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Longitudinal Associations between Attachment and Forgivingness within Romantic Relationships

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Abstract

Being securely attached and willing to forgive your partner tends to promote greater relationship success. Though attachment and partner forgiveness are associated cross-sectionally, research has yet to investigate whether and how these positive relationship factors tend to co-develop over time. The current study examined cross-lagged effects and correlated changes in partner forgivingness and attachment across a two-year period with two measurement occasions (n = 514 individuals). Additionally, dyadic analyses were conducted with a subsample of dyads in the study (n = 149 dyads). Individual level analyses evidenced negative cross-sectional and longitudinal associations between attachment anxiety and forgivingness. Attachment avoidance and forgivingness showed significant correlated changes over time. Dyadic level analyses showed that attachment-avoidance predicted partner forgivingness two years later but not vice versa. Findings suggest that longitudinal associations between attachment and forgivingness may take different forms at the individual and dyadic level.

Keywords: Adult attachment; forgivingness; romantic relationships; latent change models, longitudinal APIM

For many people, a happy romantic relationship contributes significantly to well-being (Dush & Amato, 2005). Two important factors for romantic relationship success that have been positively related to each other are attachment security and forgivingness (or the tendency to forgive) (e.g., Burnette et al., 2009; Kachadourian et al., 2004; Lawler-Row et al., 2006; Liao & Wei, 2015; Mikulincer et al., 2006). However, since previous work has been cross-sectional in nature, it remains unclear how attachment and forgivingness relate to and predict each other over time within a relationship. The current study thus sought to extend the literature in two ways building from individual and dyadic perspectives. First, we examined the longitudinal cross-lagged associations and correlated change between attachment and forgivingness in a community-based sample of romantic partners. Second, to take into account the unique relationship context, we tested longitudinal dyadic cross-partner effects to examine bidirectional relationship processes between partners.

Defining Attachment and Forgivingness within Romantic Relationships

Following its introduction by Bowlby (1969), attachment theory has emerged as an important developmental framework for explaining and predicting a wide range of human behaviors, emotions, and interactions. The main idea of attachment theory is that, starting from birth, infants are biologically equipped with an attachment behavioral system that serves the evolutionary function of protecting the vulnerable infant from harm. This protection occurs through the infant's employment of attachment behaviors, which have the common characteristic of promoting proximity and protection from caregivers in times of need, thus increasing chances of survival (Cassidy, 2016).

Although attachment-based behavior may be most visible during childhood, searching and providing comfort and support is regarded as an important feature of close relationships throughout life (Bowlby, 1988). Hazan and Shaver (1987) were the first to systematically study intimate adult relationships as attachment relationships. Since then, the theory of adult

attachment has propelled an extensive body of research (Mikulincer & Shaver, 2016). This research suggests that individual differences in adult attachment are best conceptualized as continuous rather than categorical, and the field has consequently focused on two relatively orthogonal dimensions of attachment orientation (Brennan et al., 1998; Fraley et al., 2015). First, attachment-anxiety reflects the tendency to fear rejection, and to anxiously worry and ruminate about close relationships. Second, attachment-avoidance refers to the discomfort in situations of emotional closeness. Attachment representations will vary depending on the specific relationship (i.e., relationship-specific attachment) (Fraley et al., 2015). Romantic attachment can be regarded as a dispositional tendency that shapes interpersonal cognition, emotion, and behaviors such as coping processes and affect regulation strategies in romantic partnership (Hazan & Shaver, 1994; Lopez & Brennan, 2000; Mikulincer et al., 2003). The extent to which partners are anxiously and/or avoidantly attached will influence how stressors such as conflict or transgressive events are dealt with in the romantic relationship (Campbell et al., 2005; Domingue & Mollen, 2009; Feeney, 2005; Simpson et al., 2011). This suggests that attachment orientations may play a role in the process of forgiveness.

In forgiveness literature, a distinction is made between the process of forgiveness and the dispositional tendency to forgive, also called forgivingness. The former, forgiveness, is a complex intrapersonal process, including emotional, cognitive, motivational and behavioral aspects, of coping with a transgression towards the self (McCullough, 2000). Two phases can be distinguished within the process: (a) letting go of thoughts of retaliation and diminishing anger, hurt, sadness, and powerlessness and (b) enhancing positive emotions and cognitions towards the transgressor such as empathy and compassion (Fehr et al., 2010). While forgiveness is considered as an individual, intrapersonal process, it often has important consequences for the interpersonal relationship between victim and transgressor.

With respect to the latter, dispositional forgiveness, or forgivingness, reflects the tendency to forgive transgressions across different contexts and transgressors (Allemand & Steiner, 2012; Brown, 2003; Hill et al., 2013). This tendency has been positively related to a range of desired relationship outcomes such as greater emotional intimacy, closeness, and relational commitment (Fincham & Beach, 2002), constructive communication (Fincham & Beach, 2002), pro-relationship motivation and behavior (Karremans & Van Lange, 2004), and better conflict resolution (Fincham et al., 2004). Forgivingness can function as a resource to restore a relationship towards harmony and trust (Fingerman & Charles, 2010; Paleari & Fincham, 2015). Again, this suggests a possible close interrelationship between forgivingness and romantic attachment. Previous studies indeed confirm an association, but investigations over time are lacking.

The Relationship Between Attachment and Forgivingness

A recent meta-analysis on the cross-sectional association between forgiveness of others (both trait and state measures) and attachment found small-to-medium negative associations between forgiveness and both attachment anxiety and avoidance (Hirst et al., 2019). Multiple cross-sectional studies that specifically investigated the association between romantic attachment and forgivingness in samples of dating and married couples found a similar negative relationship (e.g., Kachadourian et al., 2004; Webb et al., 2006). Because of a lack of longitudinal or experimental studies, however, it remains unclear how this association can be explained.

Most available studies start from the assumption that attachment orientation will impact the level of forgivingness of an individual. This fits with the theoretical framework of attachment according to which social interactions—including conflicts and transgressions by others—are appraised in light of existing mental models of self and others. In this way, people with a secure romantic attachment, who hold positive mental models of self and

partner, will more easily ignore or forgive a partner's sporadic lapses, while people with a more insecure romantic attachment will be more likely to look for and dwell on events that confirm their negative expectations of the partner (Mikulincer & Shaver, 2016). As an exception to the paucity of longitudinal data, one available diary study in married couples indeed found that dispositional attachment avoidance as well as anxiety negatively predicted daily levels of forgivingness over time (Mikulincer et al., 2006).

However, although attachment orientation is often assumed to be the more stable tendency compared to forgivingness, it is nonetheless also open to change (Mikulincer & Shaver, 2016). In fact, the capacity for change in attachment patterns was one of the key principles stipulated by Bowlby (1973). In support of this idea, Mikulincer and Shaver (2016, p. 141) reviewed studies examining the stability of attachment patterns in adulthood and found that even over relatively shorter periods of time (a couple of weeks or months), the stability of attachment in some studies was only moderate (with an average around .60), indicating considerable possibility of change. Such revisions of attachment representations likely occur in reaction to significant interpersonal experiences, changes in the social environment, or age-related transitions in relationships. For example, important relationship transitions like marriage and parenthood can be followed by changes in attachment representations (Davila et al., 1999; Simpson et al., 2003). Especially the appraised meaning of these events and of partner behavior (e.g., spousal support during pregnancy) is believed to be important in this regard (Mikulincer & Shaver, 2016; Simpson et al., 2003). In sum, although romantic attachment representations are fairly stable, "the adaptive accommodation and updating of working models in response to new attachment-relevant experiences continue to occur during adulthood, or else adults would not be able to continue to make accurate appraisals of their changing selves and changing life circumstances" (Mikulincer & Shaver, 2016, p. 141).

In line with this idea, Bell (2009) has proposed a more dynamic view of attachment in which elements of attachment (e.g., trust, dependence) interact and are in a complex interplay with elements of the interpersonal context (e.g., empathy, caring). In this regard, he suggests the importance of recognizing state-level, contextual attachment which may change across time within a relationship. In line with this theoretical idea, some studies have investigated attachment as an outcome rather than a predictor of interest, for example as an outcome of hope following prayer (Jankowski & Sandage, 2011). The capacity for updating of attachment representations in the context of long-term romantic relationships has also been demonstrated in studies of attachment changes following couples therapy (e.g., Burgess Moser et al., 2016). Importantly, the neutralization of blaming behavior between partners has been shown to be a key process in these attachment changes (Burgess Moser et al., 2018), which hints at the possibility that forgiveness may also shape attachment representations rather than only the other way around. This would be in line with a broaden-and-build idea of attachment according to which more secure representations facilitate pro-relational behaviors—such as forgivingness—which in turn solidify security in the relationship (Mikulincer & Shaver, 2016). However, insight is needed into how forgivingness and the attachment dimensions relate to each other over time in romantic relationships.

Importantly, research into this temporal association needs to consider the dyadic context of attachment and forgivingness within romantic relationships. Both partners bring their own attachment and forgivingness levels and behaviors to the relationship, and these need to be understood within the dyadic couple system (Kelley & Thibaut, 1978). While romantic attachment and forgivingness are regarded as personal tendencies, they are dynamic and changeable rather than rigid, and they are fundamentally embedded in and influenced by the interpersonal context of the relationship. More specifically, the behavior of both partners can be expected to impact the mutual development of romantic attachment and forgivingness

within the relationship. Consequently, partner effects—i.e., the extent to which partner A variables affect partner B variables and vice versa—have been increasingly considered within couple studies on both attachment and forgivingness. For example, several studies have demonstrated how one partner's attachment tendencies significantly predict the other partner's relationship satisfaction (see Mikulincer & Shaver, 2016, p. 320 for an overview). Another study found that higher attachment avoidance and anxiety in men negatively predicted empathic concern in their female partners (Péloquin et al., 2011), which is a particularly relevant finding for the current investigation, given the link between empathy and forgivingness. Again, attachment may not only function as a predictor in these dynamic partner systems, but also as an outcome. A recent study testing the cross-sectional relationship between psychopathic attributes and attachment insecurity, found that psychopathic behavior in one partner significantly predicted attachment insecurity in the other partner, while no partner effect was found in an alternative model testing the opposite direction (Savard et al., 2015). Empirical evidence on dyadic effects of forgivingness within romantic relationships is more scare but also suggests that forgivingness of one partner may predict outcomes in the other partner, for example, relationship satisfaction (Arya & Kaushik, 2015). Importantly, however, research on the association between forgivingness and attachment has been conducted at the individual-level, leaving it unclear whether and how attachment dimensions are associated with forgivingness at the dyadic level.

The Present Study

Attachment and forgivingness within romantic relationships have been cross-sectionally related to each other, but it is unclear whether and how these variables change and predict each other over time. Understanding how these rather stable tendencies may nonetheless be malleable and relate to each other within a romantic relationship over time holds important consequences. Both higher levels of attachment security and forgivingness

have been related to beneficial intrapersonal outcomes such as health and psychological well-being as well as interpersonal outcomes such as relationship satisfaction, and both have been successfully targeted in relationship counseling (Mikulincer & Shaver, 2016; Worthington & Wade, 2020). A better understanding of their interrelationship thus also holds practical value for therapeutic settings.

This study examined longitudinal associations between attachment orientations and forgivingness in romantic relationships using a two-wave dyadic longitudinal design with a two-year time interval. First, a cross-lagged model was used to examine the directionality of effects between variables over time. We expected negative correlations between the two dimensions of attachment (anxiety and attachment) and forgivingness. Due to a lack of previous longitudinal findings, we had no strong hypotheses with regard to the direction of cross-lagged effects over time. Available theoretical and empirical work suggests that the variables may interact in both directions.

Second, a latent change model examined correlated changes between forgivingness, attachment-avoidance, and attachment-anxiety to identify how these variables co-develop over time (Allemand & Martin, 2016). As both attachment and forgivingness are complex multi-determined variables, capturing their cross-lagged relationship from one single-point in time to another can be difficult (Jackson & Allemand, 2014). A latent change model therefore offers a complementary perspective, by examining whether interindividual differences in intraindividual *changes* in attachment and forgivingness are related to each other over time (Usami et al., 2016). In contrast to a cross-lagged model, which examines whether between-person differences in one variable can predict between-person differences in another variable over time, a latent change model allows to examine how a trajectory of change of one variable within an individual is correlated to the trajectory of change of a different variable; or in other words, how the variables "travel together" over time within an individual

(Allemand & Martin, 2016, p. 239). As available work has suggested the longitudinal co-development of attachment and forgivingness, potentially determined by similar aspects of the interpersonal context (e.g., empathy), demonstrating their correlated change over time provides an important first step in disentangling their joint development and determinants. Based on previous findings, we expected to find negative correlated changes between forgivingness and both attachment dimensions.

Third, we explored the associations between attachment-avoidance and attachment-anxiety and forgivingness on a dyadic level using a longitudinal actor-partner interdependence model (APIM, Cook & Kenny, 2005), as both theory and previous studies have highlighted the potential importance of partner effects for attachment and forgivingness in the dyadic context of romantic relationships (Arya & Kaushik, 2015; Mikulincer & Shaver, 2016; Péloquin et al., 2011).

Methods

Participants and Procedure

Participants come from the longitudinal study "Co-Development in Personality" (CoDiP; see Schaffhuser et al., 2014 for details). All methods and procedures were approved by the Ethikkommission beider Basel (EKBB, approval number 175/09). The CoDiP dataset contains three waves of data from a community sample of three generations of German-speaking Swiss participants (no equal representation of participants across ages).[1] Participants were recruited through different channels (lectures, leaflets, magazines…). For their participation in the study, they received small gifts (e.g., vouchers), brochures with selected results, and postcards (at Christmas). Students received credit for participation or small gifts (e.g., vouchers). Participants were not paid for their time. Data were collected on three measurement occasions in 2010 (n = 1050), 2012 (n = 722), and 2014 (n = 665) among younger adults, their siblings, partners, parents, and grandparents using questionnaires.

For the present study, data was drawn from the second and the third measurement occasion, as the measures of interest for this study were not included at the first measurement occasion. For clarity, from here on the second measurement occasion is denoted as T1 and the third measurement occasion as T2. The time lag between the two measurement occasions was two years. Because this study focused on romantic relationships, we selected those participants who were in a dating, married or cohabiting relationship at T1, resulting in 514 participants at T1 and 417 at T2 (for the individual analyses). No minimum length of relationship duration was required. The romantic partner for 149 participants also participated in the study (n = 149 couples for the dyadic analysis; all couples were heterosexual dyads). Of this group, only 22 families provided more than one dyad; therefore, it was not possible to conduct analyses with dyads nested within families. Moreover, only 27 participants in the dyadic analyses failed to complete waves.

Attrition analyses revealed no significant differences with respect to forgivingness, attachment-anxiety and attachment-avoidance between individuals participating at both T1 and T2 and dropouts (Cohen's $d < 0.1$ for all three constructs). No differences were found for dropouts within solely the dyadic sample as well on the primary study variables. Comparisons between participants in the dyadic and individual analyses revealed participants in the dyads scored significantly higher on forgivingness ($d = .40$), but lower on attachment avoidance ($d = -.23$) and anxiety ($d = .26$) at T1, as one might expect for individuals willing to participate in a study as a dyad. Participants ranged in age from 18 to 89 years at T1 ($M = 47.4$, $SD = 20.32$) with 56.4% being women, and 55.3% of the individuals were married. The average relationship duration was 19.9 years ($SD = 17.58$). Regarding level of educational attainment, 5% reported having a primary education, 55.5% had a secondary education (e.g., vocational training, general training school), 22.5% had a postsecondary double or upper vocational training, 16% had a university degree or equivalent (1% reported "other").

Measures

Romantic partner forgivingness. The four-item Tendency to Forgive Scale (TTF; Brown, 2003) was adapted to assess forgivingness with respect to the romantic partner. Example items are "I tend to get over it quickly when *my partner* hurts my feelings" and "When *my partner* wrongs me, my approach is just to forgive and forget". Participants rated the items on a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*) with regard to their current romantic partner. Higher scores on the TTF indicate a greater tendency to forgive. The alpha reliability estimates for the TTF were 0.74 (T1) and 0.79 (T2).

Romantic partner attachment representation. The nine-item romantic-partner subscale of the Experiences in Close Relationships-Relationship Structures questionnaire (ECR-RS; Fraley, Heffernan, Vicary, & Brumbaugh., 2011) was used to assess attachment orientation towards a romantic partner. Participants rated the items on a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*) with respect to their current romantic partner. Attachment-anxiety addresses issues of being rejected or neglected by one's partner. An example item is "I often worry that my partner doesn't really care for me". High scores indicate anxiety about being abandoned and rejected by their romantic partner. Attachment-avoidance concerns the comfort with emotional intimacy with one's partner. High scorers are individuals who are uncomfortable with closeness and dependency towards their partner. An example item is "It helps to turn to my partner in times of need".[2] The alpha reliability estimates for the attachment-avoidance were 0.73 (T1) and 0.80 (T2) and for the attachment-anxiety were 0.71 (T1) and 0.70 (T2).

Analytic Strategy

Longitudinal measurement model. We first established a longitudinal measurement model (M0) with three interrelated latent variables per measurement occasion (i.e., forgivingness, attachment-anxiety and attachment-avoidance). Forgivingness was measured

with four manifest indicators. Attachment-anxiety was measured with three manifest indicators and attachment-avoidance was measured with five manifest indicators. Preliminary analyses suggested a large residual covariance between the first two items of the attachment-avoidance scale at T1 and T2, reflecting the fact that both items measure the verbal aspect of avoidant behavior. We thus freely estimated this residual covariance at both measurement occasions. Moreover, we allowed for correlated residual variances for the matching items at T1 and T2 (Marsh & Hau, 1996).

Longitudinal measurement invariance. Based on the measurement model we tested whether the measures behaved equivalently over time using confirmatory factor analysis models with increasing restrictions on measurement parameters over time. We started with an unconstrained measurement model of configural invariance (M1). Second, we tested a model of weak measurement invariance (MI) with equal factor loadings over time (M2). Finally, we tested a model of strong MI with equal factor loadings and equal intercepts over time (M3) (see Widaman et al., 2010 for details).

Multivariate individual longitudinal models. First, to examine cross-sectional and longitudinal associations between the constructs, we estimated a multivariate autoregressive cross-lagged model (M4) (Bollen & Curran, 2006) (see the first model in Figure 1). Second, to examine the correlations between the initial levels and change levels within and between the constructs, we modeled interindividual differences in intraindividual change in attachment and forgivingness using latent change models (M5) (Ferrer & McArdle, 2010; McArdle, 2009) (see the second model in Figure 1). More specifically, we estimated a multivariate latent change model with all three constructs to investigate correlations at the initial level and between the change factors (correlated change). In additional analyses, we included age and gender as covariates in the models M4 and M5. Because age and relationship duration were strongly associated ($r = .81$, $p < .001$), we chose age.

[Figure 1]

Multivariate dyadic longitudinal model. To examine interpersonal associations between attachment and forgivingness in couples, we conducted a longitudinal actor-partner interdependence model (APIM, Cook & Kenny, 2005) using the subsample of identifiable dyads (149 couples) (see the third model in Figure 1). Although both dyadic cross-lagged and dyadic latent change models are of theoretical interest for the current investigation, we were unable to test dyadic latent change models with our data due to the complexity of these models (i.e., the model would not converge). Therefore, only dyadic cross-lagged analyses are reported. We applied a dyadic longitudinal cross-lagged model that included all three variables at once. Using this model, we estimated actor effects and partner effects. For the dyadic model, we used the mean scores of the forgivingness and attachment scales as manifest variables. As a first step, we estimated a saturated model with freely estimated regression paths and correlations for men and women (M6). Then, we estimated a constrained model with equal regression coefficients and correlations among constructs between intimate partners (M7). All regression paths (i.e., actor effects and partner effects) and the intercorrelations between the three constructs were constrained to be equal between women and men. The two models were compared based on AIC (Akaike Information Criterion) and BIC (Bayesian Information Criteria), as suggested by Little (2013). We did not utilize a chi-square-difference test, as per definition, a saturated model fits any model perfectly and no other model could be superior to that, when judged only by chi-square. The AIC reflects goodness of fit *relative* to model complexity. Because of the complexity of these models, we did not include covariates in M6 and M7.

All analyses were performed with Mplus 8 (Muthén & Muthén, 1998-2018). Mplus code and full model results can be consulted on the OSF project page (https://osf.io/pycz5/). For individual level analyses (M1 to M5), we used the Mplus TYPE=COMPLEX procedure

with dyad as the cluster variable and maximum likelihood estimation with robust standard errors (MLR) to deal with the complex nature of the data due to dyadic dependency of the data. This command produces standard errors and an adjusted chi-square test of model fit (adj. χ^2) taking into account dependence of observations due to cluster sampling of dyads (Muthén & Muthén, 1998-2012). To examine potential effects of the familial dependency of the data, we then reran the same models (M1 to M5) with family as the cluster variable. Note that with this procedure it is not possible to include more than one cluster variables at the same time. For dyadic level analyses (M6 and M7), we used the same approach with family as the cluster variable. To assess the fit of the models, we examined the adjusted chi-square (adj. χ^2), comparative fit index (CFI), and root-mean square error of approximation (RMSEA) statistics, including the 90% confidence intervals. In general, CFI values above .90 and RMSEA values below .08 are typically considered to indicate that a model is adequately parameterized and reflect an acceptable model fit (Little, 2013). Model comparisons were performed using the Satorra-Bentler scaled chi-square difference test (TRd; Satorra & Bentler, 2010). Because chi-square tests become overly sensitive with increasing sample size and a large number of degrees of freedom, we mainly relied on two alternative methods to evaluate the model fit. First, the RMSEA 90% confidence interval provides an effective method of assessing the relative fit of nested models. Second, a change in CFI of less than .01 amounts to a trivial difference in model fit (Cheung & Rensvold, 2002).

Results

Preliminary Analyses

Table 1 presents descriptive statistics and zero-order correlations among the study variables for T1 and T2. We established longitudinal measurement invariance (MI) of the measures of forgivingness and attachment to ensure that the constructs are comparable across the two measurement occasions. As can be seen from Table 2, based on RMSEA 90%

confidence intervals and CFI, we evidenced a model of strong MI (M3) with equal factor loadings and equal intercepts over time. Hence, model results suggest that the measures behaved equivalently across the two measurement occasions.

[Table 1]

Cross-Lagged Effects between Attachment and Forgivingness Over Time

Based on model M3, we then fit an autoregressive cross-lagged model (M4). This model had a good fit to the data (Table 2). Initial level correlations indicated a positive association between the two attachment dimensions and a negative association between attachment-anxiety and forgivingness at baseline measurement (Figure 2). With regard to cross-lagged associations, higher levels of attachment-anxiety at T1 predicted higher levels of attachment-avoidance at T2 and higher levels of attachment-avoidance at T1 predicted higher levels of attachment-anxiety at T2. Moreover, higher levels of forgivingness at T1 predicted lower levels of attachment-anxiety at T2. No significant cross-lagged effects were found between attachment-avoidance and forgivingness. Controlling for age and gender did not change the results (Supplementary Table 1).

[Table 2]

[Figure 2]

Correlated Changes between Attachment and Forgivingness

Based on model M3, we then examined mean level change and individual differences in change of the constructs using a multivariate latent change model (M5). This model also evidenced a good fit (Table 2). While we did not find significant mean level change for avoidance across two years, anxiety slightly decreased and forgivingness increased. Moreover, significant change variances were observed for all three constructs, suggesting interindividual differences in intraindividual change (Table 3). With respect to correlated changes between constructs, changes in avoidance and anxiety were positively correlated and

changes in attachment avoidance correlated negatively with changes in forgivingness. After controlling for age and gender, the two significant mean-level changes became non-significant. The covariates did not impact further results (Supplementary Table 2).

[Table 3]

We reran all models (M1 to M5) with family as the cluster variable. The results of these analyses are almost identical to the reported results and no conclusions were altered (Supplementary Tables 3 to 5).

Dyadic Longitudinal Analyses: Cross-Lagged Actor and Partner Effects between Attachment and Forgivingness

The model comparison based on AIC and BIC strongly favored the constrained model (M7, see Table 4). The reported coefficients thus represent cross-sectional and longitudinal associations between forgivingness and attachment in romantic partners on a dyadic level, without separate pathways by gender. Cross-sectional dyadic associations at T1 indicated that levels of avoidance were positively associated between partners (r = .43, p < .01), as were levels of anxiety (r = .20, p < .01). Forgivingness was not positively associated between partners (r = .16, p = .059). Longitudinal dyadic associations are displayed in Table 5. With regard to actor effects, results were similar to the cross-lagged model (M4), as should be expected. Attachment avoidance and anxiety levels positively predicted each other over time within one partner. Furthermore, forgivingness negatively predicted attachment anxiety over time. Only one partner effect was statistically significant: avoidance at T1 for one partner negatively predicted the level of forgivingness in the other partner at T2.

[Table 4]

[Table 5]

Discussion

This study examined longitudinal associations between attachment and forgivingness in romantic partners from individual and dyadic perspectives. Four main findings emerged. First, in line with previous research, initial levels of forgivingness and attachment-anxiety were negatively correlated cross-sectionally. Second, with regard to cross-lagged relations, anxiety and avoidance positively predicted each other over time. Furthermore, initial levels of forgivingness negatively predicted levels of attachment anxiety two years later. Third, we demonstrated negative correlated change between attachment avoidance and forgivingness. Fourth, dyadic analyses revealed limited evidence of cross-lagged effects over time, with the exception of partner avoidance negatively predicting forgivingness two years later. Finally, although these associations point to variability in the constructs over time, there was considerable (moderate to high) stability in the variables over the two year interval of the study. Overall, our findings provide one of the first demonstrations of the longitudinal interrelationship between attachment and forgivingness within couples and the possibility of shifts in these tendencies over a relatively short period of time.

With regard to the participants' *own* attachment orientation, our findings showed that romantic forgivingness was related to attachment *anxiety* over time. This finding is particularly interesting because it suggests that one's *own* behavior and cognitions within a relationship may help one to become more secure. The literature suggests that people higher on anxiety generally have more negative mental models of the self and have doubts about the own worth and self-efficacy. Their mental models of others, on the other hand, tend to be more complex and ambiguous (Mikulincer & Shaver, 2016). This result is in line with research on emotion-focused couples therapy. According to this approach, blaming of a partner is often the manifestation of a hyper-activated attachment system as is typically seen in high attachment anxiety (Burgess Moser et al., 2018). From this perspective, it would be expected that development towards a more forgiving attitude would be especially related to a

mitigation of attachment anxiety over time. This also aligns with views that conceptualize forgivingness as an emotion-focused coping strategy, which may lower rumination and downregulate a hyper-activated attachment system through the promotion of positive emotions such as empathy and love (Worthington & Scherer, 2004). In this way, forgivingness may enforce a positive cycle of constructive conflict-management which in the long run helps to build a more stable and safer relationship context.

With regard to *partner* attachment orientation, on the other hand, partner *avoidance* was a negative predictor of forgivingness over time. In other words, in the dyadic analyses, partner attachment seemed a predictor rather than an outcome of forgivingness. Past work suggests that people high in avoidance tend to deny their own mistakes and vulnerabilities and often exaggerate their positive self-aspects as a defensive mechanism. Their views of others on the other hand tend to be more negative and critical (Mikulincer & Shaver, 2016). It is possible that within romantic relationships, such harsh attitudes will lower forgivingness in the other partner in the long run, who likely will become less tolerant and might even feel the desire to retaliate against the avoidant partner. This is in line with studies suggesting that attachment-avoidance drives self- and partner-reactions when faced with relational tension and stressors (Gottman & Silver, 1994). It is likely more difficult to forgive transgressions from avoidant partners who remain emotionally distant (Pistole, 1989). In this way, higher levels of attachment-avoidance may have negative effects on important relationships variables such as trust, empathy, perspective taking, emotional intimacy or self-disclosure that play an important role in the process of forgiving (Mikulincer & Shaver, 2005). However, the current results should be interpreted with caution given the two-wave nature of the study. Future research is needed both to replicate these findings and test these potential mechanisms, ideally using more measurement occasions and different methodology such as a quasi-experimental design. It is difficult to identify direction of effect using only

observational methods. We therefore caution against making a strong distinction between the different attachment dimensions, especially given the smaller sample size of the dyadic analyses.

While at baseline, forgivingness was only negatively correlated with attachment anxiety, *change* in forgivingness was negatively correlated to change in attachment avoidance. For attachment anxiety, the correlated change with forgivingness was not significant—potentially due to lack of power—but in the expected direction (negative correlation). One can consider multiple reasons why this correlated change occurs (Allemand & Martin, 2016; Jackson & Allemand, 2014). For instance, commonality in change in attachment and forgivingness may be caused by specific and discrete events. Positive and negative life events, role transitions, or daily experiences of positive valence may affect coupled change (Davila & Sargent, 2003; Scharfe & Cole, 2006). Alternatively, correlated change at the trait level may be also linked to continuous processes at a state level, such as adjustment to one's partner and the relationship across time, which then affects one's own attachment and forgivingness at a trait-level. For example, attachment avoidance may decrease across time for an individual, as that individual feels more secure in the relationship, which in turn also increases his or her overall tendency to be forgiving with that partner.

Limitations and Future Directions

The current findings are limited in ways that provide future directions for research. First, both attachment and forgivingness were assessed by self-report measures. As such, conclusions can only be drawn about individuals' explicit, conscious and self-perceived attachment representation and forgivingness towards their romantic partner. Second, this study is correlational in nature, and employing multiple methods and quasi-experimental designs would allow for stronger inferences about the causal nature of the variables. Third, attachment and forgivingness were assessed only two times, complicating interpretations of

the dynamic interplay between these constructs. Therefore, future studies should address the question whether changes represent lasting changes or more temporal fluctuations. These studies should also examine changes over shorter and longer time periods. Given the lack of longitudinal investigations, the most appropriate time frame to study these changes is still unknown. Using a time interval of two year, the current study is however one of the first to show that attachment may fluctuate within romantic relationships in response to differences in forgivingness. Future studies can tease apart the day-to-day relational events that may play a role in this relationship. Fourth, in the individual-level analyses (Models 1 to 5), we took into account couple and family dependence in separate models. Future studies with preferably larger samples should consider controlling simultaneously for couple and family dependence in one model. Finally, the current study did not include variables or relationship events that may help explain the longitudinal relation between attachment and forgivingness, such as relational conflict or infidelity. It would be beneficial for future studies to assess such potential mechanisms underlying the relationship. Importantly, not only broad events should be considered; especially individuals' daily appraisals and experiences surrounding the event may help to illuminate the association (Jackson & Allemand, 2014).

Conclusions

These caveats aside, the present study significantly extends prior research on the associations between attachment and forgivingness by examining these relations longitudinally over a two-year period in a community-based sample of romantic partners. Additionally, by addressing and comparing individual and dyadic perspectives on forgivingness and attachment, we were able to show that the associations may differ at the individual versus dyadic level. In sum, the current findings provide support for longitudinal associations between attachment and forgivingness both on an individual and dyadic level, taking on different forms in the person and in couples across time.

Authors' Note

Supplemental Tables 1 to 5 are available with code and other materials in the osf project page: https://osf.io/pycz5/

Declaration of Conflicting Interests

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Footnotes

[1] Members of the current team have previously published on different topics using this dataset (Schaffhuser, Allemand, & Martin, 2014; Schaffhuser, Wagner et al., 2014; Schaffhuser et al., 2016). For more details on publications related to the CoDiP Project, see http://p3.snf.ch/Project-147614

[2]We excluded one item assessing attachment-anxiety that showed short-comings in item functioning. This shortcoming in item quality occurred most likely due to improper translation of this specific item. Factor analysis revealed severe cross-loadings on both attachment domains. However, psychometric qualities of the remaining set of items in terms of factor structure and reliability were fully acceptable and comparable to the original instrument by Fraley et al. (2011).

Table 1. *Descriptive Statistics and Correlations*

	1	2	3	4	5	6	7	8	9
1. Age	---								
2. Gender	.16**	---							
3. Relationship duration	.81**	.07	---						
4. Forgivingness T1	.19**	.23**	.22*	---					
5. Avoidance T1	-.16**	.08	.10	-.05	---				
6. Anxiety T1	-.05	-.05	-.09*	-.15*	.44**	---			
7. Forgivingness T2	.11*	.24*	.08	.65**	-.10	-.23**	---		
8. Avoidance T2	-.16**	.10	.11	-.02	.59**	.36**	-.16**	---	
9. Anxiety T2	-.08	-.05	-.10*	-.21**	.33**	.48**	-.29**	.40**	---
M	47.4	---	19.9	4.02	2.15	2.15	4.33	2.09	2.00
SD	20.3	---	17.58	1.23	0.95	1.20	1.24	0.97	1.12

Note. $N = 514$; $*p < .05$, $**p < .01$. Potential scale ranges for Forgivingness, Anxiety and Avoidance were 1 (strongly disagree) to 7 (strongly agree).

Table 2. *Longitudinal Measurement Invariance and Model Fits of Individual Analyses*

Model	Type	Adj. X^2 (df)	CFI	RMSEA (90% CI)	$\Delta\chi^2$ TRd (Δdf)	ΔModels	ΔCFI
M1	Longitudinal measurement model	425.63* (223)	.942	.042 [.036; .048]			
M2	Longitudinal measurement model (weak)	429.29* (232)	.943	.041 [.035; .047]	5.07 (9)	M1 – M2	-.001
M3	Longitudinal measurement model (strong)	473.47* (244)	.934	.043 [.037; .049]	49.19 (12)*	M2 – M3	.009
M4	Multivariate autoregressive cross-lagged model	473.47* (244)	.934	.043 [.037; .049]			
M5	Multivariate latent change model	439.95* (241)	.943	.040 [.034; .046]			

Note. N = 514; M1 = unconstrained multivariate measurement model; M2 = M1 plus equal factor loadings; M3 = M2 plus equal factor intercepts; Adj. X^2 (df) = adjusted chi square; CFI = comparative fit index; RMSEA = root mean squared of approximation; 90% CI = 90% confidence intervals for RMSEA; $\Delta\chi^2$ TRd = Satorra-Bentler scaled chi square difference; Δdf = difference in degrees of freedom; Δ Models = comparison of models. We controlled for the dyadic dependency of the data in models M1 to M5 (see Methods).

*$p < .01$.

Table 3. *Results from the Multivariate Latent Change Model (M5)*

	Mean-level change [95% CI]	Change variance [95% CI]	Correlated change [95% CI]	
			Avoidance	Anxiety
Forgivingness	0.28**	1.16**	-0.25**	-0.18
	[0.17; 0.40]	[0.89; 1.44]	[-0.41; -0.09]	[-0.37; 0.02]
Avoidance	0.05	0.71**	---	0.22**
	[-0.03; 0.12]	[0.49; 0.94]		[0.08; 0.36]
Anxiety	-0.12*	0.76**	---	---
	[-0.22; -0.03]	[0.45; 1.08]		

Note. N = 514. Coefficients of correlated change refer to change scores between T1 and T2. 95% CI = 95% confidence intervals. We controlled for the dyadic dependency of the data in M5 (see Methods).

*p < .05, **p < .01.

Table 4. *Model Fits for the Dyadic Analyses*

Model	Type	AIC	BIC	Adj. χ^2 (df)	CFI	RMSEA (90% CI)
M6	Multivariate APIM	4257.96	4528.32	---	1.00	.00 [.00; .00]
M7	Multivariate APIM	4231.51	4429.77	20.15 (24)	1.00	.00 [.00; .05]

Note. *N* = 149 dyads. M6 = unconstrained model (saturated model); M7 = correlation and regression coefficients are constrained to be equal for men and women. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; Adj. χ^2 (df) = adjusted chi square; CFI = comparative fit index; RMSEA = root mean squared of approximation; 90% CI = 90% confidence intervals for RMSEA. We controlled for the familial dependency of the data in models M6 and M7 (see Methods).

Table 5. *Longitudinal Results from the Multivariate Dyadic Analyses (M7)*

T2 Outcome	T1 Predictor	Actor effects† (w; m) [95% CI]	Partner effects† (m→w; w→m) [95% CI]
Forgivingness	Forgivingness	0.67**; 0.63**	-0.04; -0.05
		[0.59; 0.75] ; [0.54; 0.73]	[-0.13; 0.05] ; [-0.16; 0.06]
	Anxiety	-0.08; -0.08	0.05; 0.06
		[-0.18; 0.03] ; [-0.20; 0.03]	[-0.04; 0.14] ; [-0.04; 0.16]
	Avoidance	0.004; 0.01	-0.16**; -0.15**
		[-0.08; 0.08] ; [-0.10; 0.11]	[-0.26; -0.05] ; [-0.25; -0.06]
Avoidance	Avoidance	0.61**; 0.70**	0.07; 0.06
		[0.52; 0.71] ; [0.57; 0.83]	[-0.03; 0.17] ; [-0.03; 0.16]
	Forgivingness	-0.06; -0.06	0.06; 0.08
		[-0.15; 0.02] ; [-0.13; 0.02]	[-0.01; 0.14] ; [-0.02; 0.17]
	Anxiety	0.10*; 0.10*	0.02; 0.02
		[0.004; 0.17] ; [0.007; 0.19]	[-0.07; 0.11] ; [-0.07; 0.11]
Anxiety	Anxiety	0.26**; 0.29**	0.05; 0.05
		[0.11; 0.42] ; [0.15; 0.42]	[-0.06; 0.15] ; [-0.07; 0.17]
	Avoidance	0.17**; 0.20**	0.06; 0.06
		[0.04; 0.29] ; [0.03; 0.33]	[-0.06; 0.18] ; [-0.06; 0.17]
	Forgivingness	-0.24**; -0.22**	0.01; 0.01
		[-0.36; -0.11] ; [-0.32; -0.12]	[-0.10; 0.11] ; [-0.13; 0.14]

Note. N =149 couples; 95% CI = 95% confidence intervals. We controlled for the familial dependency of the data in M7 (see Methods).

†standardized values for parameters constrained to equality across gender are not computed as single common estimate; actor effects indicate how a person's current behavior is predicted by his or her own past behavior (w = women; m = men); partner effects indicate how a person's current behavior is predicted by his or her partners' past behavior (m→w = effects from men on woman; w→m = effects from women on men).

*p <.05, **p <.01.

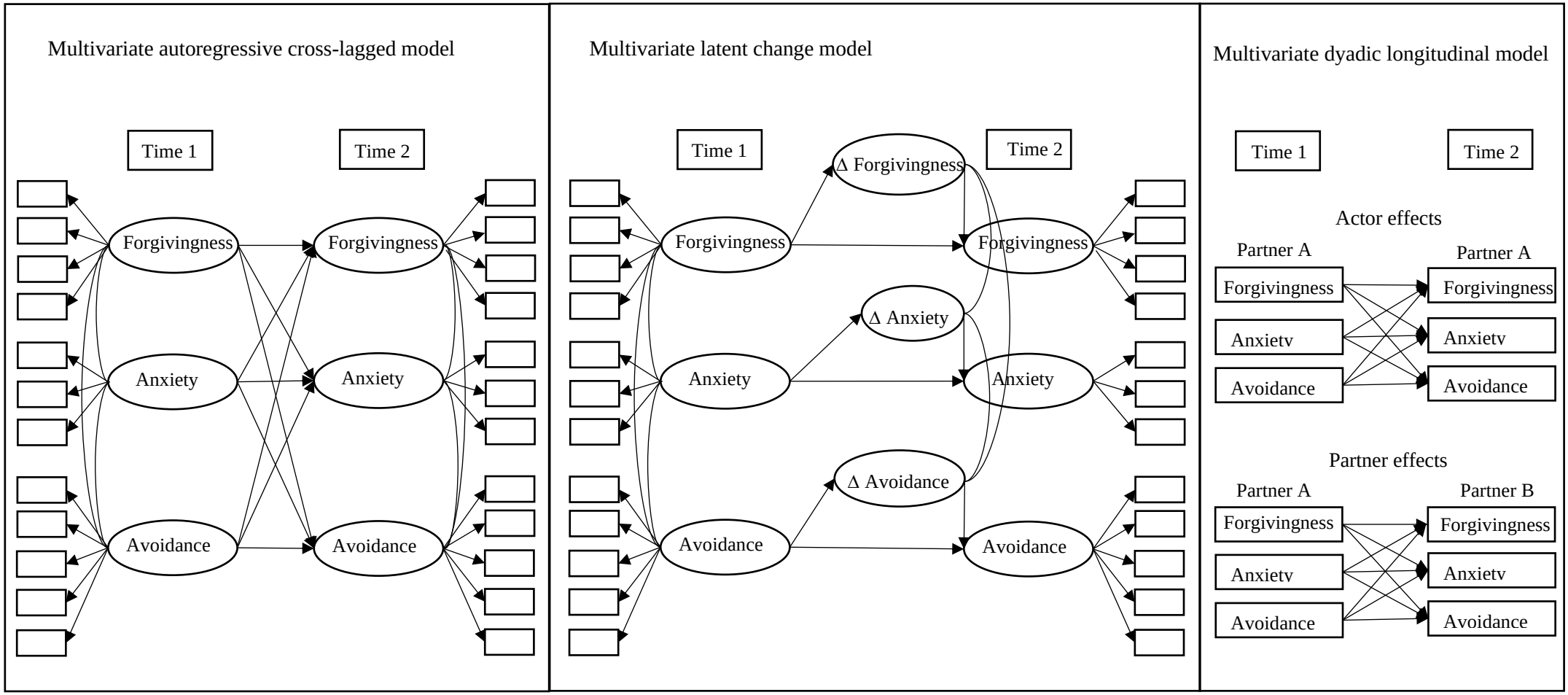

Figure 1. Conceptual Models of the conducted analyses. For detailed information on analytic strategy please see the Method Section. For the sake of parsimony, correlated residual variances for the matching items at T1 and T2 of the measurement model, a residual correlation between two items (see Methods section) and control variables (including correlative and regressive paths) are not shown.

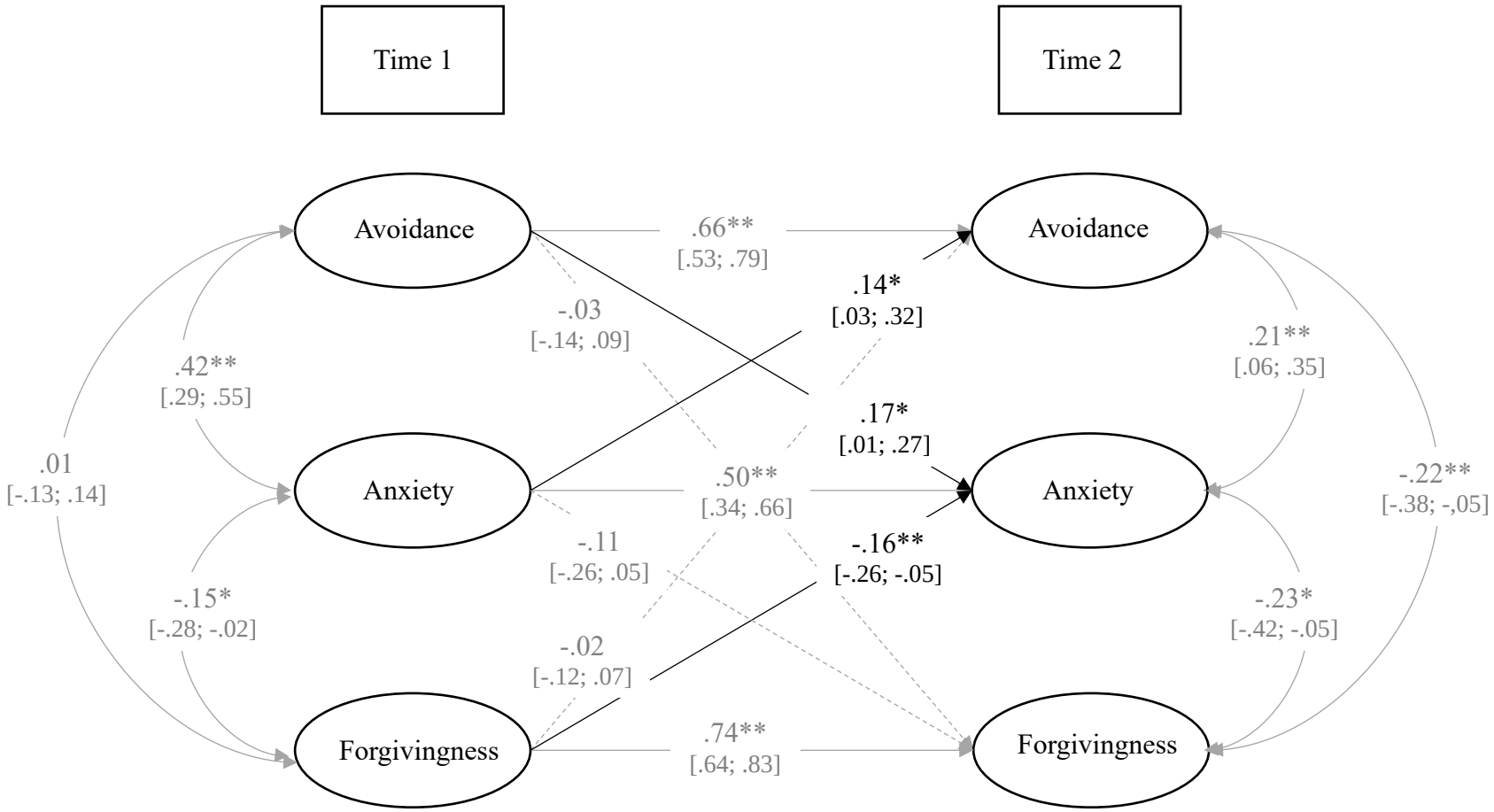

Figure 2. Summary of Model 4 with significant cross-lagged effects (N = 514).Values in square brackets represent the 95% confidence intervals. Double arrows represent covariances.
* $p < .05$, ** $p < .01$.