Examining Intra- and Inter-Personal Health Effects of Optimism and Pessimism: The Role of Subjective Well-Being in Romantic Couples

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ABSTRACT

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James Borenstein-Laurie

Recent meta-analytic research suggests that the absence of pessimism is a stronger predictor of health than the presence of optimism (Scheier et al., 2021). Based on these findings, the present study examined the role of subjective well-being in the health effects of optimism and pessimism in romantic couples. It was expected that pessimism would be more strongly associated with both well-being and health than optimism, intra- and inter-personally. In addition, subjective well-being was hypothesized to mediate the health effects of optimism and pessimism. The study included two waves of data obtained from 153 opposite-sex couples. Self-report indicators of optimism, pessimism, subjective well-being, and health were assessed across waves. Cross-sectional and longitudinal actor-partner interdependence models showed that only the absence of pessimism, but not the presence of optimism, was associated with high levels and improvements in health (e.g., subjective health, sleep-efficiency, cold symptoms, chronic disease). In addition, pessimism was a stronger predictor than optimism of levels in some indicators of subjective well-being (e.g., negative affect, depressive symptoms). These effects were obtained intra- and inter-personally. Finally, levels of subjective well-being statistically mediated the effects of pessimism on levels and changes in health. The study's results suggest that subjective well-being could represent a pathway that explains differential associations between pessimism and optimism with health, both intra- and inter-personally.

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Contribution of Authors

James Borenstein-Laurie performed the literature review, conducted the statistical analyses, and wrote drafts of the manuscript. Dr. Carsten Wrosch conceptualized the study, conducted analyses, and assisted with revisions of the manuscript. Dr. Meaghan A. Barlow consulted on the analyses, and together with Dr. Michael F. Scheier provided comments and feedback for revisions to the manuscript. All authors contributed to and approved the final manuscript.

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Introduction

Dispositional optimism has been linked to better physical health (for a meta-analytic review, see Rasmussen et al., 2009). Much of this research combined measures of optimism and pessimism into one construct and showed that people who are more optimistic (less pessimistic), enjoy better physical health. However, optimism and pessimism may not be diametrically opposed to each other, but rather could represent partially independent constructs (Chang & McBride-Chang, 1996). In fact, a recent reanalysis of extant work on dispositional optimism and health (N = 221,133), using meta-analytic techniques, showed only a moderate negative association between optimism and pessimism. In addition, this reanalysis documented that the absence of pessimism is a stronger predictor of physical health than the presence of optimism (Scheier et al., 2021).

Here we build on the latter finding to expand our understanding of the roles of separate measures of optimism and pessimism in several important ways. First, we examined whether differential effects of a person's own levels of optimism and pessimism extend beyond predicting physical health by also predicting their own subjective well-being (i.e., intra-personal effects; Cohen et al., 2007). Second, given that a person's own levels of dispositional optimism can also benefit the health of their significant others (i.e., inter-personal effects; Kim et al., 2014), we examined whether separate levels of optimism and pessimism in a person's romantic partner can exert additional differential effects on the person's own subjective well-being and physical health. We expected that a person's own pessimism levels, and their partner's pessimism levels might be stronger predictors of subjective well-being and physical health than their optimism levels. In addition, we explored the possibility that subjective well-being could represent an important mediating variable in the differential associations between optimism, pessimism, and physical health (e.g., Shen et al., 2004).

Optimism, Pessimism, and Physical Health

Dispositional optimism is considered a relatively stable personality trait, reflecting individual differences in people's generalized expectancies about future outcomes across life domains (Scheier & Carver, 1985). Much of the research in this area of work has conceptualized optimism as a bipolar dimension, anchored at one end by optimism (i.e., the tendency to expect

positive outcomes) and at the other by pessimism (i.e., the tendency to expect negative outcomes). This approach reflects how dispositional optimism is typically measured and scored. The two most commonly used tools for assessing dispositional optimism, the Life Orientation Test (LOT; Scheier & Carver, 1985) and its revised form, the Life Orientation Test-Revised (LOT-R; Scheier et al., 1994), include items that reflect both optimistic expectancies and pessimistic expectancies. To obtain a score for dispositional optimism, these two sets of items are usually combined after reverse coding of the pessimism items.

Research using this bipolar approach has demonstrated that dispositional optimism is an adaptive personality trait that exerts beneficial effects on a myriad of health outcomes (Rasmussen et al., 2009). For instance, dispositional optimism has been associated with better cardiovascular health (Boehm & Kubzansky, 2012), decreased disease progression (Matthews et al., 2004), reduced postoperative rehospitalization (Tindle et al., 2012), and lower overall mortality (Kim et al., 2017). Dispositional optimism has also been associated with greater subjective health in both normative populations (Achat et al., 2000) and at-risk populations (e.g., stroke survivors or patients with myocardial infarction; Shifren & Anzaldi, 2018; Wlodarczyk, 2017). Further, dispositional optimism has been linked to health-relevant behaviors (e.g., less smoking and better sleep; Steptoe et al., 2006; Uchino et al., 2017) and markers of physiological regulation that can protect physical health in the context of stressful experiences (e.g., levels of cytokine production, immune responses, and cortisol output; Costanzo et al., 2004; Jobin et al., 2014; Segerstrom et al., 1998).

In addition, it is important to note that dispositional optimism does not only predict adaptive outcomes intra-personally (i.e., for the person who is optimistic) but can also exert beneficial effects inter-personally (i.e., for other people). To that end, inter-personal health effects have been explored, showing that individuals reported improved physical and cognitive functioning and reduced chronic illness when they had a spouse who scored high on dispositional optimism (Kim et al., 2014; Oh et al., 2020).

Although the reported research converges on the conclusion that dispositional optimism is an important contributor to good health, the bipolar approach leaves unexamined whether the benefits of optimism stem from the presence of optimism, the absence of pessimism, or both. This possibility derives from the notion that optimism and pessimism could reflect two partially independent constructs. From a conceptual point of view, it seems plausible that a person who is

not optimistic does not necessarily have to be pessimistic, and vice versa. It is also possible for high optimism and high pessimism to co-occur in some people (Benyamini, 2005). In addition, people could also expect neither positive nor negative outcomes, resulting in a partial independence of both constructs (Scheier et al., 2021). Psychometrically, the answer to this question has not been clearly resolved. While some researchers conclude that a two-factor model better fits the data than a single-factor solution (e.g., Chang & McBride-Chang, 1996; Herzberg et al., 2006; Marshall et al., 1992), others have argued that a two-factor solution is an artifact of response bias and item wording (see Monzani et al., 2014).

Until recently, only a few studies had examined the differential effects of optimism and pessimism on physical health. The results of these studies were somewhat mixed. A few of the published studies showed that it was high optimism that was important (e.g., Kim et al., 2011). A larger number of studies, however, suggested that it was the absence of pessimism that was important, not the presence of optimism (e.g., Ikeda et al., 2011; Roy et al., 2010). More conclusive evidence supporting the importance of pessimism was reported in a recent reanalysis of extant research on dispositional optimism and health (Scheier et al., 2021). The researchers organized a consortium of colleagues who had published data on the association between dispositional optimism and physical health and asked the consortium members to reanalyze their data by separating dispositional optimism into distinguishable constructs of optimism and pessimism. Meta-analytic results of the newly obtained data, including 61 samples with a total of 221,133 participants, revealed that the optimism and pessimism subscales were only moderately associated (r = -.33, p = .02; Scheier et al., 2021). In addition, they documented that the combined optimism scale, the optimism subscale, and the pessimism subscale were all significantly associated with physical health; cross-sectionally, prospectively, and longitudinally. However, the effect size for the pessimism subscale was nearly three times larger than the effect size for the optimism subscale, indicating that the absence of pessimism is a significantly stronger predictor of physical health than the presence of optimism (Scheier et al., 2021).

The Importance of Subjective Well-Being

The discussed research provides evidence for stronger health effects of pessimism, as compared to optimism. However, there are important issues remaining that could significantly improve our understanding of the divergent roles of optimism and pessimism for people's physical health. One important question that we address here relates to psychological factors that

could represent both intra- and inter-personal mechanisms, linking optimism or pessimism with physical health. Identifying such mechanisms could provide researchers and practitioners with the knowledge of how to produce the most gains for a person's psychological and physical health (Scheier et al., 2021). To this end, we think it is plausible that subjective well-being plays an important role in the differential associations between optimism, pessimism, and physical health (Scheier & Carver, 1992).

Intra-Personal Effects

Past work suggests that people who score high on dispositional optimism endorse greater subjective well-being, including higher life satisfaction (Chang, 1998) and positive affect (King et al., 1998), as well as fewer depressive symptoms (Carver & Gaines, 1987), which may be due to different psychological factors, such as adaptive coping with life stressors (Carver et al., 2010; Nes & Segerstrom, 2006) or social support (Brissette et al., 2002; Ekas et al., 2010; Srivastava et al., 2006; Vollmann et al., 2011). Subjective well-being, in turn, can be a significant contributor to physical health. For example, life satisfaction, the presence of positive emotions, and the absence of negative emotions have all been shown to forecast better physical health (e.g., Cohen et al., 2007; Diener & Chan, 2011). In addition, research suggests that dispositional optimism can indirectly predict physical health through high levels of subjective well-being (e.g., low depressive symptoms; Shen et al., 2004).

One limitation of this body of work relates to the paucity of research on the differential associations between optimism and pessimism with psychological well-being. Stated differently, to date not enough research has been conducted to conclude whether the absence of pessimism is also a stronger predictor of people's subjective well-being than is the presence of optimism. However, the few studies that have distinguished the optimism and pessimism subscales show some support for this possibility. For instance, research has documented that pessimism was more strongly associated with depressive symptoms than optimism among college students (Chang et al., 1997). The same pattern of findings was obtained for predicting positive affect among patients recovering from coronary artery bypass surgery (Mahler & Kulik, 2000). Therefore, if pessimism is a stronger predictor of subjective well-being than optimism, this association could exert downstream implications on physical health, and partly explain why associations between pessimism and physical health seem to be particularly strong. As a consequence, different indicators of subjective well-being may explain the relative contributions

of a person's optimism and pessimism to their own physical health.

Inter-Personal Effects

Research also shows evidence for inter-personal effects of dispositional optimism on subjective well-being. For instance, cross-sectional and longitudinal research showed that to the extent people had a spouse who scored high on dispositional optimism, they also reported improved affective functioning and reduced trauma-related symptoms, role burden, and depressive symptoms (Chung et al., 2016; Karademas & Thomadakis, 2020; Ruiz et al., 2006; Weinberg et al., 2016). However, it is important to note that these studies did not distinguish effects of optimism from their corresponding effects of pessimism. In fact, there is limited research examining inter-personal effects of optimism and pessimism separately. Two studies reported that the spousal optimism subscale in particular was associated with an individual's own marital satisfaction and reduced levels of mild, chronic inflammation (Arbel et al., 2020; Smith et al., 2013). The results from another study, however, suggested that a person's levels of pessimism, but not optimism, were associated with decreased life satisfaction in their partners (Haid & Seiffge-Krenke, 2013). Clearly, these mixed findings suggest that more research is needed to understand the different inter-personal roles of optimism and pessimism in predicting people's well-being and health. Our approach would suggest that the inter-personal effects of optimism and pessimism may operate similarly to the effects produced intra-personally. As such, it would be plausible to assume that pessimism could also exert stronger inter-personal effect on subjective well-being and health than optimism, which could contribute to differential inter-personal health effects of optimism and pessimism.

The Present Study

We examined in a longitudinal study of romantic partners the relative contributions of optimism and pessimism on subjective well-being and physical health. To this end, we compared effects of the optimism and pessimism subscales of the LOT-R (Scheier et al., 1994) on levels and changes in indicators of subjective well-being (e.g., life satisfaction, emotional well-being, depressive symptoms) and physical health (e.g., self-rated health, physical symptoms, chronic disease, cold symptoms, sleep efficiency), using actor-partner interdependence models (Kashy & Kenny, 1999). We first hypothesized that the pessimism subscale would be a stronger predictor of subjective well-being and physical health than the optimism subscale, and that stronger effects of pessimism, as compared to optimism, on subjective well-being would mediate effects on

physical health. Second, we hypothesized that the predicted associations between optimism, pessimism, subjective well-being, and physical health would be observed intra-personally and inter-personally.

Method

Participants

The present study analyzed two waves of longitudinal data obtained from 153 opposite-sex couples collected roughly three years apart. Participants were recruited via newspaper and online advertisement from a large city in Quebec, Canada, and were required to be at least 18 years old and cohabitating as a couple, in order to be eligible for participating in the study. One couple was excluded because a dyad member provided no data on any predictor or outcome variables at baseline, resulting in a baseline sample of 152 couples (n = 304). Participants were assessed again 2.82 years (SD = .42 years) after baseline. One hundred ninety-four of the original participants were recruited into the follow-up assessment. Participants who did not provide data at follow-up were significantly younger (M = 40.86, SD = 17.92) than those who did (M = 47.99, SD = 15.51; t (300) = 3.62, p < .01). Furthermore, at baseline participants who dropped out of the study reported significantly lower life satisfaction, higher negative affect, and higher depressive symptoms (all ts > |2.29|, all ps < .02). These two groups of participants did not differ on any other study variables used in our analyses (all ps > .06).

At baseline, participants' age ranged from 20 to 82 years (M = 45.44, SD = 16.74), reflecting efforts to recruit a sample consisting of the entire adult lifespan. Overall, 66% of the couples were married, and the average relationship length prior to the beginning of the study was approximately 12 years (M = 12.41, SD = 14.36). The median education attained was at the bachelor's degree level, with 55% of participants holding a university degree (i.e., bachelor's, master's, or doctorate), 19% with a college or trade program diploma, and 22% with a high school diploma or less.

Procedure

At both time points, participants visited the laboratory and were asked to separately respond to a questionnaire booklet, which consisted of measures related to dispositional optimism, well-being, and physical health. These measures were included among additional questionnaires related to physical health and psychological factors (e.g., goal engagement) that were included for other research purposes.[1] In order to reduce participant fatigue, the

questionnaire packet (at baseline only) was broken into two smaller booklets. Participants were given the option of completing the second booklet at home and returning it by mail in a pre-paid envelope. Ethics approval was obtained by the Concordia University Research Ethics Board, and participants were compensated for their time at each lab visit with $30.

Measures

Optimism and Pessimism

The Life Orientation Test-Revised (LOT-R; Scheier et al., 1994) was assessed at baseline and used as both a measure of overall optimism, and its constituent subscales (i.e., optimism and pessimism). Specifically, three positively-worded items measured optimism (e.g., "In uncertain times, I usually expect the best") and three negatively-worded items measured pessimism (e.g., "If something can go wrong for me, it will"). All items were rated on a 5-point scale ranging from 0 = *strongly disagree* to 4 = *strongly agree*. For scores on the combined optimism scale, the pessimism items were reverse-coded and all six items were summed ($\alpha = .71$). The subscales were computed as the sum of their respective, non-reversed items, and high scores on the subscales reflected either high optimism or high pessimism. The optimism and pessimism subscales demonstrated adequate reliability ($\alpha = .61$ and .71, respectively), although the reliability in our study was somewhat lower than shown in meta-analytic research ($\alpha = .72$ and .75, respectively; Scheier et al., 2021). The correlation between the optimism and pessimism subscales was -.34 ($p < .01$), matching well with recent meta-analytic findings ($r = -.33$, $p = .02$; Scheier et al., 2021). The combined optimism scale was correlated with the optimism subscale ($r = .79$, $p < .01$) and the pessimism subscale ($r = -.84$, $p < .01$).

Subjective Well-Being

Different indicators of subjective well-being were assessed at both waves. First, the *Satisfaction with Life Scale* (SWLS; Diener et al., 1985) was administered, which consisted of five items rated on a 7-point scale ranging from 0 = *strongly disagree* to 6 = *strongly agree* (e.g., "In most ways my life is close to my ideal"). The *Positive and Negative Affect Schedule* (PANAS; Watson et al., 1988) was used as an indicator of emotional well-being. Participants were asked to reflect on the preceding year and rate the extent to which they experienced 10 positive emotions (e.g., interested, excited) and 10 negative emotions (e.g., distressed, hostile). All items were rated on a 5-point scale ranging from 0 = *very slightly or not at all* to 4 = *extremely*. Finally, participants completed the 10-item version of the *Center for Epidemiologic*

Studies Depression Scale (CES-D10; Andresen et al., 1994), reporting the extent to which they experienced symptoms of depression during the preceding week. All items were rated on a 4-point scale ranging from 0 = *rarely or none of the time/less than 1 day* to 3 = *all of the time/5-7 days*, with eight items reflecting negative symptoms (e.g., "I felt that everything I did was an effort") and two positive items reflecting positive states (e.g., "I felt happy"), which were reverse-coded. All indicators of subjective well-being were computed as mean scores. Internal consistency estimates were good to excellent for satisfaction with life (α_{T1} = .89, α_{T2} = .92), positive affect (α_{T1} = .89, α_{T2} = .89), negative affect (α_{T1} = .88, α_{T2} = .88), and depressive symptoms (α_{T1} = .81, α_{T2} = .84).

Physical Health

A number of different physical health outcomes were assessed at both waves. To capture participants' general *subjective health*, they were asked to rate their own overall health along a 9-point number line, which ranged from 1 = *extremely ill* to 9 = *extremely vigorous*. Next, we assessed different, more specific indicators of health and illness. As a behavioural indicator of physical health, we assessed *sleep efficiency* by administering the Pittsburgh Sleep Quality Index (Buysse et al., 1989), which asked participants to report their usual sleep habits over the preceding month. Specifically, they were asked to provide a) the time they typically laid down to sleep, b) the time they typically got out of bed in the morning, c) the number of minutes it typically took them to fall asleep once in bed, d) the number of minutes of sleep typically lost due to waking overnight, and e) the number of minutes of sleep typically lost due to waking early in the morning. Sleep efficiency was computed as a percentage reflecting the amount of time spent sleeping (i.e., time spent in bed minus the time lost before falling asleep, overnight, and waking early) relative to the total time spent in bed (e.g., Monk et al., 2000).

A 7-item measure of *physical symptoms* was administered from a checklist previously used in research that incorporated younger and older participants (see Wrosch et al., 2005). Specifically, participants were asked to report whether or not they currently suffered from the following health issues: a) thyroid problems; b) asthma, bronchitis, or emphysema; c) persistent skin trouble (e.g., eczema); d) recurring stomach trouble, indigestion, or diarrhea; e) migraine headaches; f) constipation; g) chronic sleep problems. Indicating "yes" to any of these health problems was coded as "1", and a count variable was computed for total physical symptoms.

In addition, an 8-item inventory of self-reported common *cold symptoms* was administered

(Hamrick et al., 2002). Participants were asked to report the presence and severity of cold symptoms over the preceding couple of weeks. Items were scored as 0 = *none*, and thereafter as 1 = *mild* to 4 = *very severe*. Specific items assessed the following cold symptoms: a) nasal congestion; b) sneezing; c) runny nose; d) cough; e) feeling under the weather; f) scratchy/sore throat; g) headaches; and h) fever. Past work has validated this inventory, demonstrating an association between high scores and clinical cold symptoms (Cohen et al., 2009). Finally, a 17-item checklist of chronic illnesses used in previous research (see Barlow et al., 2015) assessed for the presence of various *chronic* health problems (e.g., high blood pressure, diabetes, cancer). A count variable was computed for all chronic illnesses endorsed as being present.

Covariates

Participants reported on their age and education level, with the latter ranging from 0 to 16 and including options for none, primary school grades one through six, secondary school grades seven through 12, college or trade program diploma, bachelor's degree, master's degree, and doctorate. Dyad members were highly similar to one another in age ($r = .94$, $p < .01$) and their education levels were positively correlated as well ($r = .45$, $p < .01$). As a consequence, we included the average age and education level of the couple as covariates. We also controlled for self-reported sex (coded as 0 = *male* and 1 = *female*) and relationship status (coded as 0 = *married*, 1 = *cohabitating but not married or other*).[2]

Planned Analyses

As a first step, we assessed the descriptive characteristics and zero-order correlations between our predictor and outcome variables using SPSS. Consequently, we conducted our main analyses by calculating actor-partner interdependence models (APIM; Kashy & Kenny, 1999) to account for the fact that members of a dyadic relationship are not independent of one another. The rationale behind this method is that an individual's own traits may influence their own outcomes (an *actor effect*), but they may also influence the outcomes of their partner (a *partner effect*), and vice versa. In the context of the present study, an individual's optimism level at baseline influencing their own well-being or health at follow-up would constitute an actor effect, while the individual's optimism promoting their partner's well-being or health or the partner's optimism influencing the individual's own well-being or health at follow-up would be partner effects.

To conduct these analyses, data were organized in a pairwise manner, where each case

consisted of the dyad's identification number, the participant's number within the dyad, and predictor and outcome variables for both members of the dyad (Kenny et al., 2006; Ledermann & Kenny, 2017). For all analyses, we only excluded participants who were missing scores on our main predictor variables (i.e., the optimism and pessimism subscales) to maximize the amount of data that were available, which is reflected in the slightly differing numbers of participants among the well-being and physical health outcomes. Furthermore, we replaced missing values on the covariates with the variable means, which was necessary in two cases for mean couple age, 10 cases for mean couple education, and two cases for relationship status.

Multilevel modeling was used with restricted maximum likelihood (REML) through the MIXED procedure in SPSS. Of note, due to a lack of theoretical grounds for expecting results to differ by sex, we proceeded with our data as indistinguishable. That is, each participant was treated as both an actor and partner, rather than as women and men. This is why our models were conducted using only actor outcomes, as it would be redundant to also conduct models predicting partner outcomes. Further, dyad members shared a single slope, and we constrained the random variance and covariance to be equal between partners, while allowing intercepts to vary between dyads.

The specific setup of our models is described in greater detail in the results section. In these analyses, we focused on the differential effects of the optimism and pessimism subscales on levels and changes in well-being and health, controlling for relevant sociodemographic covariates. Furthermore, we conducted supplemental mediation analyses to explore the possibility that indicators of subjective well-being could statistically mediate any obtained differences in the associations between optimism and pessimism with physical health outcomes. Mediation was evaluated by estimating confidence intervals for the indirect effects, using parametric bootstrapping through the Monte Carlo method (Selig & Preacher, 2008). Note that we also conducted models using the combined dispositional optimism scale as a predictor, which are reported for reasons of space and parsimony in the Supplemental Material (see Appendix).

Results

Descriptive Analyses

Zero-order correlations between baseline scores on the optimism and pessimism subscales and baseline and follow-up well-being and health outcomes are reported in Table 1. In general, the results showed that a person's own high optimism and low pessimism were associated with

higher levels of subjective well-being and health. However, the pessimism subscale was more consistently associated with outcomes at both time points than the optimism subscale. This was especially true for indicators of physical health, as a person's own levels of pessimism predicted all outcomes except follow-up sleep efficiency, but their levels of optimism were only significantly correlated with subjective health at baseline and follow-up. Likewise, partner levels of pessimism were associated with multiple indicators of physical health and subjective well-being at baseline and follow-up, while partner levels of optimism were only associated with greater baseline positive affect. Taken together, these results provide preliminary evidence for our hypotheses by indicating that pessimism may be more strongly associated with well-being and physical health outcomes of actors and partners than optimism.

Further, actor and partner scores on indicators of physical health and subjective well-being were correlated at baseline and follow-up. Significant associations included life satisfaction (r_{T1} = .44, p < .01; r_{T2} = .40, p < .01), positive affect (r_{T1} = .25, p < .01), negative affect (r_{T1} = .12, p < .05; r_{T2} = .19, p < .01), depressive symptoms (r_{T1} = .34, p < .01; r_{T2} = .37, p < .01), subjective health (r_{T1} = .15, p < .05; r_{T2} = .18, p < .05), physical symptoms (r_{T1} = .12, p < .05), and cold symptoms (r_{T2} = .33, p < .01). In addition, baseline actor scores were associated with partner follow-up scores on life satisfaction (r = .35, p < .01) and depressive symptoms (r = .27, p < .01). No other cross-sectional or longitudinal actor-partner associations were significant (all ps > .05).

Cross-Sectional Models Predicting Subjective Well-Being and Physical Health

In order to control for covariates and to account for interdependence between actor and partner scores, our first set of APIM analyses predicted baseline levels of subjective well-being and health by sex, mean couple age, mean couple education, and relationship status in the model as covariates (Tables 2 and 3, Model 1a). Next, actor and partner scores on the optimism and pessimism subscales were additionally incorporated into the model (Tables 2 and 3, Model 2a).

First, we conducted four separate models to predict outcomes of *subjective well-being* at baseline in cross-sectional analyses. Model 1a (see Table 2) showed that mean couple education level was associated with significantly higher life satisfaction and positive affect, and lower negative affect and depressive symptoms (all ps < .02). Furthermore, mean couple age was negatively associated with depressive symptoms (B = -.07, p < .01) and negative affect (B = -.10, p < .01), while being female was associated with greater negative affect (B = 1.53, p = .05).

When actor and partner scores on the separate measures of optimism and pessimism were

added to the analyses (see Table 2, Model 2a), we found that the actor optimism subscale was associated with better life satisfaction (Row 1; $B = .17$, $p < .01$), positive affect ($B = .93$, $p < .01$), and depression *(*$B = -.33$, $p = .01$), but was not related to negative affect. Meanwhile, the actor pessimism subscale was associated with all four well-being outcomes in the expected directions (Row 2; *B*s between |.17| and |.85|, all *p*s < .01). Partner pessimism was significantly related to less life satisfaction (Row 4; $B = -.07$, $p < .01$) and positive affect ($B = -.36$, $p = .01$) and greater depressive symptoms ($B = .26$, $p = .02$). A surprising finding also emerged, whereby partner optimism was related to greater depressive symptoms (Row 3; $B = .27$, $p = .03$).

Of note, tests of equality of the beta coefficients supported the notion that pessimism represented a stronger predictor of subjective well-being than optimism. Specifically, a person's own levels of pessimism had significantly stronger associations than their levels of optimism with negative affect ($Z = 2.29$, $p = .02$) and depressive symptoms ($Z = 3.86$, $p < .01$). Further, partner pessimism was more strongly related than optimism to a person's own life satisfaction ($Z = 3.25$, $p < .01$) and positive affect ($Z = 2.09$, $p = .04$), while partner optimism was more positively related to a person's own depressive symptoms ($Z = 3.84$, $p < .01$).

The second set of models examined *physical health outcomes* at baseline in cross-sectional analyses. Here, Model 1a (see Table 3) indicated that participants who were unmarried reported greater sleep efficiency ($B = 4.12$, $p = .03$) and women experienced more physical symptoms ($B = .34$, $p < .01$). In addition, mean couple education was associated with greater subjective health ($B = .16$, $p = .02$) and less chronic disease ($B = -.30$, $p < .01$), while mean couple age was associated with less common cold symptoms ($B = -.00$, $p < .01$) and greater chronic disease ($B = .03$, $p < .01$).

By including the separate measures of optimism and pessimism (see Table 3, Model 2a), we found that neither actor nor partner optimism was related to any of the physical health outcomes (Row 1 and Row 3). In contrast, actor pessimism was associated with significantly lower sleep efficiency (Row 2; $B = -.99$, $p < .01$) and greater common cold symptoms ($B = .03$, $p = .03$) and physical symptoms ($B = .09$, $p < .01$). Additionally, partner pessimism was associated with lower subjective health (Row 4; $B = -.10$, $p < .01$) and greater common cold symptoms ($B = .03$, $p = .01$). Further, the effects of pessimism on physical health outcomes were all significantly different and stronger than the nonsignificant effects of optimism (all *Z*s > 2.11, all *p*s < .03).

Longitudinal Models Predicting Well-Being and Health

The second set of APIM analyses tested whether scores on the optimism and pessimism subscales would predict longitudinal changes in well-being and health. To this end, we proceeded in a nearly identical manner to the cross-sectional analyses, with the exceptions of predicting T2 outcomes as dependent variables, and including both actor and partner baseline scores on the relevant outcome into both models.

To assess change in indicators of *subjective well-being*, we predicted follow-up scores of these outcomes and first included covariates and baseline scores of the well-being measures (see Table 2, Model 1b). Actor baseline scores on each outcome measure were significantly associated with the same respective outcome at Time 2 (all *p*s < .01; see Table 2, Model 1b, Row 5), suggesting some within-person stability over time. In contrast, partner baseline outcome scores were not significantly related to the respective downstream outcome (Row 6). No covariate effects emerged.

Next, actor and partner scores on the separate measures of optimism and pessimism were added to the model (see Table 2, Model 2b). Neither actor nor partner optimism or pessimism was related to any of the subjective well-being outcomes.

To predict changes in indicators of *physical health* over time, we included covariates and baseline scores for the health outcomes in the prediction of follow-up levels of these outcomes (see Table 3, Model 1b). Couple age was associated with increased levels of chronic disease (B = .01, p < .01), while being unmarried was associated with decreased common cold symptoms (B = -.21, p = .03) and increased subjective health (B = .72, p = .01). Further, having higher mean couple education was associated with decreased common cold symptoms (B = -.11, p < .01). Similar to the analyses predicting change in subjective well-being, actors' baseline scores on indicators of physical health were positively related to their own later scores on the outcomes (all *p*s < .01; see Table 3, Model 1b, Row 5), while partners' baseline scores were unrelated to the outcomes (Row 6).

When actor and partner scores on the separate measures of optimism and pessimism were added (see Table 3, Model 2b), we found that actor and partner optimism were unrelated to any of the outcomes (Row 1 and Row 3). In contrast, actor pessimism was associated with decreased subjective health (Row 2; B = -.16, p < .01) and greater chronic disease (B = .09, p < .01) over time. Partner pessimism did not predict changes in physical health outcomes (Row 4).

Mediation Analyses

Based on the previously reported findings, we conducted additional mediation analyses with the goal of understanding whether baseline levels of well-being mediated the obtained cross-sectional and longitudinal associations between optimism and pessimism with health outcomes (i.e., subjective health, sleep efficiency, common cold symptoms, physical symptoms, and chronic disease). We report mediation results for health outcomes only when there was a statistically significant direct effect between actor or partner scores on the optimism or pessimism subscales and the outcome.

Cross-sectional Mediation

The first set of mediation analyses examined whether baseline levels of subjective well-being exerted indirect effects on the cross-sectional associations between baseline scores on the pessimism subscale and baseline levels of physical health. We did not conduct mediation analyses involving the optimism subscale, because neither actor nor partner optimism showed any cross-sectional direct effects on physical health outcomes. Results from these cross-sectional mediation analyses are illustrated in Figure 1 and Panel 1 of Table 4 and revealed that high levels of depressive symptoms mediated the associations between actor pessimism and sleep efficiency, cold symptoms, and physical symptoms. Depressive symptoms also mediated the associations between partner pessimism and subjective health and cold symptoms. Additionally, low levels of positive affect mediated the associations between actor pessimism and sleep efficiency and between partner pessimism and subjective health, while the association between actor pessimism and cold symptoms was mediated by high levels of negative affect (for CIs of the indirect effects, see Table 4).

Longitudinal Mediation

Our second set of mediation analyses examined whether baseline levels of subjective well-being exerted indirect effects in the longitudinal associations between baseline levels of pessimism changes in physical health outcomes. Once again, we did not conduct mediation analyses involving the optimism subscale, as there were no longitudinal direct effects of actor or partner optimism on change in any physical health outcomes. Results from the mediation analyses showed that none of the baseline levels of subjective well-being exerted an indirect effect in the association between actor pessimism at baseline and changes in subjective health (see Table 4, Panel 2). However, the obtained actor pessimism effect on changes in chronic

disease was mediated by high baseline levels of depressive symptom (but not any other well-being measure, see Table 4, Panel 2). We plotted the latter mediation effect in Figure 2, illustrating that the inclusion of baseline levels of depressive symptoms rendered the direct effect of actor pessimism on changes in chronic disease non-significant by exerting an indirect effect in this association (CI [.002, .064], see Figure 2).

Discussion

The primary purpose of this study was to examine the relative effects of optimism and pessimism on subjective well-being and physical health in an age-heterogeneous community sample of romantic couples. Results from cross-sectional and longitudinal analyses showed that only people's own and their partner's levels of pessimism, but not their corresponding optimism levels, were independently associated with levels and changes in physical health outcomes. In addition, people's own and their partner's pessimism levels were stronger predictors of some baseline indicators of subjective well-being than their optimism levels. Finally, baseline measures of subjective well-being mediated the cross-sectional and longitudinal effects of the pessimism subscale on indicators of physical health. Note that we also reported results using the combined LOT-R as a measure of dispositional optimism in the Supplemental Material (see Appendix). The findings for the combined scale of dispositional optimism were consistent with previous work by showing positive cross-sectional associations with subjective well-being and physical health (e.g., Carver & Gaines, 1987; Chang, 1998; King et al., 1998; Scheier & Carver, 1992).

Effects of Optimism and Pessimism

While the combined measure of dispositional optimism has been associated with greater well-being and health (e.g., Carver & Gaines, 1987; Chang, 1998; King et al., 1998; Scheier & Carver, 1992), there has been a paucity of work exploring the respective unique contributions of optimism and pessimism on well-being and health (Chang et al., 1997). Our study therefore represents a novel contribution to the literature, building on recent meta-analytic work that identified pessimism as a stronger predictor of physical health than optimism (Scheier et al., 2021).

To this end, the study's results showed adverse cross-sectional effects of a person's own pessimism on all indicators of subjective well-being and on three of the five indicators of health (sleep efficiency, cold symptoms and physical symptoms). The optimism subscale, by contrast,

was not associated with any of the baseline measures of physical health and predicted only three of the four indicators of subjective well-being (life satisfaction, positive affect, and depressive symptoms). Further, the obtained effects of pessimism on subjective well-being and physical health were significantly different and stronger than the effects of optimism. For instance, the effect of actor optimism on depressive symptoms was significantly weaker than the effect of actor pessimism on depressive symptoms (see Table 2, Model 2a).

Although our analyses did not obtain longitudinal actor effects of the optimism and pessimism subscales on changes in subjective well-being, they indicated that a person's own pessimism, but not optimism, predicted changes in physical health. In particular, a person's own pessimism was associated with reduced levels of subjective health and increased levels of chronic disease over time. Consistent with past research, these findings suggest that pessimism can be a stronger cross-sectional and longitudinal predictor of health than optimism (Scheier et al., 2021). In addition, they expand the current literature by indicating that pessimism may also be a stronger cross-sectional predictor than optimism for some measures of subjective well-being (e.g., negative affect and depressive symptoms), while both subscales may equally predict other measures of subjective well-being (e.g., positive affect and life satisfaction).

Our analyses further tested whether baseline levels of subjective well-being mediated the obtained effects of pessimism on levels and changes in health. The results showed that positive affect exerted an indirect effect on the association between low actor pessimism and efficient sleep, while negative affect mediated the association between participants' own pessimism and their high levels of cold symptoms (see Figure 1, Panel A). Moreover, a person's depressive symptoms appeared as a particularly potent mediator of physical health outcomes. Cross-sectionally, depressive symptoms exerted indirect effects on the associations between people's own pessimism and their sleeping problems, cold symptoms, and physical symptoms (see Figure 1, Panel A). Longitudinally, depressive symptoms mediated the effect of actor pessimism on increases in chronic disease over time (see Figure 2). These findings are consistent with the notion that subjective well-being may be an important psychological construct for explaining the health-related consequences of pessimism (e.g., Shen et al., 2004).

In addition to the intra-personal effects of optimism and pessimism, our cross-sectional analyses showed differential inter-personal effects. To this end, we found that partner pessimism was associated with baseline levels of subjective well-being and physical health. Specifically,

partner pessimism predicted lower levels of life satisfaction and positive affect and higher levels of depressive symptoms. Partner pessimism was also associated with lower levels of subjective health and more cold symptoms. Importantly, the negative effects of partner levels of pessimism for a person's own subjective well-being and physical health were significantly different and stronger than the effects of optimism (see Tables 2 and 3). Moreover, the analyses demonstrated significant indirect effects of indicators of subjective well-being in the association between partner pessimism and a person's health outcomes (see Figure 1, Panel B). In particular, low levels of positive affect exerted an indirect effect on the association between partner pessimism and reduced levels of subjective health. Further, high levels of depressive symptoms statistically mediated the associations between partner pessimism with reduced levels of subjective health and high levels of cold symptoms.

Partner optimism, by contrast, did not predict levels of, or changes in, any of the indicators of subjective well-being and health. As such, our findings suggest that it may be more important for a person's own well-being and health to have a partner who is low in pessimism rather than high in optimism. Note that these findings could provide an additional explanation for the enhanced effects of a person's own pessimism on their own physical health. Considering that a pessimistic person may jeopardize the well-being of her or his partner (Haid & Seiffge-Krenke, 2013), high pessimism could contribute to a generally more problematic relationship, and circle back to adversely affect the person's health.

One surprising finding emerged in our analyses, in that partner optimism was associated with higher baseline levels of actor depressive symptoms. Although we did not expect this association to evolve, one possible explanation would be that an incongruence in optimism levels within some couples could have contributed to the effect. For example, an individual who is not optimistic about the future may experience greater emotional distress if their partner is consistently optimistic. That is, a person within a dyad with a consistently optimistic orientation could put subtle pressure on the partner to adopt a more optimistic attitude as well. Clearly, more research is needed to better understand the inter-personal consequences of optimism and pessimism.

Together, the reported results suggest that pessimism can exert stronger effects than optimism on indicators of subjective well-being and physical health, both intra- and inter-personally. This pattern of finding may imply that intra- and inter-personal effects of optimism

and pessimism operate similarly. In addition, the effects of pessimism on levels and changes in participants' health were statistically mediated by levels in indicators of subjective well-being. Consequently, our findings suggest that both a person's own and his or her partner's levels of pessimism are more important contributors to the person's well-being and health than their levels of optimism.

Contributions to Theory and Research

The reported study contributes to a theoretical understanding of dispositional optimism research, which has traditionally conceptualized optimism as a bipolar construct ranging from high optimism to high pessimism (e.g., Scheier & Carver, 1985; Scheier et al., 1994). Questions have been raised about the validity of this bipolar conceptualization, with some researchers suggesting a that a two-factor model may fit the data better (e.g., Chang & McBride-Chang, 1996) and that optimism and pessimism may have distinct effects on physical and psychological well-being (Kubzansky et al., 2004). Consistent with recent work (Scheier et al., 2021), our findings presented in the OSM showed that the combined measure of optimism was a reliable predictor of physical health. Moreover, and maybe more importantly, the analyses reported in the main body of the manuscript also demonstrated that the absence of pessimism proved to be a stronger predictor of physical health than the presence of optimism.

Different from the meta-analytic findings, which documented health effects of both optimism and pessimism (Scheier et al., 2021), our study showed that the optimism subscale was unrelated to levels and changes in indicators of health. Note, however, that our analysis controlled the effects of optimism for pessimism, and vice versa, while the recently published meta-analysis evaluated differences in effect sizes of optimism and pessimism without controlling each construct for the other (Scheier et al., 2021). As such, the present analysis is arguably more conservative, as it removes the variance shared between optimism and pessimism. It should also be mentioned that the meta-analysis focused exclusively on objective indicators of physical health. Our analyses, by contrast, relied on self-reports of health, and this difference might have played a role in producing the inconsistent results. Clearly, more research is needed comparing the strength of associations between optimism, pessimism, and health.

One novel contribution of our study was that the stronger health effects of pessimism extended to some indicators of subjective well-being (e.g., negative affect and depressive symptoms). This pattern of findings underscores recommendations made elsewhere (e.g., Scheier

et al., 1994, 2021), suggesting that researchers should at a minimum provide effects for the separate subscales, as the combined optimism scale may not reveal the full picture. Indeed, our results reported in the OSM show that some differences between the optimism and pessimism subscales would otherwise have been concealed by only using the combined measure of dispositional optimism. Note that this recommendation may have further implications for other research fields, such as positive psychology. This area concerns the positive traits and emotions that promote happiness and well-being (Seligman & Csikszentmihalyi, 2014). As a personality trait emphasizing positive expectancies, dispositional optimism is often considered a positive psychology variable (Snyder et al., 2021). Our results, however, show that optimism as traditionally operationalized may lack nuance and that positive psychology researchers ought to consider that the absence of negative psychological traits, such as pessimism, may at times be driving associations with beneficial outcomes (Norem & Chang, 2002).

Another contribution of the present research is that the obtained levels of subjective well-being and physical health were not only associated with people's own levels of optimism or pessimism, but also with their partner's levels. This finding implies that individual differences in personality constructs, such as dispositional optimism, operate in a social context across people (inter-personally) and not only within people (intra-personally). While the latter conclusion is consistent with previous research (e.g., Chung et al., 2016; Karademas & Thomadakis, 2020; Kim et al., 2014), our findings contribute to this literature by documenting that stronger effects of pessimism, as compared to optimism, can be found both intra-personally and inter-personally. Indeed, our findings may help to clarify inconsistent results of past work, which has found greater inter-personal associations between either optimism or pessimism depending on the outcome measured (e.g., Arbel et al., 2020; Haid & Seiffge-Krenke, 2013; Smith et al., 2013). To this end, the results of our study suggest that the pathways linking optimism and pessimism with physical health could be similar within and across individuals.

In addition, the reported results show evidence for a psychological pathway that could explain stronger health effects of pessimism, as compared to optimism. That is, our findings point to the conclusion that subjective well-being is an important psychological variable that needs to be considered in research separating the health effects of optimism and pessimism. It is well known that stress experiences can elicit adverse emotional experiences and through this pathway may jeopardize people's physical health (e.g., Cohen et al., 1995). Optimism and

pessimism relate differently to adjustment to stressful events (e.g., through effective coping or social support; Scheier et al., 1986; Segerstrom et al., 1998), and therefore high optimism may contribute to both better subjective well-being and physical health. Here, our findings point out that the presence of pessimism can exert stronger associations with some adverse emotional experiences than the absence of optimism (e.g., negative affect and depressive symptoms), and that these differential emotional experiences could possibly help explain the stronger physical health effects of pessimism.

Finally, our findings revealed some differences between different indicators of subjective well-being. Diener (1984) theorized that subjective well-being has a tripartite structure, comprising high positive affect, low negative affect, and high life satisfaction. However, affective well-being (e.g., positive and negative mood, depressive symptoms) and cognitive well-being (e.g., life satisfaction) have been shown to differ empirically and in associations with physical health (Diener & Chan, 2011; Lucas et al., 1996; Luhmann et al., 2012; Wiest et al., 2011). While our study found that pessimism was associated with all measured indicators of well-being, we did not obtain indirect effects of life satisfaction. As such, our study indicates that the affective, but not the cognitive components of well-being mediated associations between pessimism and physical health. We suggest that more research is needed to explain these differences. Such research may include assessing health behaviors and physiological markers that could be differentially associated with affective and cognitive indicators of well-being and physical health.

Limitations and Future Directions

Although our study has a number of different strengths, including the collection of longitudinal data from an age-heterogeneous community sample of romantic couples, it also contains several limitations that need to be addressed in future research. First, the study consists of correlational data from a relatively small sample of opposite-sex couples, collected in a geographically limited region of Canada. As a consequence, the analyses cannot address causality issues and experimental research is needed to substantiate our conclusions. In addition, to examine the representativeness of the reported findings, it would be useful to replicate the findings in larger longitudinal research, including diversity with respect to ethnicity, culture, and sexual orientation. For instance, the present sample included only opposite-sex couples, which may limit the generalizability of our findings to same-sex couples.

Second, our analysis relied on self-reports of indicators of physical health. While these measures have been used in previous research, future work would benefit from including more objective measures of physical health (e.g., documented disease, objective markers of morbidity, and mortality). Such research should also include health behaviors and biomarkers (e.g., indicators of hormone and immune function; Arbel et al., 2020; Jobin et al., 2014; Segerstrom et al., 1998), which could play an important role in the associations between optimism, pessimism, subjective well-being, and physical health. Conducting comprehensive studies, along the lines envisioned, would seem to be particularly important given some differences already noted between the present study and prior meta-analytic work (Scheier et al., 2000).

Third, future work should explore additional mediators of the associations between optimism and pessimism with subjective well-being and physical health. For instance, given that in the context of life challenges, optimists tend to use more adaptive coping strategies and build more supportive social networks than pessimists (Brissette et al., 2002; Nes & Segerstrom, 2006; Vollmann et al., 2011), these variables could represent potential mediators linking effects of optimism and pessimism with subjective well-being and health. As such, including these variables into future studies could provide a more comprehensive picture of how optimism and pessimism can differentially influence well-being and health.

Fourth, our findings did not show longitudinal effects of optimism or pessimism on subjective well-being, and perhaps fewer than expected longitudinal effects on health. While this pattern seems to be inconsistent with some extant research (e.g., Kim et al., 2014; Rasmussen et al., 2009; Scheier et al., 2001), it is important to acknowledge that not all studies have shown effects of dispositional optimism on changes in subjective well-being or physical health (e.g., Fitzgerald et al., 1993; Wlodarczyk, 2017).

Although there could be a host of factors that have contributed to a partial lack of longitudinal effects, such as the measurement of health through self-reports or the timing of the follow-up assessment, we would like to point to one additional possibility. Our study consisted of a community sample of longer-term romantic couples that had self-selected themselves into the study. It could be that these participants were better adjusted than other couples (who did not opt to participate in our study), and thus the time interval of approximately three years between assessments was not long enough for severe life stressors to arise and to affect more changes in well-being and health. Since dispositional optimism is thought to become paramount in the

context of stress (Scheier et al., 1986), it would therefore be important for future research to study populations that are normatively exposed to more frequent and severe stressors, such as older adults or people who experience specific critical life events (e.g., an illness or a loss of employment). In such samples, our theoretical framework would expect to obtain stronger effects of optimism and pessimism on changes in well-being and health.

Fifth, it would also be desirable to gain a more nuanced understanding of how actor and partner optimism and pessimism predict change in outcome variables. For example, our study surprisingly showed a positive association between partner optimism and actor depressive symptoms. To this end, some past work has suggested that similar as opposed to dissimilar change in optimism between partners could affect health outcomes over time (Chopik et al., 2018). As such, it may be useful for future research to examine the effects of congruence versus incongruence in levels and changes of optimism and pessimism in dyadic contexts.

Finally, it would be important to translate the study's findings into clinical interventions designed to modify a person's outcome expectancies. Meta-analytic research suggests that optimism can in fact be increased (Malouff & Schutte, 2017), with techniques such as the "best-possible-self intervention" showing promise (e.g., Peters et al., 2010). Other strategies aimed at pessimism-reduction may likewise prove effective. For instance, cognitive restructuring is a technique of cognitive behavior therapy and involves helping individuals to methodically challenge their negative thoughts and beliefs (Clark, 2013). Indeed, it would be possible that interventions aimed at reducing pessimism rather than promoting optimism could produce distinct effects for a person's well-being and health. It may turn out that the largest gains for a person's quality of life can be achieved if practitioners apply evidence-based methods that target a person's levels of pessimism.

Conclusions

The present study showed in a sample of romantic couples that pessimism is a stronger predictor of subjective-well-being and physical health outcomes than optimism, both intra- and inter-personally. In addition, levels of subjective well-being mediated the effects of pessimism on health-related outcomes. The results support the idea that subjective well-being can operate as a health-relevant psychological variable that can explain differential associations between optimism and pessimism with physical health. These findings represent an important contribution to the literature as they clarify questions about the respective contributions of

optimism and pessimism to well-being and health. In addition, they should be considered as clinically important and used to develop interventions aimed at promoting subjective well-being and physical health.

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Footnotes

[1] Note that data from this sample have been reported in previous research, including results on relationship motivation and goal progress (e.g., Holding et al., 2020). However, none of this work examined the differential effects of optimism and pessimism on physical health or subjective well-being.

[2] Originally the relationship status variable was coded as 0 = *married*, 1 = *cohabitating but not married*, and 2 = other. Since only five participants endorsed the "other" option, we recoded these cases as "cohabitating but not married, or other" in order to simplify the covariate.

Table 1.

Descriptive Statistics and Correlations Between Actor and Partner Optimism and Pessimism at Baseline with Actor Well-Being and Health Outcomes at Baseline and Follow-Up.

	Mean (*SD*)	1	2	3	4
Baseline optimism & pessimism					
1. Actor optimism	8.27 (2.31)	-			
2. Actor pessimism	3.84 (2.62)	-.341**	-		
3. Partner optimism	8.27 (2.31)	.140*	-.091	-	
4. Partner pessimism	3.84 (2.62)	-.091	.209**	-.341**	-
Baseline well-being outcomes					
Actor life satisfaction	4.02 (1.33)	.430**	-.514**	.093	-.267**
Actor positive affect	26.56 (7.02)	.406**	-.400**	.122*	-.234**
Actor negative affect	11.22 (7.40)	-.205**	.332**	.021	.111
Actor depressive symptoms	6.89 (5.57)	-.275**	.478**	.019	.197**
Baseline health outcomes					
Actor subjective health	7.00 (1.42)	.126*	-.157**	.051	-.207**
Actor sleep efficiency	84.76 (13.82)	.083	-.182**	-.021	-.037
Actor cold	.51 (.51)	-.017	.168**	-.004	.184**
Actor physical symptoms	.88 (1.03)	-.111	.236**	.061	.103
Actor chronic disease	1.05 (1.50)	-.089	.145*	-.007	.062
Follow-up well-being outcomes					
Actor life satisfaction	4.15 (1.41)	.374**	-.367**	.059	-.210**
Actor positive affect	26.27 (6.85)	.344**	-.310**	.029	-.200**
Actor negative affect	9.49 (6.86)	-.075	.198**	.113	.100
Actor depressive symptoms	6.27 (5.31)	-.261**	.384**	.021	.189**
Follow-up health outcomes					
Actor subjective health	7.00 (1.56)	.159*	-.406**	-.039	-.226**
Actor sleep efficiency	83.98 (13.82)	-.019	-.117	-.012	-.138
Actor cold	.55 (.61)	-.015	.165*	-.027	.193**
Actor physical symptoms	.81 (1.04)	-.047	.185**	.053	.032
Actor chronic disease	1.23 (1.46)	-.121	.228**	-.061	.056

Note. Correlations are designated as significant with * $p < .05$, ** $p < .01$.

Table 2.

Predicting Baseline and Follow-Up Indicators of Subjective Well-Being by Separate Measures of Optimism and Pessimism.

	Life satisfaction (T1: *n* = 304 T2: *n* = 193)		Positive affect (T1: *n* = 303 T2: *n* = 194)		Negative affect (T1: *n* = 303 T2: *n* = 194)		Depressive symptoms (T1: *n* = 302 T2: *n* = 194)	
	B (*SE*)	*t*	*B* (*SE*)	*t*	*B* (*SE*)	*t*	*B (SE)*	*t*
T1								
Model 1a								
Sex	.03 (.11)	.27	.39 (.70)	.56	1.53 (.79)	1.95*	.56 (.52)	1.08
Couple age	.01 (.00)	1.54	-.05 (.03)	-1.63	-.10 (.03)	-3.58**	-.07 (.02)	-2.94**
Couple education	.29 (.07)	4.30**	1.23 (.34)	3.57**	-.79 (.34)	-2.32*	-.76 (.28)	-2.66**
Relationship status	-.29 (.20)	-1.49	-1.00 (.99)	-1.01	.88 (.98)	.90	.07 (.82)	.08
Model 2a								
Actor optimism	.17 (.03)	6.18**	.93 (.16)	5.80**	-.32 (.18)	-1.79	-.33 (.12)	-2.61*
Actor pessimism	-.17 (.02)	-7.07**	-.64 (.14)	-4.42**	.78 (.16)	4.78**	.85 (.11)	7.60**
Partner optimism	-.03 (.03)	-.94	-.01 (.16)	-.06	.22 (.18)	1.24	.27 (.12)	2.15*
Partner pessimism	-.07 (.02)	-2.91**	-.36 (.14)	-2.49*	.10 (.16)	.65	.26 (.11)	2.29*
T2								
Model 1b								
Sex	.04 (.13)	.35	.46 (.67)	.68	.62 (.73)	.85	.23 (.56)	.41
Couple age	-.00 (.01)	-.93	-.01 (.03)	-.23	-.00 (.03)	-.15	.00 (.02)	.15
Couple education	-.05 (.07)	-.74	-.46 (.33)	-1.39	.25 (.36)	.71	-.19 (.28)	-.65
Relationship status	.30 (.19)	1.57	-.04 (.91)	-.05	-1.63 (1.00)	-1.63	-1.43 (.80)	-1.78
T1 actor outcome	.70 (.06)	11.90**	.66 (.05)	12.43**	.55 (.06)	9.68**	.52 (.06)	8.35**
T1 partner outcome	.07 (.06)	1.20	-.08 (.05)	-1.54	.02 (.05)	.39	.06 (.06)	.90
Model 2b								
Actor optimism	.05 (.04)	1.23	.19 (.19)	1.04	.09 (.20)	.45	-.30 (.15)	-1.92
Actor pessimism	-.01 (.03)	-.38	-.08 (.17)	-.45	-.05 (.18)	-.26	.15 (.15)	1.04
Partner optimism	-.03 (.04)	-.88	-.12 (.19)	-.62	.33 (.20)	1.68	.14 (.15)	.90
Partner pessimism	.01 (.03)	.31	-.19 (.17)	-1.13	.32 (.18)	1.75	.08 (.15)	.52

Note. Relationship status was coded as 0 = married and 1 = not married; sex was coded as 0 = male and 1 = female. * $p < .05$, ** $p < .01$

Table 3.

Predicting Baseline and Follow-Up Indicators of Physical Health by Separate Measures of Optimism and Pessimism.

	Subjective health (T1: n = 293 T2: n = 177)		Sleep efficiency (T1: n = 295 T2: n = 194)		Common cold (T1: n = 304 T2: n = 194)		Physical symptoms (T1: n = 304 T2: n = 194)		Chronic disease (T1: n = 304 T2: n = 194)	
Predictors	*B* (*SE*)	*t*	*B* (*SE*)	*t*	*B* (*SE*)	*t*	*B* (*SE*)	*t*	*B* (*SE*)	*t*
T1										
Model 1a										
Sex	.03 (.15)	.18	-2.01 (1.54)	-1.31	.05 (.06)	.82	.34 (.11)	3.18**	-.01 (.17)	-.04
Couple age	-.00 (.00)	-.58	-.01 (.05)	-.26	-.00 (.00)	-2.93**	-.00 (.00)	-.48	.03 (.00)	6.03**
Couple education	.16 (.07)	2.33*	.89 (.66)	1.35	-.04 (.02)	-1.90	-.08 (.05)	-1.61	-.30 (.06)	-5.17**
Relationship status	-.24 (.20)	-1.21	4.12 (1.90)	2.16*	.12 (.06)	1.79	-.05 (.14)	-.38	.09 (.17)	.52
Model 2a										
Actor optimism	.05 (.04)	1.25	.14 (.37)	.37	.01 (.01)	.82	-.01 (.03)	-.48	-.03 (.04)	-.74
Actor pessimism	-.04 (.03)	-1.09	-.99 (.33)	-2.98**	.03 (.01)	2.18*	.09 (.02)	3.70**	.05 (.03)	1.51
Partner optimism	-.02 (.04)	-.65	-.16 (.37)	-.44	.01 (.01)	1.02	.04 (.03)	1.61	.02 (.04)	.53
Partner pessimism	-.09 (.03)	-2.76**	-.07 (.33)	-.20	.03 (.01)	2.47*	.03 (.02)	1.20	.00 (.03)	.12
T2										
Model 1b										
Sex	.34 (.21)	1.62	-2.59 (1.83)	-1.42	.08 (.07)	1.20	.06 (.12)	.49	.00 (.15)	.02
Couple age	.00 (.01)	.58	-.05 (.05)	-1.06	-.00 (.00)	-.60	.00 (.00)	.85	.01 (.00)	2.72**
Couple education	.03 (.10)	.33	.39 (.60)	.65	-.11 (.04)	-3.02**	-.04 (.04)	-.94	-.05 (.06)	-.79
Relationship status	.72 (.28)	2.55*	-.04 (1.75)	-.02	-.23 (.10)	-2.20*	-.02 (.12)	-.15	.08 (.16)	.51
T1 Actor outcome	.47 (.08)	5.75**	.58 (.07)	8.65**	.42 (.08)	5.59**	.67 (.06)	11.40**	.79 (.06)	12.96**
T1 Partner outcome	.10 (.08)	1.17	.03 (.06)	.48	.07 (.08)	.87	.08 (.06)	1.32	-.05 (.06)	-.92
Model 2b										
Actor optimism	.00 (.05)	.07	-.00 (.42)	-.01	.01 (.02)	.37	.02 (.03)	.77	.05 (.03)	1.57
Actor pessimism	-.16 (.05)	-3.24**	.01 (.38)	.03	.01 (.02)	.59	.02 (.02)	.71	.09 (.03)	2.78**
Partner optimism	-.07 (.06)	-1.16	-.36 (.43)	-.84	-.00 (.02)	-.21	.01 (.03)	.31	-.03 (.03)	-.77
Partner pessimism	-.05 (.05)	-1.03	-.56 (.39)	-1.43	.01 (.02)	.55	-.03 (.03)	-1.27	-.05 (.03)	-1.56

Note. Relationship status was coded as 0 = married and 1 = not married; sex was coded as 0 = male and 1 = female. * $p < .05$, ** $p < .01$

Table 4.

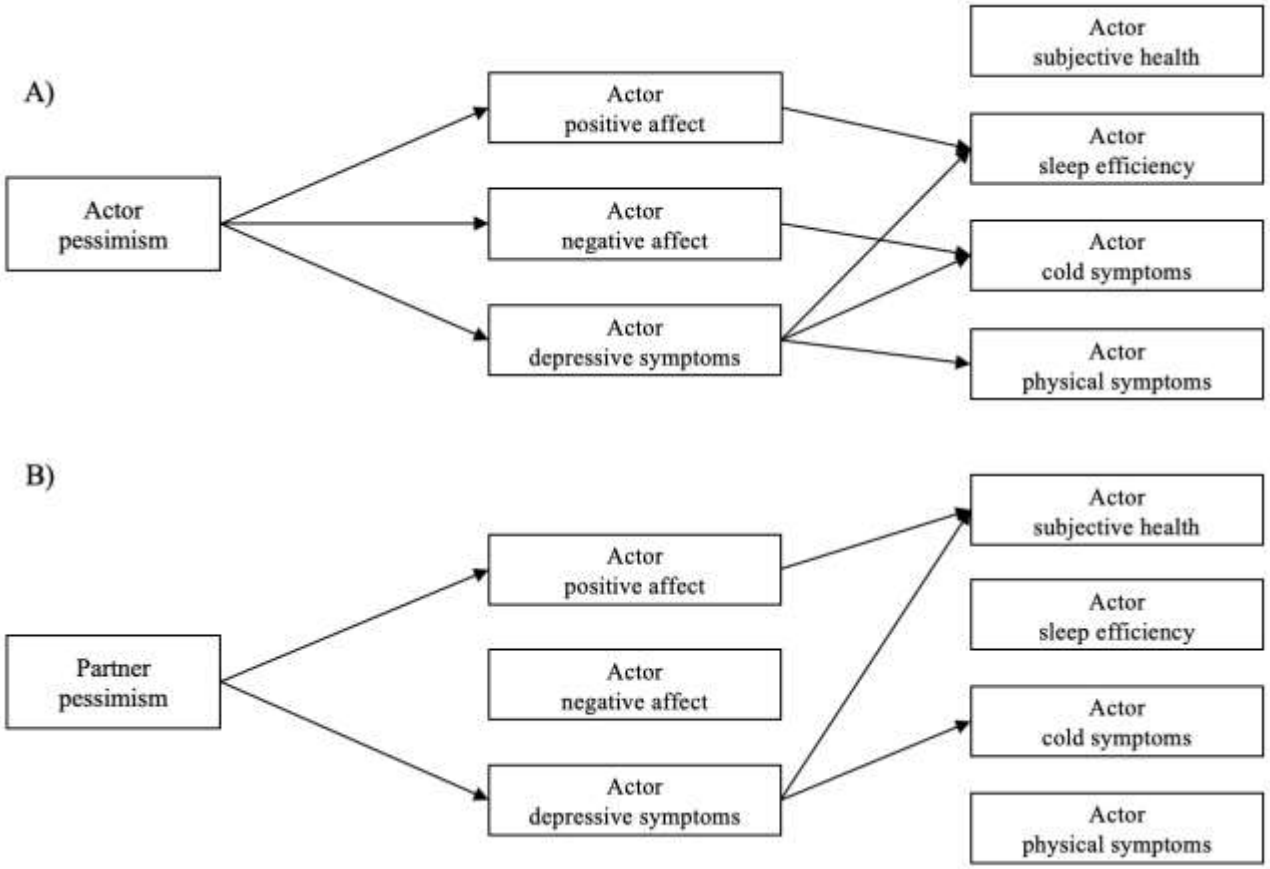
Indirect Effects of Subjective Well-Being in the Associations Between Optimism and Pessimism with Baseline Levels and Change in Physical Health.

Outcomes and predictors	Actor Life satisfaction (95% CI)	Actor Positive affect (95% CI)	Actor Negative affect (95% CI)	Actor Depressive symptoms (95% CI)
Actor subjective health				
Partner pessimism	(-.026, .002)	(-.038, -.003)*	(-.005, .005)	(-.028, -.003)*
Actor sleep efficiency				
Actor pessimism	(-.394, .169)	(-.485, -.079)*	(-.275, .112)	(-.802, -.161)*
Actor cold symptoms				
Actor pessimism	(-.004, .017)	(-.001, .013)	(.006, .023)*	(.014, .039)*
Partner pessimism	(-.002, .008)	(-.000, .009)	(-.004, .008)	(.001, .016)*
Actor physical symptoms				
Actor pessimism	(-.009, .032)	(-.007, .018)	(-.000, .029)	(.015, .060)*
Δ Actor subjective health				
Actor pessimism	(-.037, .018)	(-.032, .006)	(-.041, .015)	(-.059, .019)
Δ Actor chronic disease				
Actor pessimism	(-.030, .011)	(-.005, .027)	(-.014, .021)	(.002, .064)*

Note. * Indirect effects are significant at $p < .05$ if the 95% confidence interval did not cross zero.

Figure 1.

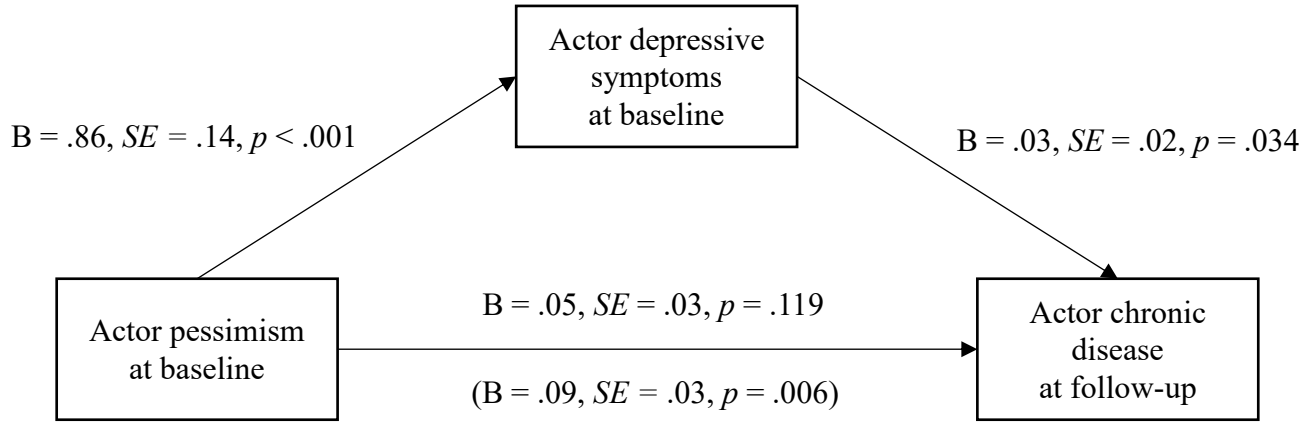
Significant Indirect Effects of Subjective Well-Being in the Cross-Sectional Associations Between Actor Pessimism (Panel A) and Partner Pessimism (Panel B) with Indicators of Physical Health.



Note. Pathways controlled for mean couple age and education, sex, relationship status, actor and partner optimism, and partner pessimism (Panel A) or actor pessimism (Panel B).

Figure 2.

Indirect effect of baseline levels of actor depression in the association between actor pessimism and changes in actor chronic disease.



Note. Unstandardized regression coefficients and standard errors are reported. Coefficients in parentheses represent the direct effect, not controlling for depressive symptoms. Pathways controlled for mean couple age, mean couple education, sex, relationship status, and baseline levels of actor and partner optimism, partner pessimism, and actor and partner chronic disease at baseline. The 95% confidence interval of the indirect effect did not cross zero (CI [.002, .064]).

Appendix – Supplemental Material

Introduction

Dispositional optimism has been associated with better physical health (for meta-analytic review, see Rasmussen et al., 2009) and subjective well-being (e.g., Carver & Gaines, 1987; Chang, 1998; King et al., 1998). In addition to these intra-personal effects, cross-sectional and longitudinal research also showed that having a spouse who scores high on dispositional optimism is associated with a person's own improved physical health and subjective well-being (i.e., inter-personal; Chung et al., 2016; Karademas & Thomadakis, 2020; Kim et al., 2014; Oh et al., 2020; Ruiz et al., 2006; Weinberg et al., 2016).

Dispositional optimism has been measured in these studies using the Life Orientation Test (LOT; Scheier & Carver, 1985) or its revised form (the Life Orientation Test-Revised, LOT-R; Scheier et al., 1994). These measures include items reflecting both optimistic expectancies and pessimistic expectancies. To obtain a score for dispositional optimism, these two sets of items are usually combined after reverse coding of the pessimism items. Importantly, in support of previous work that questioned the bipolar conceptualization of dispositional optimism (e.g., Chang & McBride-Chang, 1996), a recent reanalysis of extant work on dispositional optimism and health showed only a moderate negative association between the optimism and pessimism subscales (Scheier et al., 2021). Further, this reanalysis showed that the absence of pessimism is a stronger predictor of physical health than the presence of optimism.

The purpose of the main manuscript was to further explore the differential inter-personal effects of the optimism and pessimism subscales on indicators of subjective well-being and physical health. These online supplemental materials report complementary results for the combined measure of dispositional optimism (i.e., the LOT-R). Specifically, these analyses aimed to replicate findings of past cross-sectional and longitudinal work, demonstrating positive intra- and inter-personal effects of the combined optimism and pessimism subscales of the overall dispositional optimism measure on subjective well-being and physical health. Additional analyses explored the possibility that indicators of subjective well-being could mediate associations between this combined dispositional optimism measure and physical health.

Methods

For a detailed description of the sample, procedure, and measures used, refer to main manuscript. Planned analyses involved actor-partner interdependence models (APIM; Kashy & Kenny, 1999) that were identical to those described in the main manuscript, with the exception that actor and partner scores on the combined measure of dispositional optimism were included, not the separate optimism and pessimism subscales.

Results

Descriptive Analyses

Zero-order correlations between baseline scores on the combined LOT-R and baseline and follow-up well-being and health outcomes are reported in Table 1. Generally, within people, results showed that higher levels of combined dispositional optimism were associated with higher levels of subjective well-being and health. Though there were fewer associations between partner combined dispositional optimism and subjective well-being and health, those that were significant were in the expected directions. Actor and partner scores on the combined LOT-R were correlated at .20 ($p < .01$), matching well with other dyadic studies of dispositional optimism (e.g., Karademas & Thomadakis, 2020; Kim et al., 2014).

Cross-Sectional Models Predicting Subjective Well-Being and Physical Health

In our first set of APIM analyses, we conducted four separate models to predict outcomes of *subjective well-being* at baseline. Model 1a (see Table 2) showed that actor combined dispositional optimism was significantly associated with all four subjective well-being outcomes. Specifically, it was associated with greater life satisfaction ($B = .17$, $p < .01$) and positive affect ($B = .77$, $p < .01$), while it was also related to lower negative affect ($B = -.57$, $p < .01$) and depressive symptoms ($B = -.61$, $p < .01$). Meanwhile, partner combined dispositional optimism was associated with greater positive affect ($B = .19$, $p = .03$), but not any other subjective well-being outcome.

Next, we conducted five separate models to predict outcomes of *physical health* at baseline. Model 1a (see Table 3) showed that actor combined dispositional optimism was related to four of the physical health outcomes, with the exception of common cold symptoms. Specifically, it was associated with greater subjective health ($B = .04$, $p = .04$) and sleep efficiency ($B = .61$, $p < .01$), but predicted fewer physical symptoms ($B = -.05$, $p < .01$) and less

chronic disease (B = -.04, p = .049). However, partner combined dispositional optimism was not related to any of the health outcomes.

Longitudinal Models Predicting Well-Being and Health

The second set of APIM analyses tested whether scores on the combined LOT-R would predict longitudinal changes in well-being and health. We predicted T2 outcomes as dependent variables and included both actor and partner baseline scores on the relevant outcome in the models.

We conducted four separate models to predict change in *subjective well-being*. Model 1b (Table 2) showed that actor combined dispositional optimism was significantly related to longitudinal decreases in depressive symptoms (B = -.22, p = .01), but was not associated with the other three indicators of subjective well-being. Meanwhile, partner combined dispositional optimism was not significantly related to any of the outcomes.

Next, we conducted five separate models to predict change in *physical health*. Model 1b (Table 3) showed that actor combined dispositional optimism was associated with greater subjective health over time (B = .09, p < .01), but was unrelated to the other physical health outcomes. Meanwhile, partner combined dispositional optimism was unrelated to any of the indicators of physical health over time.

Mediation Analyses

We conducted additional mediation analyses to explore the possibility that subjective well-being could mediate associations between actor and partner combined dispositional optimism and physical health.

Cross-sectional Models

The first set of mediation analyses examined whether baseline levels of subjective well-being exerted indirect effects on the cross-sectional associations between baseline levels of combined dispositional optimism and baseline levels of physical health. Results from these cross-sectional mediation analyses are illustrated in Figure 1 and Panel 1 of Table 4. They showed that actor combined dispositional optimism effects on subjective health, sleep efficiency, and chronic disease were mediated by high levels of positive affect and low levels of depressive symptoms (but not by life satisfaction or negative affect). In addition, negative affect mediated effects of combined actor dispositional optimism on physical symptoms. Though the direct effect of partner combined dispositional optimism on subjective health was non-significant (B = .04, p = .06), a

significant indirect effect of positive affect was obtained for this association (see Table 4, Panel 1).

Longitudinal Models

Our second set of mediation analyses examined whether baseline levels of subjective well-being exerted indirect effects in the longitudinal associations between baseline levels of combined dispositional optimism and changes in physical health outcomes. Though there was a direct effect of actor combined dispositional optimism on changes in subjective health, results from the mediation analyses showed that none of the baseline levels of subjective well-being exerted an indirect effect in this association (see Table 4, Panel 2). Given the significant direct effect of actor combined dispositional optimism on change in depressive symptoms, we also tested whether change in depressive symptoms had an indirect effect on the association between actor combined dispositional optimism and change in subjective health using a residualized change score. The indirect effect was not significant, CI [-.002, .027].

Discussion

Participants' scores on the combined LOT-R were associated with better scores on all baseline measures of well-being (i.e., life satisfaction, positive and negative affect, depressive symptoms) and physical health (i.e., subjective health, sleep efficiency, physical symptoms, chronic disease), with the exception of cold symptoms. In addition, we found that a person's own combined dispositional optimism at baseline predicted declines in depressive symptoms and increases in subjective health over time.

Our analyses of the combined LOT-R also showed that, independent of actor scores, partner scores were associated with increased baseline levels of positive affect. That is, a person's own positive affect was higher when their partner was more optimistic. This finding is consistent with past work, which has demonstrated inter-personal effects of dispositional optimism on positive affect (Karademas & Thomadakis, 2020). Different from this study, we found no longitudinal effects of partner combined dispositional optimism on changes in a person's own subjective well-being. Similarly, while past work has shown cross-sectional and longitudinal effects of dispositional optimism on physical health (e.g., Kim et al., 2014), we found no inter-personal effects of combined dispositional optimism on physical health.

The findings using the combined LOT-R lend further support to the conceptualization of subjective well-being as a health-relevant psychological variable (Cohen et al., 2007; Diener &

Chan, 2011). Specifically, the cross-sectional associations between a person's own combined dispositional optimism and subjective health, sleep efficiency, and chronic disease were mediated by high positive affect and low depressive symptoms (see Figure 1, Panel A). There were also indirect effects of low negative affect and depressive symptoms on the association between a person's own combined dispositional optimism and physical symptoms. Additionally, a person's positive affect exerted an indirect effect on the association between their partner's combined dispositional optimism and their own subjective health. That is, the benefits of having an optimistic partner for a person's subjective health may be explained by the person's own positive affect.

Importantly, our results also showed that some differences between the optimism and pessimism subscales of the LOT-R can be missed when only the combined measure of dispositional optimism is used (see Results section of main manuscript). For instance, while higher actor scores on the combined LOT-R were associated with lower negative affect, teasing apart the subscales showed that only the pessimism subscale was significantly associated with negative affect. Though partner combined dispositional optimism was only related to one indicator of subjective well-being, the pessimism subscale was associated with three. Further, though actor combined dispositional optimism was associated with four of five measures of physical health, actor scores on the optimism subscale were unrelated to any health outcomes, while actor pessimism was associated with three. These findings underscore recommendations made elsewhere (e.g., Scheier et al., 1994, 2020) that researchers should report separate effects for the optimism and pessimism subscales.

Taken together, the pattern of results obtained for the combined LOT-R is consistent with past work demonstrating the benefits of dispositional optimism for subjective well-being and health (Scheier & Carver, 1992; Shen et al., 2004). In addition, it provides evidence that the combined scale of dispositional optimism can not only produce intra-personal, but also inter-personal effects for the well-being of a person's romantic partner. Finally, it demonstrates that the subscales of the LOT-R should be separately examined in future work, in order to avoid losing important information.

Table 1.

Descriptive Statistics and Correlations Between Actor and Partner Combined Optimism at Baseline with Actor Well-Being and Health Outcomes at Baseline and Follow-Up.

	Mean (*SD*)	1	2
Baseline combined optimism			
1. Actor combined optimism	16.43 (4.03)	-	
2. Partner combined optimism	16.43 (4.03)	.199**	-
Baseline well-being outcomes			
Actor life satisfaction	4.02 (1.33)	.577**	.226**
Actor positive affect	26.56 (7.02)	.490**	.219**
Actor negative affect	11.22 (7.40)	-.330**	-.061
Actor depressive symptoms	6.89 (5.57)	-.466**	-.116*
Baseline health outcomes			
Actor subjective health	6.99 (1.42)	.172**	.161**
Actor sleep efficiency	84.76 (13.82)	.166**	.011
Actor cold	.51 (.51)	-.116*	-.123*
Actor physical symptoms	.88 (1.03)	-.214**	-.031
Actor chronic disease	1.05 (1.50)	-.145*	-.043
Follow-up well-being outcomes			
Actor life satisfaction	4.15 (1.41)	.440**	.169*
Actor positive affect	26.27 (6.85)	.387**	.143*
Actor negative affect	9.49 (6.86)	-.166*	-.005
Actor depressive symptoms	6.27 (5.31)	-.388**	-.111
Follow-up health outcomes			
Actor subjective health	7.00 (1.55)	.345**	.120
Actor sleep efficiency	83.98 (13.82)	.066	.077
Actor cold	.55 (.61)	-.110	-.138
Actor physical symptoms	.81 (1.04)	-.140	.013
Actor chronic disease	1.23 (1.46)	-.211**	-.066

Note. Correlations are designated as significant with * $p < .05$, ** $p < .01$.

Table 2.

Predicting Baseline and Follow-Up Indicators of Subjective Well-Being by a Combined Measure of Dispositional Optimism.

	Life satisfaction (T1: *n* = 304 T2: *n* = 193)		Positive affect (T1: *n* = 303 T2: *n* = 194)		Negative affect (T1: *n* = 303 T2: *n* = 194)		Depressive symptoms (T1: *n* = 302 T2: *n* = 194)	
	B (*SE*)	*t*	*B* (*SE*)	*t*	*B* (*SE*)	*t*	*B (SE)*	*t*
T1								
Model 1a								
Actor combined optimism	.17 (.01)	11.43**	.77 (.09)	8.84**	-.57 (.10)	-5.71**	-.61 (.07)	-8.85**
Partner combined optimism	.03 (.01)	1.81	.18 (.09)	2.10*	.04 (.10)	.41	-.02 (.07)	-.26
T2								
Model 1b								
Actor combined optimism	.03 (.02)	1.31	.13 (.11)	1.23	.06 (.11)	.52	-.22 (.09)	-2.53*
Partner combined optimism	-.02 (.02)	-.94	.05 (.11)	.44	-.02 (.11)	-.17	.03 (.09)	.31

Note. All models controlled for sex, mean couple age and education, and relationship status. Longitudinal models also controlled for baseline actor and partner scores on the respective outcome measure. Relationship status was coded as 0 = married and 1 = not married; sex was coded as 0 = male and 1 = female. * $p < .05$, ** $p < .01$.

Table 3.

Predicting Baseline and Follow-Up Indicators of Physical Health by a Combined Measure of Dispositional Optimism.

	Subjective health (T1: *n* = 293 T2: *n* = 177)		Sleep efficiency (T1: *n* = 295 T2: *n* = 194)		Common cold (T1: *n* = 304 T2: *n* = 194)		Physical symptoms (T1: *n* = 304 T2: *n* = 194)		Chronic disease (T1: *n* = 304 T2: *n* = 194)	
Predictors	*B* (*SE*)	*t*	*B* (*SE*)	*t*	*B* (*SE*)	*t*	*B* (*SE*)	*t*	*B* (*SE*)	*t*
T1										
Model 1a										
Actor combined optimism	.04 (.02)	2.04*	.61 (.20)	3.02**	-.01 (.01)	-1.23	-.05 (.01)	-3.65**	-.04 (.02)	-1.98*
Partner combined optimism	.04 (.02)	1.88	-.03 (.20)	-.17	-.01 (.01)	-1.38	.00 (.01)	.28	.01 (.02)	.34
T2										
Model 1b										
Actor combined optimism	.09 (.03)	3.17**	.02 (.22)	.08	-.00 (.01)	-.18	.00 (.01)	.04	-.02 (.02)	-1.12
Partner combined optimism	-.00 (.03)	-.09	.13 (.22)	.60	-.01 (.01)	-.69	.02 (.01)	1.42	.01 (.02)	.66

Note. All models controlled for sex, mean couple age and education, and relationship status. Longitudinal models also controlled for baseline actor and partner scores on the respective outcome measure. Relationship status was coded as 0 = married and 1 = not married; sex was coded as 0 = male and 1 = female. * $p < .05$, ** $p < .01$.

Table 4.

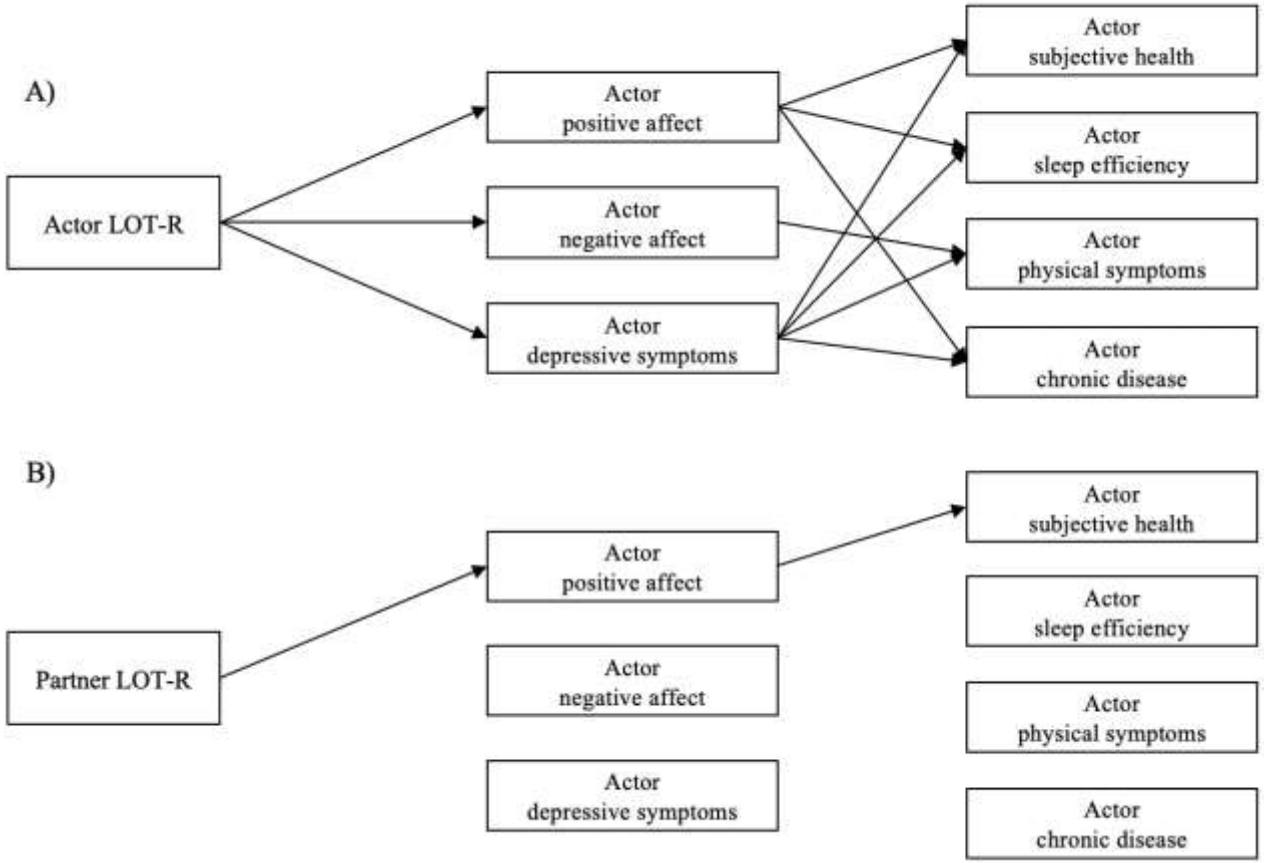
Indirect Effects of Subjective Well-Being in the Associations Between Combined Optimism and Baseline Levels and Change in Physical Health.

Predictors	Actor Life satisfaction (95% CI)	Actor Positive affect (95% CI)	Actor Negative affect (95% CI)	Actor Depressive symptoms (95% CI)
Actor subjective health				
Actor combined optimism	(-.001, .055)	(.019, .064)*	(-.012, .015)	(.006, .050)*
Partner combined optimism	(-.001, .012)	(.001, .022)*	(-.003, .003)	(-.006, .008)
Actor sleep efficiency				
Actor combined optimism	(-.168, .379)	(.090, .513)*	(-.069, .201)	(.125, .573)*
Actor physical symptoms				
Actor combined optimism	(-.032, .006)	(-.022, .008)	(-.022, -.001)*	(-.044, -.013)*
Actor chronic disease				
Actor combined optimism	(-.046, .010)	(-.043, -.001)*	(-.015, .027)	(-.050, -.005)*
Δ Actor subjective health				
Actor combined optimism	(-.027, .043)	(-.010, .042)	(-.012, .035)	(-.011, .049)

Note. * Indirect effects are significant at $p < .05$ if the 95% confidence interval did not cross zero.

Figure 1.

Significant Indirect Effects of Subjective Well-Being in the Cross-Sectional Associations Between Actor Combined Optimism (Panel A) and Partner Combined Optimism (Panel B) with Indicators of Physical Health.



Note. Pathways controlled for mean couple age and education, sex, relationship status, actor and partner optimism, and partner LOT-R (Panel A) or actor LOT-R (Panel B).