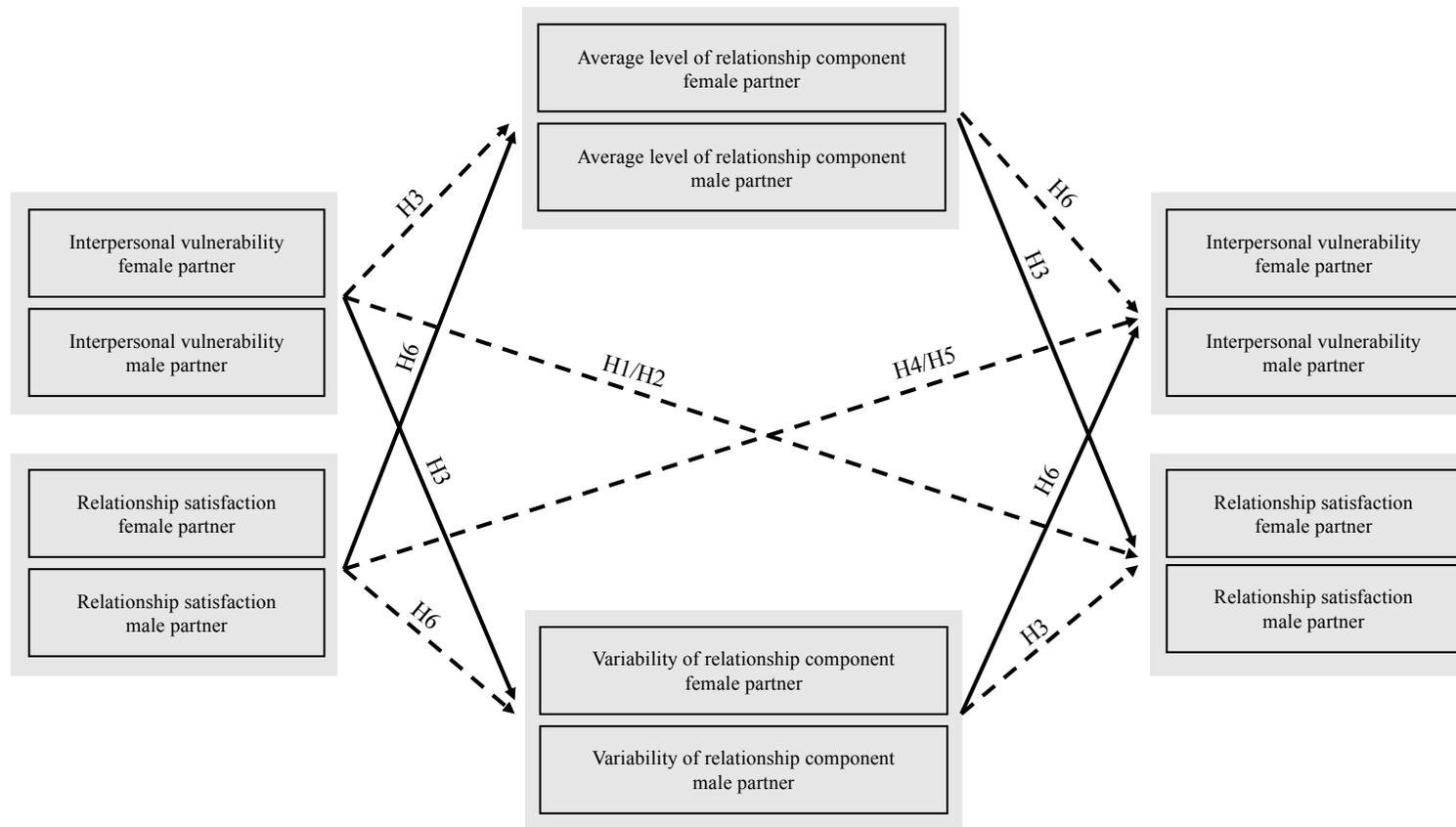


Figure 1. The rationale of the study. In each model tested, one interpersonal vulnerability (i.e., neuroticism, low self-esteem, anxious attachment, or avoidant attachment) was included together with the average levels and the variability of a relationship component (i.e., perceived responsiveness, positive expectations, or self-disclosure) and relationship satisfaction of both partners. Predicted positive effects are depicted by a solid line, predicted negative effects by a dashed line. Given that we do not expect actor and partner effects to differ in their direction, we only present actor effects. Please note that interpersonal vulnerability and relationship satisfaction as predictors (on the left side of the figure) are conceptualized as latent level and latent change factors, while interpersonal vulnerability and relationship satisfaction as criteria (on the right side of the figure) are conceptualized as latent change factors.

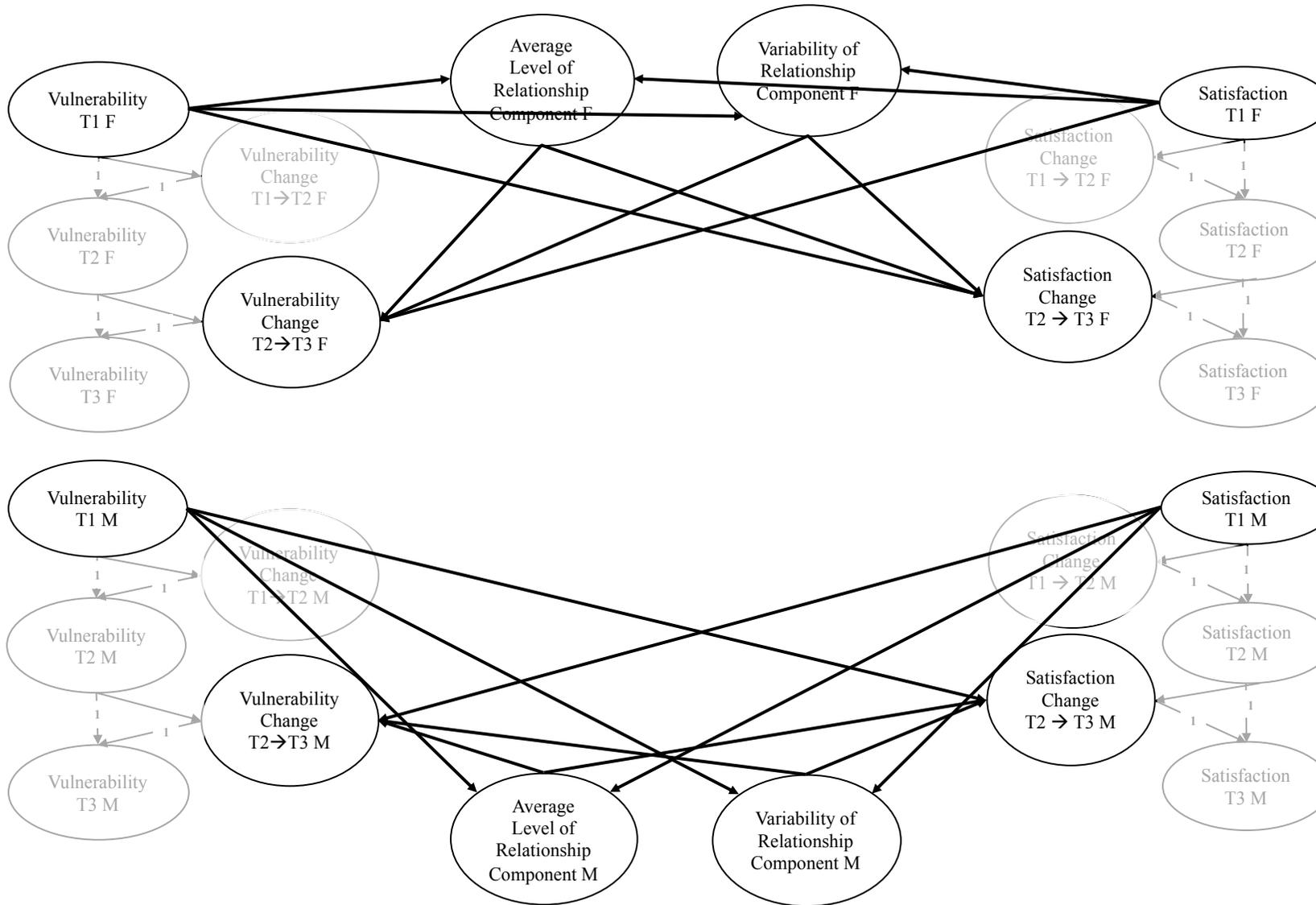


Figure 2. Mediated dyadic bivariate latent change score models with long-term actor level-change effects and their corresponding indirect effects. M = Male partners, F = Female partners.

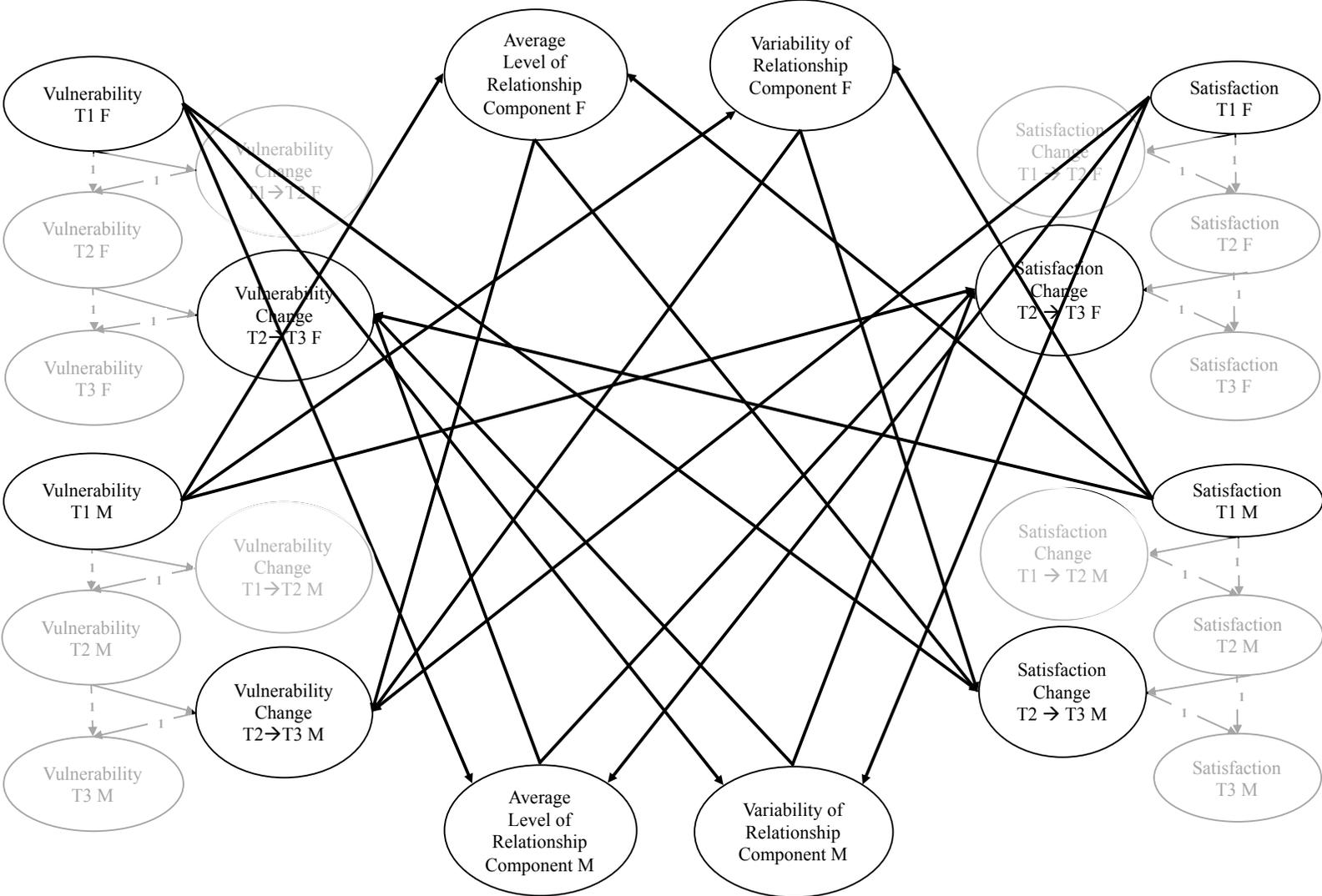


Figure 3. Mediated dyadic bivariate latent change score models with long-term partner level-change effects and their corresponding indirect effects. M = Male partners, F = Female partners.

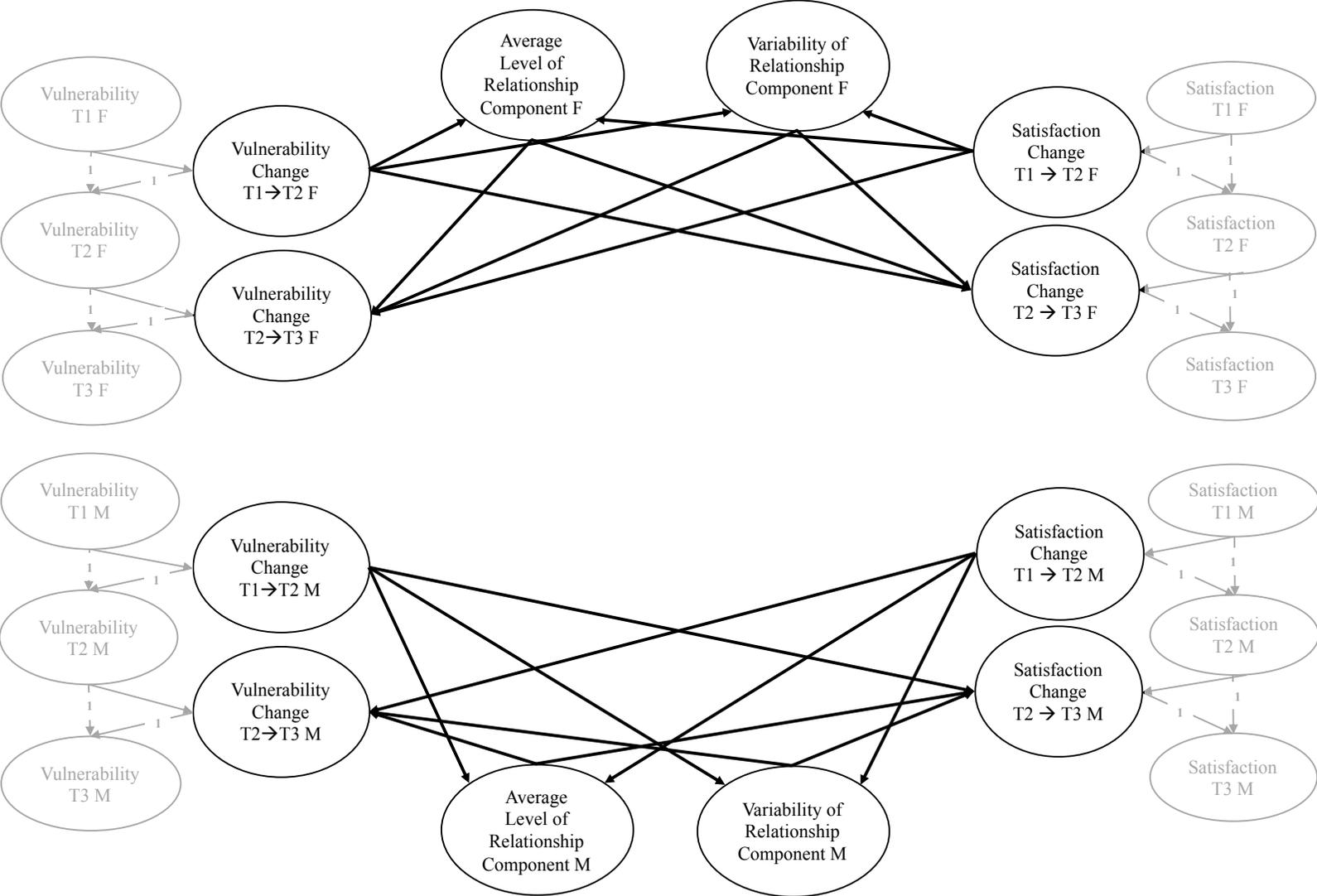


Figure 4. Mediated dyadic bivariate latent change score models with actor change-change effects and their corresponding indirect effects. M = Male partners, F = Female partners.

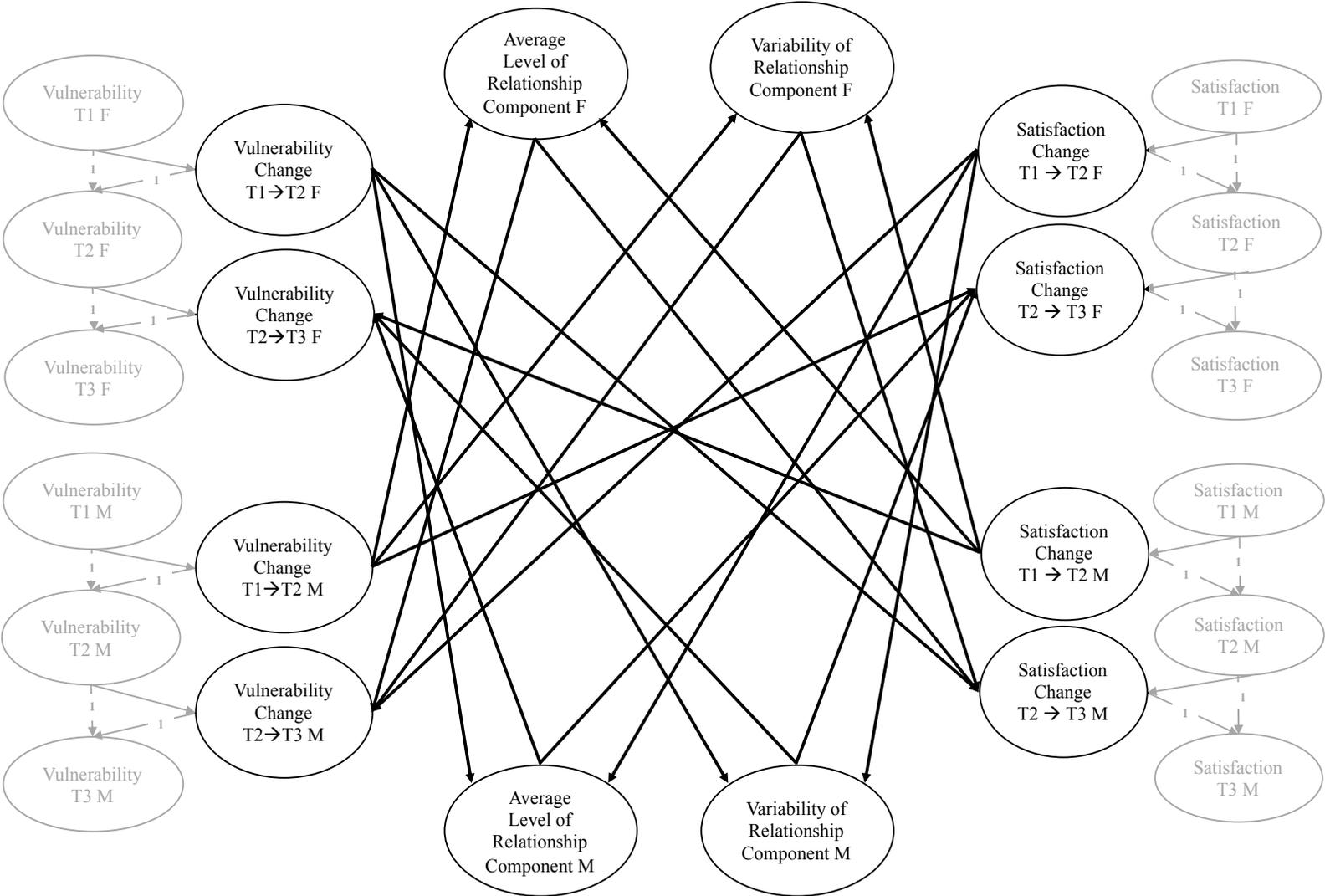


Figure 5. Mediated dyadic bivariate latent change score models with partner change-change effects and their corresponding indirect effects. M = Male partners, F = Female partners.