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The complementarity of humility hypothesis: Individual, relational, and physiological effects of mutually humble partners

Daryl R. Van Tongeren^a, Joshua N. Hook^b, Marciana J. Ramos^{b†}, Megan Edwards^a, Everett L. Worthington Jr.^c, Don E. Davis^d, John M. Ruiz^e, Chelsea A. Reid^f, Rachel C. Garthe^g, Camilla W. Nonterah^{c§}, Richard G. Cowden^{h#}, Annabella Opare-Henakuⁱ, Ruth Connelly^j, Osunde Omoruyi^k, Thobeka S. Nkomo^l and Judith Ansa Osae-Larbiⁱ

^aDepartment of Psychology, Hope College, Holland, MI, USA; ^bDepartment of Psychology, University of North Texas, Denton, TX, USA; ^cDepartment of Psychology, Virginia Commonwealth University, Richmond, VA, USA; ^dDepartment of Counseling and Psychological Services, Georgia State University, Atlanta, GA, USA; ^eDepartment of Psychology, University of Arizona, Tucson, AZ, USA; ^fDepartment of Psychology, College of Charleston, Charleston, SC, USA; ^gSchool of Social Service Administration, University of Chicago, Chicago, IL, USA; ^hDepartment of Psychology, North-West University, Potchefstroom, South Africa; ⁱDepartment of Psychology, University of Ghana, Accra, Ghana; ^jStudent Counselling, Career and Development Centre, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa; ^kDepartment of Sociology and Anthropology, University of Benin, Benin City, Nigeria; ^lDepartment of Social Work, University of the Witwatersrand, Johannesburg, South Africa

ABSTRACT

We report two studies of romantic couples that examine the interactive effects of actor and partner humility on individual, relational, and physiological well-being. Using both longitudinal (Study 1) and physiological (Study 2) methods from two samples of romantic couples, we explored the interactive effects of actor and partner humility. Individuals in dyads with complementary high humility reported better mental health over time following a major life transition, the birth of their first child, in Study 1 and higher relationship satisfaction and lower physiological responses (i.e. blood pressure) following the discussion of a topic of disagreement in Study 2. These results suggest that being humble is beneficial when one has a humble partner, but being arrogant – especially within a disagreement with one's partner – could undermine the benefits of humility. That is, the benefits of humility are greatest in dyads in which both partners are humble.

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Past research has shown that humility may be important for relationship functioning in couples (e.g. Farrell et al., 2015; Van Tongeren, Davis, & Hook, 2014). However, most of this research has not examined humility in both partners simultaneously. The effect of humility on relationship functioning (e.g. reported mental health following a life transition, relationship satisfaction) may also depend on the humility of one's romantic partner. We suspect that the interactive effects of partner humility may have important effects on relationship outcomes. For example, relationships could be characterized as dyads in which one partner is humble and the other is arrogant (at a cost to the humble partner), dyads in which both partners act arrogantly (at substantial cost to both partners), and dyads in which both partners act humbly. Our central prediction is captured in what we call the *complementarity of humility* hypothesis: relationships marked by humility in both partners will reflect benefits of humility that relationships with imbalanced levels of humility or arrogance exhibited by both partners will not.

Social and relational benefits of humility

We define humility as character strength marked by (a) an accurate view of self, (b) a modest self-presentation, and (c) an orientation toward others (Davis et al., 2011; Van Tongeren & Myers, 2017). We draw from research on *relational humility* that suggests that one's humility can be assessed by third parties like a personality judgment, and that one's perceived humility may vary between situations and among individuals (Davis, Worthington, & Hook, 2010; Davis et al., 2011). Accordingly, in the present research, humility was assessed by ratings provided by individuals' romantic partners.

There are many social and relational benefits to humility. Research has suggested that humility is associated with higher levels of social functioning, including initiating new relationships (Davis et al., 2013), repairing strained close relationships (Van Tongeren et al., 2014), and reducing defensiveness following interactions with a critical out-group member (Van Tongeren et al., 2016). Indeed, humble

CONTACT Daryl R. Van Tongeren ✉ vantongeren@hope.edu

[†]Marciana J. Ramos is now at Berklee College of Music, Liberal Arts, Boston, MA, USA [§]Camilla W. Nonterah is now in University of Richmond, Department of Psychology, Richmond, VA, USA [#]Richard G. Cowden is now in University of KwaZulu-Natal, Department of Behavioural Medicine, Durban, South Africa

individuals are generally considered more helpful (LaBouff, Rowatt, Johnson, Tsang, & Willerton, 2012) and less selfish (Exline & Hill, 2012) than are less humble or arrogant people. Relationally, individuals are more satisfied with humble partners, in part because of their greater commitment to such partners (Farrell et al., 2015). The social benefits of humility seem to be well supported.

On the other hand, given the selfless nature of humble individuals, it is possible that less humble partners may exploit more humble partners. When arrogant individuals know that their humble partners will consistently sacrifice and be less selfish, they might prioritize their own needs over those of their partners or their relationships (e.g. Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991). Previous research has found that exploitation risk is a key concern in relational maintenance processes (Burnette, McCullough, Van Tongeren, & Davis, 2012). Accordingly, with the risk of possible exploitation, humility may be relationally detrimental with arrogant partners.

A framework for understanding the interpersonal effects of humility

The interpersonal tradition in psychology (Kiesler, 1996; Leary, 1957; Ruiz, Matthews, Scheier, & Schulz, 2006) provides a theoretical framework for understanding how humility moderates a consistent set of interpersonal dynamics and effects. A primary tenet in the interpersonal approach is the *principle of complementarity* (Kiesler, 1996; Sadler, Ethier, & Woody, 2011), which posits that one actor's behavior tends to 'pull, invite, or evoke restricted classes of responses' from their interaction partner(s) (Pincus & Ansell, 2003, p. 215). Hence, warm, affiliative behavior invites a warm behavioral response from an interaction partner, whereas a cold or hostile action evokes a less affiliative, more negative behavioral response. Importantly, the principle of complementarity suggests that the behavior of one actor 'restricts' the cognitive appraisals and affective valence of the receiver. For example, a warm smile from one person restricts interpretation in the receiver to positive affect and appraisals of affiliative intent rather than negative affect and hostile intent. The evoked response from the receiver is then constrained by this cognitive-affective experience to a set of actions which complement the actions of the first person. Importantly, this principle implies reciprocal determinism in that an individual not only moderates the experience of the interpersonal target, but, through a transactional exchange, their own interpersonal experience as well.

The interpersonal approach further suggests that personality traits and individual differences, like humility, moderate interpersonal dynamics to engender a congruent interpersonal experience across social audiences and contexts (Cantor, 1990; Sullivan, 1953). For example,

among married couples, interacting with a more hostile spouse is acutely associated with greater perceived stress and cardiovascular reactivity (Smith & Brown, 1991; Smith & Gallo, 1999), and higher hostility in one spouse is associated with lower perceived marital quality both cross-sectionally and longitudinally for both spouses (Baron et al., 2007). Conversely, higher dispositional optimism in one spouse is cross-sectionally associated with, and longitudinally predictive of, greater relationship satisfaction for both partners (Ruiz et al., 2006).

Emerging data suggests that the principle of complementarity may be more salient for personality traits like humility. Interpersonal theorists posit that behavior varies along two key orthogonal axes: (1) affiliation, ranging from friendly to hostile; and (2) control, ranging from dominance to submission (Kiesler, 1996; Leary, 1957; Wiggins, 1979). Research suggests that for warmth-based traits, complementarity is especially potent (Cundiff, Smith, Butner, Critchfield, & Nealey-Moore, 2015). These findings suggest that traits like humility, which emphasize interpersonal warmth and harmony, are more likely to evoke complementarity during interpersonal interactions. Indeed, previous research has highlighted how humility is associated with behaviors that convey interpersonal warmth: humble individuals are generally helpful (LaBouff et al., 2012) and generous (Exline & Hill, 2012), highlighting how humility is associated with other-orientedness (see Van Tongeren & Myers, 2017 for a review). Humility from one partner may elicit humility from the other partner, but that need not always be true. Indeed, humble individuals with less humble or arrogant partners may run the risk of exploitation. In such cases, because the humble individual may be more selfless, the more arrogant partner may capitalize on such sacrifice and take advantage of the humbler partner, leading to poorer relational outcomes. That is, the whole relationship may suffer when only one partner's needs are being met. Conversely, in situations where both partners are humble, and both individuals are prioritizing the needs of their partner, relationships may flourish.

Benefits of two humble partners

Drawing on this approach, although humble individuals may risk exploitation with arrogant partners, when both partners act humbly, they may experience considerable individual and relational benefits. That is, when *both* partners forgo their selfish impulses for the benefit of the other partner or the relationship (Rusbult et al., 1991), considerable benefits may accrue to both individuals. Both partners may be more trusting, satisfied, and committed (see Farrell et al., 2015). However, these benefits may not occur if only one partner acts humbly. For example, if an arrogant partner takes advantage of a humble partner, who prioritizes

the needs of the arrogant partner before their own, the relationship functioning is likely to suffer. Trust may erode, satisfaction may decline, and commitment may wane. Similarly, a relationship with two arrogant individuals may wither because neither partner tends to the other's needs. However, when both partners are humble – aware of their own strengths and weaknesses, modest, and focused on the well-being of the other – the relationship may be particularly beneficial for both partners.

Humility has been found to be associated with other virtues (e.g. Davis et al., 2011; Exline & Hill, 2012). When looking for a relationship partner, people tend to favor forming new relationships with more humble partners (Van Tongeren et al., 2014). Having a humble partner also reduces stress (Ripley et al., 2016), helps to strengthen social bonds, and promotes forgiveness (Davis et al., 2013). Such research suggests the benefits of two humble partners.

In addition, relational humility is positively associated with relationship satisfaction through promoting commitment (Farrell et al., 2015). However, this process is likely the strongest when both members of the relationship view their partner as acting unselfishly. Otherwise, the less humble, selfish partner may exploit the more humble one. High relational functioning requires considerable sacrifice and contributions – ideally from both partners. An arrogant partner may contribute less to the well-being of the relationship, which will negatively affect both partners, unless the humble partner gives more than their share. However, if both partners are humble, both will sacrifice and prioritize the relationship, which will yield positive effects on relationship satisfaction for both partners. In this way, relationship satisfaction will have the chance of reaching its full potential, but only if both act humbly.

Humility under fire

Previous research has suggested that one way to test virtues, such as humility, is to examine it in situations that make humility's expression difficult (Davis et al., 2010). For example, humility should be more difficult to express in situations involving conflict, stress, the receipt of praise or credit, a substantial power differential, or high stakes for protecting one's ego. Many of those conditions characterize several life transitions. For example, a source of consistent disagreement with a spouse likely cultivates implicit and explicit conflict and stress, which may evoke a desire to protect one's ego. Likewise, life transitions (getting a new job, starting a family, moving to a new state) may similarly exert pressure on one's ability to act humbly.

Toward that end, we sought to test our complementarity of humility hypothesis in situations of considerable stress where there was likely to be conflict. First, we focused on the transition to parenthood. Previous research

has highlighted how that period is marked by significant stress and relational strain (Ripley et al., 2016; for a review, see Roudi, Schumm, & Britt, 2013). Moreover, humility may ease adjustment to stressful aspects of the transition to parenthood, such as the need to communicate around sensitive topics, adjust to different roles and responsibilities, and negotiate decisions associated with parenting. Thus, we examined the complementarity of humility in a longitudinal study in which we assessed humility prior to the birth of a couple's first child as a predictor of changes in stress, anxiety, and depression from pre- to post-birth. This sample allowed us to test our complementarity of humility hypothesis in a community sample.

Next, as a more stringent test of our hypothesis, in a second study, we strained humility by asking participants to discuss an area of disagreement. Such a conversation ought to create the greater potential for egotism, selfishness, and arrogance, making humility more important but also more difficult to practice. Discussion of issues in which disagreement is present reliably induces stress in couples, even among happy couples (Gottman, 2000), which usually results in increased activity in the sympathetic nervous system (Sapolsky, 2004). We examined whether complementarity in humility among partners improved physiological functioning and perceived relationship satisfaction following the disagreement discussion. At present, no research exists that relates humility to biomarkers of stress.

Both of these situations (i.e. couples during the transition to parenthood and during a disagreement discussion) involve humility tests, in that the context creates a greater potential for selfishness and egotism to emerge and escalate. Accordingly, they represent the ideal conditions in which to test the individual and relational benefits of both partners acting humbly. Thus, we sought to examine how humility helps ease social interactions between committed dyads during times of relational strain. Sampling from two separate studies of couples, we examined the benefits of humility in naturally occurring periods of stress following the life transition of the birth of a first child (Study 1) and experimentally-induced stress following discussion of an ongoing relational transgression (Study 2).

Hypotheses

In Study 1, we examined the interactive effects of actor and partner humility on three primary outcomes – stress, anxiety, and depression – prior to the birth of a couple's first child (Time 1) and following the birth of their first child several months later, when the newborn was 3 months old (Time 2). To ensure these associations were not due to baseline levels of stress, anxiety, or depression, we controlled for each outcome at Time 1 when predicting Time 2. In Study 2, we examined how humility affects physiological

responses (i.e. blood pressure) following discussion of a current disagreement within the relationship.

Our central prediction is that dyads with complementarity of humility – both partners are humble – will report the highest levels of relational functioning following a transition. Specifically, we predict that when both actor and partner humility is high, participants will report lower perceived stress, less anxiety, and less depression in Study 1, and greater relationship satisfaction and better physiological responding following discussion of a disagreement in Study 2.

Study 1

Method

Participants and procedure

Participants were 69 heterosexual married couples ($N = 138$; $M_{\text{age}} = 30.80$, $SD_{\text{age}} = 4.76$) in their last trimester of pregnancy with their first child together, recruited through labor and parenting classes at local hospitals. Couples were together for an average of 75.48 months ($SD = 34.45$), and the sample was primarily Caucasian (71.7%). Participants completed a baseline survey in the lab (Time 1), and research staff visited them at their home, when their newborn was 3 months old, for a follow-up survey (Time 2). Most (59 of the 69 couples; $N = 118$; 85.51%) participants completed the Time 2 follow-up. This sample was part of a larger investigation on the transition to parenthood (that also involved two additional follow-up sessions when the child was 9- and 21-months old); for the purposes of this study, we examined only the immediate transition from pre- to post-child, given the stress associated with a new child (Feaster & Szapocznik, 2002). Finally, because the following analyses were conducted using the available data for the measures included in each analysis, the sample sizes vary slightly between analyses

Materials

Humility. Participants completed the Relational Humility Scale (RHS; Davis et al., 2011), which is a 16-item measure in which participants indicate their partner's humility across 16 items (e.g. 'He/she has humble character', 'He/she knows his/her strengths') using a 5-point response option (1 = *strongly disagree* to 5 = *strongly agree*). The RHS has demonstrated construct and incremental validity, predicting humility above and beyond variance accounted for by relational (i.e. similarity, closeness) and personality characteristics (i.e. empathy, positive and negative affect) (Davis et al., 2011). Because we were interested in how the dyad's humility before the stressful transition (i.e. birth of a child) affected changes in important outcomes following the transition, participants completed this assessment of

their partner's humility at Time 1 ($\alpha = 0.86$). Thus, humility measures were other-report: each participant rated her or his partner's humility (and, in turn, were rated by their partner on humility).

Perceived stress. Participants self-reported their own stress by completing the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), which is a 10-item self-report measure of the frequency of stress across various domains over the past month (e.g. 'In the last month, how often have you felt that you were unable to control the important things in your life', 'In the past month, how often have you felt nervous and stressed'), using a 5-point response option (0 = *never* to 4 = *very often*). Participants completed this measure at both Time 1 ($\alpha = 0.88$) and Time 2 ($\alpha = 0.88$).

Anxiety. Participants self-reported their own anxiety using the state version of the State-Trait Anxiety Inventory (SAS; Spielberger, Gorsuch, & Lushene, 1970), which is a 20-item measure of anxiety (e.g. 'I feel anxious', 'I feel high strung'). Participants completed this measure at both Time 1 ($\alpha = 0.90$) and Time 2 ($\alpha = 0.90$) using a 4-point response option (0 = *not at all* to 3 = *very much so*).

Depression. Participants self-reported their own depression using the CES-D (Radloff, 1977), which is a 20-item measure of depressive symptoms during the previous week (e.g. 'I felt depressed', 'I felt sad'). Participants completed this measure at both Time 1 ($\alpha = 0.87$) and Time 2 ($\alpha = 0.88$) using a 4-point response option (0 = *rarely/none of the time* to 3 = *most or all of the time*).

Results

Data analytic plan

We examined the interaction between one's own humility (as rated by their partner) and each partner's own humility (as rated by participants) at Time 1 on stress, anxiety, and depression at Time 2, while statistically controlling for the outcome variable at Time 1. Because the data were nested within couples, we employed multilevel modeling (MLM) to account for couple-level differences in our dependent variables. Because, like regression, MLM estimates the unique association between a predictor and outcome variable, we used a three-phase analysis plan. First, we examined the independent effects of actor humility alone. Second, we examined the independent effects of partner humility alone. Third, we examined the interactive effects of actor and partner humility. When a significant interaction emerged, we followed-up by exploring the conditional effects of the predictor at varying levels of the moderator ($\pm 1SD$) over 5000 bootstrapping iterations

using PROCESS (Hayes, 2013). As a reminder, the humility measures were *other-report*; that is, each participant's humility was assessed by her or his partner. Thus, *actor humility* was the partner's assessment of the participant's humility, and *partner humility* was the participant's assessment of their partner's humility.

Primary analyses

Means and standard deviations for study variables are reported at pre-birth assessment (Time 1) and 3-month-post-birth assessment (Time 2) in Table 1.

Stress. When examining the independent effect of actor humility and partner humility, neither main effect was significant ($ps > 0.226$). However, the predicted interaction between the actor and partner humility on stress at Time 2 was significant ($est. = -0.88$, $SE = 0.36$, $t = 2.43$, $p = 0.019$, 95% CI = -1.606 , -0.150). Using PROCESS to examine conditional effects revealed that at lower levels of partner humility ($-1SD$), actor humility was positively related to reported stress at Time 2 ($est. = 0.51$, $SE = 0.19$, $t = 2.60$, $p = 0.010$, 95% CI = 0.119 , 0.890). That is, when one's partner is arrogant, being humble is related to greater perceived stress.

However, whereas at lower levels of actor humility ($-1SD$), partner humility did not affect stress at Time 2, when actor humility was high ($+1SD$), partner humility was negatively related to reported stress at Time 2 ($est. = -0.56$, $SE = 0.22$, $t = -2.61$, $p = 0.010$, 95% CI = -0.992 , -0.136). Thus, arrogant individuals may not be affected by their partner's humility, but for humble individuals, having a humble partner reduces future stress following a major life transition. Thus, when both partners are humble, life is perceived as less stressful.

Anxiety. When examining the independent effect of actor and partner humility, although the main effect for actor humility was not significant ($est. = 0.00$, $p = 0.993$), partner humility was negatively associated with anxiety at Time 2 ($est. = -0.19$, $SE = 0.10$, $t = -1.98$, $p = 0.050$, 95% CI = -0.383 , 0.000). That is, viewing one's partner as more

humble is associated with lower state anxiety following the transition to parenthood. However, contrary to predictions, the interaction was not significant ($est. = -0.45$, $p = 0.094$).

Depression. When examining the independent effect of actor humility and partner humility, neither main effect was significant ($ps > 0.197$). However, the predicted interaction between the actor and partner humility on depression at Time 2 was significant ($est. = -0.59$, $SE = 0.24$, $t = -2.48$, $p = 0.015$, 95% CI = -1.058 , -0.118). Using PROCESS to examine conditional effects revealed that – similar to the pattern found above for stress – at lower levels of partner humility ($-1SD$), actor humility was positively related to reported depression at Time 2 ($est. = 0.35$, $SE = 0.13$, $t = 2.75$, $p = 0.007$, 95% CI = 0.098 , 0.605). That is, when one's partner is arrogant, being humble is related to greater reported depression.

However, whereas among participants with lower levels of actor humility ($-1SD$), partner humility was not significantly associated with depression at Time 2 ($est. = 0.37$, $p = 0.078$), but when actor humility was high ($+1SD$), partner humility was negatively related to depression at Time 2 ($est. = -0.35$, $SE = 0.15$, $t = -2.35$, $p = 0.021$, 95% CI = -0.636 , -0.054). Thus, among more humble individuals, a partner's humility is negatively associated with future depression following the transition to parenthood. Again, when both partners are humble, participants report lower depression.

Discussion

Negotiating a major life transition, such as the transition to parenthood, likely places considerable strain on a relational dyad. We designed Study 1 to investigate how an individual's humility, and their partner's humility, affected the degree of stress, anxiety, and depression experienced in the months after childbirth. Partner humility predicted lower anxiety at Time 2 (after the birth of a child). Moreover, there was a significant interaction between the individual's and partner's humility

Table 1. Descriptive statistics and intercorrelations of variables from Study 1.

	1.	2.	3.	4.	5.	6.	7.	8.
1. Actor humility (T1)	–							
2. Partner humility (T1)	0.00	–						
3. Stress (T1)	0.06	–0.33***	–					
4. Anxiety (T1)	–0.02	–0.26**	0.65***	–				
5. Depression (T1)	0.02	–0.39***	0.68***	0.59***	–			
6. Stress (T2)	0.08	–0.23*	0.53***	0.44***	0.39***	–		
7. Anxiety (T2)	–0.03	–0.30**	0.54***	0.49***	0.48***	0.76***	–	
8. Depression (T2)	0.09	–0.22*	0.38***	0.23*	0.46***	0.72***	0.64***	–
Mean	3.33	3.49	1.59	0.84	0.53	1.71	0.76	0.55
Standard Deviation	0.84	0.45	0.65	0.49	0.38	0.69	0.47	0.44

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

on both stress and depression. First, we found that when one's partner was arrogant, humility was associated with greater perceived stress and reported depression at Time 2. This supports our theorizing that an imbalance of humility may result in poorer outcomes for the humble individual. Being the only humble partner in a relational dyad appears to be taxing. However, when both partners are humble, individuals report benefits. Specifically, whereas less humble (i.e. arrogant) individuals were unaffected by their partner's humility, among humble participants, the degree of their partner's humility was directly related to lower stress and depression. That is, in couples in which both partners are humble, stress and depression are lower than when only one partner is humble. These results provide initial evidence for the complementarity of humility hypothesis.

When only one partner is humble, it can create an imbalance in the relational functioning of the dyad. For example, the arrogant partner may exploit the more humble partner, either intentionally or inadvertently – that is, the humble partner may take on more of the household and childcare responsibilities, or may simply prioritize the needs of their partner (e.g. Davis et al., 2011, 2013; Van Tongeren et al., 2014). This aligns with the findings from Study 1 where humility was associated with greater perceived stress and depression when one's partner was arrogant. On the other hand, when both partners are humble, demonstrating a modest view of self and a prosocial orientation toward the other partner, both individuals reap the relational benefits. The degree of stress and depression they both experience is lower. Thus, the benefits of humility across a life transition appear to be reserved for those marked by humble *relationships* – both members of the couple are humble.

A strength of Study 1 is its longitudinal nature. The positive effects of partner humility on anxiety, as well as the evidence for the benefits of humble complementarity (i.e. both partners are highly humble) during the transition to parenthood, were found when controlling for the outcome variable (i.e. stress, anxiety, and depression) before the birth of a child. Moreover, we relied on other-reports of humility. Building on the strengths of Study 1, in Study 2, we similarly relied on other-report data from couples, but extended our investigation to study how humble complementarity affects relationship quality and a physiological measure of blood pressure.

Study 2

Relational discord is common. The stress associated with interpersonal conflict can have significant effects on one's psychological and physiological responses (Sapolsky, 2004). Previous research has found that

following interpersonal conflict, blood pressure may increase as a physiological marker; however, individuals who prioritize the maintenance and repair of relationships (i.e. more forgiving individuals) reported lower blood pressure and better recovery from such stressful inductions (Lawler et al., 2003). Other work has highlighted how conciliatory behaviors by members of a marital couple when discussing a marital transgression reduces the blood pressure of both the victim and offender in the situation (Hannon, Finkel, Kumashiro, & Rusbult, 2012), suggesting the mutually beneficial role of pro-relational behaviors in attenuating physiological reactions following conflict.

To our knowledge, no prior work has examined the effects of humility on physiological responses to discussing a conflict. However, given that forgiveness and humility are closely related (e.g. Davis et al., 2013; Van Tongeren et al., 2014), and both may be considered relational maintenance mechanisms, we suspected that just as forgiving individuals would demonstrate better physiological responses following conflict (i.e. lower blood pressure), in couples where both partners were humble, individuals would experience lower blood pressure following discussion of a conflict. Accordingly, consistent with our central hypothesis, we predicted that in situations with high humble complementarity (i.e. both partners are humble), individuals would demonstrate better psychological (i.e. higher relationship satisfaction) and physiological responses (i.e. lower blood pressure) following discussion of an ongoing disagreement.

Method

Participants and procedure

Participants were 93 heterosexual married couples ($N = 186$; $M_{\text{age}} = 37.98$, $SD_{\text{age}} = 13.31$), recruited through local advertisements and compensated for their participation in this study. Couples were married for an average of 143.16 months ($SD = 140.40$), and the sample was primarily Caucasian (72.1%). Participants spent approximately two hours in the lab completing electronic surveys and engaging in video and audio-recorded dyadic tasks. Specifically, each participant was asked to independently identify three areas of ongoing disagreement with their current spouse. Next, the researcher read aloud the combined 3–6 topics the couple identified (number of unique topics varied as a result of some common, overlapping topics between spouses). Couples were instructed to select a topic, from their combined list – usually (one of) the topic(s) both partners identified, if applicable – about which they would engage in a 9-min structured discussion. Each partner was asked to present their perspective on the topic for 3 uninterrupted

minutes while the other partner listened. Those 6 min were followed by 3 min of open dialogue between the partners. During that discussion, their blood pressure measured at six time-points. Finally, because the following analyses were conducted using the available data for the measures included in each analysis, the sample sizes vary slightly between analyses.

Materials

Humility. Study 2 included the same assessment of humility (RHS; $\alpha = 0.90$) used in Study 1.

Relationship satisfaction. Participants self-reported their own relationship satisfaction using the Perceived Relationship Quality Components (PRQC) Inventory (Fletcher, Simpson, & Thomas, 2000), which is an 18-item measure of relationship satisfaction (e.g. 'How satisfied are you with your relationship?' 'How much do you trust your partner?') using a 7-point response option (1 = *not at all* to 7 = *extremely*). Previous work has demonstrated convergent validity between this scale and other established relationship measures (e.g. assessing commitment, satisfaction, intimacy, love, passion, and trust) (Fletcher et al., 2000). This measure demonstrated acceptable internal consistency ($\alpha = 0.95$).

Blood pressure. Prior to beginning the procedure, participants were fitted with machine-operated blood pressure cuffs controlled by researchers from an adjacent room with video monitoring of participants during tasks. Blood pressure was measured throughout pre- and post-discussion tasks (i.e. looking at neutral landscape stimuli and selecting preferred photos) in order to orient participants to the procedure, establish baseline measures of blood pressure, and record the time elapsed after the discussion before blood pressure readings returned to established baseline levels. During the 9-min discussion, blood pressure was taken during the first and last minute of each of the three previously described 3-min components of the discussion for a total of six readings during the discussion of a topic of ongoing disagreement.

Table 2. Descriptive statistics and intercorrelations of variables from Study 2.

	1.	2.	3.	4.
1. Actor humility	–			
2. Partner humility	0.27***	–		
3. Relationship satisfaction	0.35***	0.52***	–	
4. Blood pressure change	0.01	0.00	–0.03	–
Mean	3.97	3.97	6.09	7.68
Standard Deviation	0.78	0.78	0.85	5.48

*** $p < 0.001$.

Results

We hypothesized that complementarity of humility (i.e. high humility in both partners) would result in higher relationship satisfaction than in partners in which at least one partner had lower humility. Moreover, we examined the physiological effects of both partners being humble (i.e. using the potential significance of a statistical interaction), as measured by blood pressure (i.e. mean arterial pressure).

Data analytic plan

As with Study 1, using MLM to account for couple-level differences in our dependent variables, we first examined the effects of actor and partner humility independently, and then examined the interaction between actor and partner humility. Finally, we tested the conditional effects across 5,000 bootstrapping iterations using PROCESS (Hayes, 2013).

Primary analyses

Means and standard deviations for study variables are reported in Table 2.

Relationship satisfaction. When examining the independent effect of actor humility and partner humility, both actor humility ($est. = 0.20, SE = 0.07, t = 2.63, p = 0.009, 95\% CI = 0.049, 0.345$) and partner humility ($est. = 0.49, SE = 0.07, t = 7.18, p < 0.001, 95\% CI = 0.353, 0.620$) were positively associated with relationship satisfaction. In addition, the predicted interaction between the actor's humility and their partner's humility on relationship satisfaction was significant ($est. = 0.25, SE = 0.10, t = 2.46, p = 0.016, 95\% CI = 0.049, 0.278$). Analyzing simple slopes revealed that when one's partner was arrogant ($-1SD$), actor humility was not associated with relationship satisfaction, whereas when one's partner was humble ($+1SD$), actor humility was significantly associated with relationship satisfaction ($est. = 0.47, p < 0.001$). That is, being humble does not yield greater relationship satisfaction if one's partner is arrogant. These findings are consistent with the results of Study 1.

However, simple slopes analysis revealed that partner humility was more strongly associated with relationship satisfaction at high levels of actor humility ($+1SD$; $est. = 0.72, p < 0.001$) than at low levels of actor humility ($-1SD$; $est. = 0.33, p < 0.001$). Thus, similar to Study 1, viewing one's partner as high in humility is strongly associated with greater relationship satisfaction for highly humble individuals. Again, when both partners are humble, individuals report greater relationship satisfaction.

Blood pressure change. When examining the independent effect of actor humility and partner

humility, neither main effect was significant ($ps > 0.849$). However, the predicted interaction between actor and partner humility on blood pressure change was significant ($est. = -1.61, SE = 0.76, t = -2.12, p = 0.036, 95\% CI = -3.112, -0.104$). Using PROCESS to examine conditional effects revealed that at lower levels of actor humility ($-1SD$), partner humility did not affect blood pressure, but when actor humility was high ($+1SD$), partner humility was marginally negatively related to blood pressure ($est. = -1.41, SE = 0.84, t = -1.67, p = 0.096, 95\% CI = -3.071, 0.254$). Thus, arrogant individuals may not be affected by their partner's humility, but for humble individuals, having a humble partner was associated with decreased blood pressure from before to after the discussion of a disagreement with one's partner. This provides initial evidence for the physiological benefits of complementarily humble partners in a dyad.

Discussion

The findings of Study 2 lend additional support to our overarching hypothesis: dyads in which both partners are humble report better relational and physiological outcomes. That is, we found that when both actor and partner humility was high, individuals report greater relationship satisfaction and lower blood pressure over time (i.e. greater recovery) following a disagreement. Because existing main effects are subsumed by interactions, this suggests that when only one partner is humble, neither individual fully reaps the benefits. When one's partner was arrogant, humility was unrelated to relationship satisfaction. This suggests that the optimal configuration for maximizing benefits is a complementarily humble dyad. The pattern of interactions resembled our findings from Study 1: the benefits of humility are clear when *both* partners are humble.

General discussion

Our primary hypothesis was that relationships in which both partners were humble would yield the greatest individual and relational benefits. Specifically, humble complementarity – when both the actor and their partner are perceived as humble – results in the most favorable outcomes. We tested this hypothesis in two studies, both of which found support for our hypothesis.

In Study 1, we examined couples during their transition to parenthood. The findings reveal that whereas humble individuals report poorer outcomes when their partners are arrogant, individuals in relationships marked by humble complementarity – when both partners are humble – report less stress and lower levels of depression following the birth of their first child (although we did not find the similarly expected results on anxiety). Thus, whereas being

with an arrogant partner is costly for a humble individual, being part of a mutually humble dyad may help buffer some of the relational strain of the stressful transition to parenthood that can exact costs on one's mental health.

In Study 2, we examined couples following a discussion of an ongoing relational disagreement. After undergoing this situationally-induced stressful event, partners marked by humble complementarity reported greater relationship satisfaction and lower blood pressure. Humility was unrelated to relationship satisfaction when one's partner was arrogant. These data suggest that mutually high humility in a dyad helps the perception of the quality of the relationship, as well as one's cardiac responses to the stress of discussing current tensions in a relationship. Thus, complimentary humility not only buffers against relational wear-and-tear, but it is also related to improved physiological functioning following conflict.

Previous research has examined how interpersonal interactions may operate under the principle of complementarity (Kiesler, 1996; Sadler et al., 2011). Dyadic exchanges, such as those typically comprising romantic relationships, are often affected by each partners' actions (Pincus & Ansell, 2003). Research from this tradition suggests that positive behavior from one partner may elicit positive behavior from the other partner. The current work adds to that research by showing in such situations where complementarity regarding humility is evident, relationships function better. In humble dyads – where both actor and partner humility is high – individuals report lower stress and depression after a stressful life transition (Study 1) and higher relationship satisfaction and reduced physiological responses following an interpersonal conflict (Study 2). Thus, this work is consistent with work on complementarity in interpersonal relationships (Cundiff et al., 2015).

These findings also add to, and expand, previous research that has revealed the social benefits of humility. Research has found that humility is helpful in forming (Davis et al., 2013) and maintaining (Van Tongeren et al., 2014) relational bonds, and can help reduce defensiveness following criticism of one's beliefs (Van Tongeren et al., 2016). Other work has suggested why humility plays such an important role in relationships: To the degree that individuals view their partner as humble, they report greater commitment to such relationships (Farrell et al., 2015). That is, some of the relational benefits of a humble partner are due to increased commitment. Our work suggests that the social benefits of humility extend to the dyadic level.

Moreover, previous work on related virtues, such as forgiveness, suggest that individuals assess the likelihood of future exploitation as a key mechanism in determining whether they will act virtuously toward their partner (Burnette et al., 2012). People are more likely to

forgive partners whom they value and who are less likely to exploit them in the future. We suspect that humility signals to relationship partners how one is likely to be treated in relationships. Given that humility is marked by both an awareness of one's limitations and an other-oriented approach, people may view humble individuals as desirable partners and esteem the relationship. On the other hand, individuals lacking humility may act selfishly (LaBouff et al., 2012), running the risk that a less humble partner may exploit the more humble partner. Situations in which one partner is highly humble and the other partner is not may create a relationship imbalance in which relational functioning may suffer. In fact, being humble with an arrogant partner may actually exact relational costs. Thus, our findings support the positive impact of complementarity in humility – where both partners are high in humility – on relational flourishing, which is consistent with previous work on complementarity in dyads (Cundiff et al., 2015) and with the broader literature on complementarity (e.g. Ruiz et al., 2006; Smith & Brown, 1991; Smith & Gallo, 1999).

Suggestions for future research

Our methodological approach was diverse, moving well beyond cross-sectional self-report data with college students. The data from Study 1, which examined community couples during their transition to parenthood, were (a) dyadic (i.e. included both partners' responses), (b) other-report (i.e. did not rely on self-reports of humility), (c) longitudinal (i.e. comparing responses before and after the birth of their first child), and (d) investigated individuals in naturally occurring times of heightened stress, which increases the external validity of the results. The data from Study 2, which examined community couples following a discussion of an ongoing disagreement in their relationship, were also obtained from (a) dyadic and (b) other-report data, but also assessed (c) physiological responses (i.e. blood pressure change across the discussion of the relational transgression) – the first of such studies in the humility literature. Thus, across two studies, our findings are buttressed by dyadic, other-report, longitudinal, and physiological responses involving couples in highly externally valid situations. Still, we see several avenues for future research.

First, our research focused on dyadic interactions among romantic partners. Other relational dynamics could be explored, such as the role of complementarity of humility in the workplace or in places where power differentials are salient and may be important. Second, we included other-reports in both studies and a physiological assessment of blood pressure in Study 2. Future work could assess other physiological or health-related measures, to build

upon work using non-self-report assessments (see Dorn, Hook, Davis, Van Tongeren, & Worthington, 2014). Finally, this work helps define boundary conditions in which humility may be more or less helpful. That is, the benefits of humility in a relationship were evidenced, or amplified, when one's partner was likewise humble. Future work should similarly explore the conditions in which humility within relationships may be maximally beneficial for both partners and under which, if any, conditions humility may be less effective in improving social relationships.

Conclusion

Evidence for the social benefits of humility has been rapidly accumulating. The current work advances prior work in several important ways, including clarifying that individual and relational benefits appear to be at their highest when both partners are humble. The dyads in which both partners are humble appears to flourish more than where only one partner is humble. This finding suggests that in the realm of close relationships, people might do well not only to cultivate humility in their own lives, but also to look for, and help encourage, humility in their romantic partners.

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References

- Baron, K. G., Smith, T. W., Butner, J., Nealey-Moore, J., Hawkins, M. W., & Uchino, B. N. (2007). Hostility, anger, and marital adjustment: concurrent and prospective associations with psychosocial vulnerability. *Journal of Behavioral Medicine*, 30, 1–10.
- Burnette, J. L., McCullough, M. E., Van Tongeren, D. R., & Davis, D. E. (2012). Forgiveness results from integrating information about relationship value and exploitation risk. *Personality and Social Psychology Bulletin*, 38, 345–356.
- Cantor, N. (1990). From thought to behavior: Having and doing in the study of personality and cognition. *American Psychologist*, 45, 735–750.

- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*, 385–396.
- Cundiff, J. M., Smith, T. W., Butner, J., Critchfield, K. L., & Nealey-Moore, J. (2015). Affiliation and control in marital interaction: Interpersonal complementarity is present but is not associated with affect or relationship quality. *Personality and Social Psychology Bulletin, 41*, 35–51.
- Davis, D. E., Hook, J. N., Worthington, E. L., Van Tongeren, D. R., Gartner, A. L., Jennings, D. J., & Emmons, R. A. (2011). Relational humility: Conceptualizing and measuring humility as a personality judgment. *Journal of Personality Assessment, 93*, 225–234.
- Davis, D. E., Worthington, E. L., & Hook, J. N. (2010). Humility: Review of measurement strategies and conceptualization as personality judgment. *The Journal of Positive Psychology, 5*, 243–252.
- Davis, D. E., Worthington, E. L., Hook, J. N., Emmons, R. A., Hill, P. C., Bollinger, R. A., & Van Tongeren, D. R. (2013). Humility and the development and repair of social bonds: Two longitudinal studies. *Self and Identity, 12*, 58–77.
- Dorn, K., Hook, J. N., Davis, D. E., Van Tongeren, D. R., & Worthington, E. L., Jr (2014). Behavioral methods of assessing forgiveness. *The Journal of Positive Psychology, 9*, 75–80.
- Exline, J. J., & Hill, P. C. (2012). Humility: A consistent and robust predictor of generosity. *The Journal of Positive Psychology, 7*, 208–218.
- Farrell, J. E., Hook, J. N., Ramos, M., Davis, D. E., Van Tongeren, D. R., & Ruiz, J. M. (2015). Humility and relationship outcomes in couples: The mediating role of commitment. *Couple and Family Psychology: Research and Practice, 4*, 14–26.
- Feaster, D. J. & Szapocznik, J. (2002). Interdependence of stress processes among African American family members: Influence of HIV serostatus and a new infant. *Psychology and Health, 17*, 339–363.
- Fletcher, G. J. O., Simpson, J. A., & Thomas, G. (2000). The measurement of perceived relationship quality components: A confirmatory factor analytic approach. *Personality and Social Psychology Bulletin, 26*, 340–354.
- Gottman, J. M. (2000). Decade review: Observing marital interaction. *Journal of Marriage and Family, 62*, 927–947.
- Hannon, P. A., Finkel, E. J., Kumashiro, M., & Rusbult, C. E. (2012). The soothing effects of forgiveness on victims' and perpetrators' blood pressure. *Personal Relationships, 19*, 279–289.
- Hayes, Andrew F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: The Guilford Press.
- Kiesler, D. J. (1996). *Contemporary interpersonal theory and research: Personality, psychopathology, and psychotherapy*. New York, NY: Wiley.
- LaBouff, J. P., Rowatt, W. C., Johnson, M. K., Tsang, J., & Willerton, G. M. (2012). Humble persons are more helpful than less humble persons: Evidence from three studies. *The Journal of Positive Psychology, 7*, 16–29.
- Lawler, K. A., Younger, J. W., Piferi, R. L., Billington, E., Jobe, R., Edmondson, K., & Jones, W. H. (2003). A change of heart: Cardiovascular correlates of forgiveness in response to interpersonal conflict. *Journal of Behavioral Medicine, 26*, 373–393.
- Leary, T. (1957). *Interpersonal diagnosis of personality*. New York, NY: Ronald Press.
- Pincus, A. L., & Ansell, E. B. (2003). Interpersonal theory of personality. In T. Millon & M. J. Lerner (Eds.), *Handbook of psychology: Personality and social psychology*, Vol. 5 (pp. 209–229). New York, NY: Wiley.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385–401.
- Ripley, J. S., Garthe, R. C., Perkins, A., Worthington, E. L., Jr., Davis, D. E., Hook, J. N., ... Eaves, D. (2016). Perceived partner humility predicts subjective stress during transition to parenthood. *Couple and Family Psychology: Research and Practice, 5*, 157–167.
- Roudi, N. R., Schumm, W. R., & Britt, S. L. (2013). *Transition to parenthood*. New York, NY: Springer.
- Ruiz, J. M., Matthews, K. A., Scheier, M. F., & Schulz, R. (2006). Does who you marry matter for your health? Influence of patients' and spouses' personality on their partners' psychological well-being following coronary artery bypass surgery. *Journal of Personality and Social Psychology, 91*, 255–267.
- Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., & Lipkus, I. (1991). Accommodation processes in close relationships: Theory and preliminary empirical evidence. *Journal of Personality and Social Psychology, 60*, 53–78.
- Sadler, P., Ethier, N., & Woody, E. (2011). Interpersonal complementarity. In L. M. Horowitz & S. Strack (Eds.), *Handbook of interpersonal psychology: Theory research assessment and therapeutic interventions* (pp. 123–142). Hoboken, NJ: Wiley.
- Sapolsky, R. M. (2004). *Why zebras don't get ulcers* (3rd ed.). New York, NY: Henry Holt Publishers.
- Smith, T. W., & Brown, P. C. (1991). Cynical hostility, attempts to exert social control and cardiovascular reactivity in married couples. *Journal of Behavioral Medicine, 14*, 581–592.
- Smith, T. W., & Gallo, L. C. (1999). Hostility and cardiovascular reactivity during marital interaction. *Psychosomatic Medicine, 61*, 436–445.
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York, NY: Norton.
- Van Tongeren, D. R., Davis, D. E., & Hook, J. N. (2014). Social benefits of humility: Initiating and maintaining romantic relationships. *The Journal of Positive Psychology, 9*, 313–321.
- Van Tongeren, D. R., & Myers, D. G. (2017). A social psychological perspective on humility. In E. L. Worthington, Jr., D. E. Davis, & J. N. Hook (Eds.), *Handbook of humility* (pp. 150–164). New York, NY: Routledge.
- Van Tongeren, D. R., Stafford, J., Hook, J. N., Green, J. D., Davis, D. E., & Johnson, K. A. (2016). Humility attenuates negative attitudes and behaviors toward religious out-group members. *The Journal of Positive Psychology, 11*, 199–208.
- Wiggins, J. S. (1979). A psychological taxonomy of trait-descriptive terms: The interpersonal domain. *Journal of Personality and Social Psychology, 37*, 395–412.