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Linking mean level and variability in affect to changes in perceived regard: A dyadic longitudinal burst study of African American couples

Betul Urganci[1], Anthony D. Ong[1,2], Anthony L. Burrow[1,3] and Tracy DeHart[4]

Abstract

High positive affect and low negative affect have been repeatedly tied to better individual and interpersonal well-being. However, research has focused on mean levels whereas the day-to-day unfolding of affect and its impact on romantic relationships remain largely understudied. Here, we examined the links between mean levels and variability in affect and changes in perceptions of partner regard —the extent to which people believe that their partners value and accept them. One hundred twenty-five African American couples (N = 250 individuals) reported how positively they thought their partners viewed them across two sessions (T1 and T2), separated by a 3-week daily diary study in which participants reported on their positive and negative affect each day for 21 consecutive days. Using dyadic analysis, we found that higher actor negative affect variability was associated with lower perceived regard at T2 controlling for perceived regard at T1. This finding held when controlling for mean levels of actor and partner negative affect. By contrast, PA variability was curvilinearly associated with perceived regard, with moderate levels of variability associated with higher subsequent perceived regard. These results highlight the importance of accounting for mean levels and curvilinear effects when examining links between affect dynamics and relational well-being.

[1]Department of Psychology, Cornell University, USA
[2]Center for Integrative Developmental Science, Cornell University, USA
[3]Bronfenbrenner Center for Translational Research, Cornell University, USA
[4]Department of Psychology, Loyola University Chicago, USA

Corresponding author:
Betul Urganci, Department of Psychology, Cornell University, G421 Martha Van Rensselaer Hall, Ithaca, NY 14853-4401, USA.
Email: bu33@cornell.edu

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Introduction

In both newly formed and established relationships, people seek admiration and acceptance from their partners (Murray et al., 2000). Both attachment theory (Bowlby, 1982) and the risk regulation model of close relationships (DeHart et al., 2003; Murray et al., 2000) suggest that attachment to significant others is more likely to occur when people experience a sense of felt security or love and acceptance from their partners. The extent to which people feel confident in a partner's positive regard and caring is defined as *perceived regard* (Murray et al., 1996). Previous research has found that dating and married couples report greater satisfaction in their relationships when they perceive that their partners see them more positively (Murray et al., 2000, 2006). However, what is less clear are the determinants of perceived partner regard.

People differ in the extent to which they experience day-to-day fluctuations in their emotions (Luginbuehl & Schoebi, 2020; Ong & Ram, 2017), and a large literature suggests that the experience of emotions in relationships accounts for substantial variability in the quality of those relationships (Bradbury et al., 2000; Gable & Reis, 2010; Mikulincer & Shaver, 2019; Randall & Bodenmann, 2009). Recent findings from couple studies suggest that affect dynamics might influence perceptions of partner understanding, validation, and care (Luginbuehl & Schoebi, 2020; Sels et al., 2021). In the present study, we propose that affect variability— as an indication of how well people regulate their emotions—is a key determinant of perceived regard. Using an ecological assessment approach (Bolger et al., 2003), we examined the extent to which variability in daily affect predicted subsequent perceived regard over 3-weeks.

Negative affect variability and well-being

The extent to which fluctuations in affect deviate from an individual's mean level of affect is defined as *affective variability* (Ong & Zautra, 2015). Affective variability is considered an indication of how well individuals adapt to changes in their environment and how well they regulate their emotions (Houben et al., 2015). Researchers have frequently operationalized affective variability by calculating the intraindividual standard deviation (iSD) of affect assessed by repeated observations. Larger iSDs correspond to more extreme fluctuations in affect for a given individual. Affective variability is considered a trait-like parameter (Eid & Diener, 1999), and growing evidence suggests that greater negative affect (NA) variability is associated with worse psychological well-being (see Houben et al., 2015; Röcke & Brose, 2013 for a review). For example, heightened NA variability is associated with a greater risk for depression (Jenkins et al., 2020; Koval et al., 2013; Peeters et al., 2006), borderline personality disorder (Jahng et al., 2011), neuroticism (Jacobs et al., 2011), psychological distress (Hardy & Segerstrom, 2017), lower psychological well-being (Houben et al., 2015), and even suicidal ideation (Palmier-Claus et al., 2012). Emerging

evidence also suggests a role of NA variability in physical health. For example, greater NA variability is associated with worse sleep quality (Leger et al., 2019), immune function (Jenkins et al., 2018), daily cortisol profiles (Human et al., 2015), and inflammation (Jones et al., 2020).

Positive affect variability and well-being

As with NA variability, greater PA variability has also been linked with well-being. For example, Gruber et al. (2013) found that day-to-day ups and downs in PA were associated with lower life satisfaction and higher depression and anxiety. A longitudinal burst study by Hardy and Segerstrom (2017) found that greater PA variability was associated with higher psychological distress and physical ill-health. Another study by Human and colleagues (2015) investigated the curvilinear association between PA variability and cortisol profiles. Findings showed that a moderate amount of PA variability was linked to favorable cortisol profiles (i.e., lower levels of cortisol and steeper daily slopes) in both middle-aged and older adults. These findings coincide with more recent evidence of a curvilinear association between affect dynamics (i.e., emotional inertia or the extent to which emotions are resistant to change) and relationship quality, such that moderate levels of inertia were associated with more optimal relationship functioning (Luginbuehl & Schoebi, 2020). Lastly, Jenkins et al. (2018) examined the interaction between mean level and variability in PA and their role in immune function. Findings indicated that high mean levels and low variability in PA were associated with better immune responses to influenza vaccination. Jones et al. (2020) found that high mean levels coupled with high variability in PA were associated with higher scores on inflammatory markers. Overall, these studies suggest that short-term fluctuations in PA might be an important determinant of health and well-being.

Do fluctuations in PA and NA have differential effects on well-being? To our knowledge, only two studies have examined both NA and PA variability in the same study. Hardy and Segerstrom (2017) found that greater NA variability was associated with psychological distress concurrently and prospectively. By contrast, they found that PA variability was associated with psychological distress concurrently but not prospectively. In another study, lower NA variability was associated with better immune response whereas the effect of PA variability was more nuanced and depended on the interaction with mean levels (Jenkins et al., 2018). Based on these findings, it is important to investigate the differential effects of NA and PA variability on well-being, along with interactions between variability and mean levels.

Affect variability and relational well-being

Basic axioms of attachment theory (Hazan & Shaver, 1987) and models of emotion regulation (Gross, 2001) suggest associations between emotion regulation strategies and mental representations of romantic partners. Empirical studies demonstrate that the use of emotion regulation strategies (e.g., reappraisal) is linked to marital stability (Gottman et al., 1998), greater relationship satisfaction (Bloch et al., 2014; Gottman & Levenson, 1992),

higher levels of partners' conversation memories after couple conflict (Richards et al., 2003), more constructive perceived criticism (Klein et al., 2016), and positive dyadic coping (Rusu et al., 2019). To our knowledge, only one study has considered affective variability as an index of emotion regulation to predict relationship functioning. In a study involving a sample of predominantly White newlywed couples, McNulty and Hellmuth (2008) found that greater NA variability was positively associated with greater intimate partner violence over the previous year.

Given that people who are high in attachment anxiety and rejection tend to worry more about interpersonal acceptance (e.g., Murray et al., 2001), it is plausible that affect variability may function as a similar vulnerability factor that can shape perceptions of partner regard over time. Supporting this argument, a study by Gaucher et al. (2012) demonstrated that the expression of emotions to close friends and romantic partners is positively associated with increased perceived regard. The authors suggest that because expressing negative emotions may be riskier than expressing positive emotions, people need to be confident in their partner's regard. In a daily diary study of married couples, Murray and colleagues (2003) found that spouses low in perceived regard reported feeling more hurt and rejected on days when their partner had been in a negative mood. Building on this work, we investigate the extent to which variability in day-to-day positive and negative affect is associated with changes in people's perceptions of partner regard over time.

Relationship functioning and African American couples

African American couples are an important population who have been understudied in psychological science (Buchanan et al., 2021). Compared to other groups, African Americans are less likely to marry, more likely to divorce, and have the highest median age at first marriage compared to previous generations (Finkel et al., 2014; Helm & Carlson, 2013; McLoyd et al., 2000; U.S. Bureau of the Census, 2016a, 2016b). Despite these trends, a recent systematic review by Williamson et al. (2022) demonstrated that 68% of relationship-focused articles published in the top five relationships journals contained primarily White samples. Moreover, research on African American couples has tended to focus on the effects of race-related stressors on relationship functioning (Broman, 2005; Lavner et al., 2018; Lincoln & Chae, 2010). Little is known about how variability in day-to-day affect influences relationship functioning. Therefore, it seems that the time is ripe to examine the relationship dynamics of African American couples and factors that may uniquely influence their relationship functioning.

Another important reason to examine affect dynamics in the context of African American couples is that negative affectivity and emotional stress are believed to be important risk factors for interpersonal functioning among couples (Bryant et al., 2010; Finkel et al., 2014). Previous research has found that African American adults report greater use of emotion suppression as an emotion regulation strategy compared with White Americans (Gross & John, 2003; Langner et al., 2012). Therefore, examining sources of additional vulnerability (i.e., affect variability) would provide a nuanced

understanding of which affective processes contribute to relationship functioning among African American couples.

The current study

Although prior work suggests a link between affective variability and well-being, there are still several issues that need to be resolved. First, there is a paucity of work examining whether heightened affective variability, as an enduring vulnerability, impacts relational well-being. Modeling day-to-day dynamics (i.e., within-person variation) by assessing repeated observations of the same individual can reveal unique insights into relationship functioning (Girme, 2020). Second, as a basic premise in relationship science, romantic relationships are inherently dyadic and partners are interdependent (Rusbult & Van Lange, 2003) meaning that both partners have an ability to influence each other's experiences, functioning, and well-being (Sbarra & Hazan, 2008; Sels et al., 2021). Yet, with a few exceptions (e.g., Bloch et al., 2014; Mazzuca et al., 2019), studies of affect dynamics and relationship functioning have focused on actor effects (Muise et al., 2018). Models of emotion contagion suggest that how one partner regulates their own emotions impacts the relationship perceptions and functioning of the other partner (Butler & Randall, 2013). For instance, a study by Mazzuca and colleagues (2019) found that both individuals' own, and their partner's emotion regulation abilities (assessed by reappraisal and emotion contagion) were independently linked to greater marital satisfaction. Therefore, it is important to investigate whether variability in one partner's affect is associated with the other partner's relationship evaluations.

Third, as noted, prior relationship research involving African American couples tend to mostly examine the effects of race-related stressors such as discrimination on relational well-being (Lavner et al., 2018; Lincoln & Chae, 2010). Prior studies have considered affective dynamics among romantic couples (e.g., Randall et al., 2013), but rarely have African Americans been the focus of this work. Therefore, we aim to explore within-group effects (low vs. high affect variability) among African American couples and whether previous findings on affect variability and well-being also extend to African American couples.

Fourth, there are unresolved issues as to (a) whether affect variability predicts relationship outcomes independent of mean levels of affect in the context of couple data, (b) whether affect variability is curvilinearly associated with perceived regard, and (c) whether the interaction of level and variability in affect predicts relationship functioning. The literature suggests that mean levels of affect are often correlated with affect variability (Baird et al., 2006). Analyzing data from 15 different studies, Dejonckheere and colleagues (2019) found that after controlling for mean levels of affect, affective dynamics measures showed little added value or even non-significant associations with measures of well-being. Therefore, it is critical to investigate whether affect variability predicts perceived regard while controlling for mean levels of affect. Moreover, given the beneficial effects of experiencing a moderate degree of affect variability documented in previous work (Human et al., 2015; Luginbuehl & Schoebi, 2020), it would be important to test curvilinear associations between affect variability and perceived regard. Finally, based

on the research suggesting that affect variability has different implications for individuals at different mean levels of affect (Jenkins et al., 2018; Jones et al., 2020), we aim to explore the interaction between affect variability and mean levels of affect.

Using a measurement-burst-design (Nesselroade, 1991; Sliwinski, 2008), we examined whether individual differences in affect variability (assessed across 21 days) are longitudinally associated with perceived regard. Using dyadic analyses, we examined actor and partner effects of affect variability on perceived regard. For actor effects, we hypothesized that participants' own heightened NA variability will be negatively associated with their subsequent perceived regard. For partner effects, we hypothesized that having a partner who has heightened NA variability will be negatively associated with their own subsequent perceived regard. Given the different accounts on how PA variability is associated with well-being (Gruber et al., 2013; Human et al., 2015), we explored the impact of PA variability on subsequent perceived regard. Further, we examined whether affect variability has a unique explanatory power in predicting perceived regard above and beyond mean levels. Following the prior work (Human et al., 2015), we explored potential curvilinear associations between affect components (mean level and variability) and changes in perceived regard. Lastly, based on other work (Jenkins et al., 2018), we explored whether affect variability interacted with mean levels to predict subsequent perceived regard.

Method

All materials and planned analyses were preregistered on the Open Science Framework (https://osf.io/p7uws/). All study procedures and materials were approved by the authors' Institutional Review Board.

Participants

One hundred and eighty African American couples were recruited from communities throughout the broader Chicago area via posters, community message boards, and advertisements on the Chicago Transit Authority (CTA). To be eligible, both members of the couple had to be at least 18 years old, identify as African American, and be married or living together. Of the 180 couples who participated in the study, 2 couples were excluded because at least one partner did not complete the baseline perceived regard measure. Of the remaining couples, 53 couples were excluded because at least one partner did not complete the follow-up survey. The final analytic sample ($N = 125$ couples) ranged in age from 18 to 73 ($M_{age} = 38.13$, $SD_{age} = 12.60$, $Mdn_{age} = 35$). Of the 125 couples, 13 couples were same-sex couples. Relationship length ranged from 4 months to 37 years ($M_{year} = 8.08$, $SD_{year} = 9.28$), and 42% of the participants were married, with 33.6% reporting that they had children. The median individual income ranged from $25,000 to $50,000, and 61.2% of the participants were employed; 95.6% of the participants completed at least a high school education.

Procedure

The study consisted of a baseline survey (Time 1), a 21-day diary phase, and a follow-up survey (Time 2). Every day for 21 consecutive days, participants received an email at 8 p.m. providing a link to an online questionnaire that included NA and PA measures. They were allowed to complete the diary until 4 a.m. the following day. The median number of completed diaries was 20 (M = 19.10, SD = 2.59). Immediately following the diary assessment phase, participants again reported on their perception of the partner's regard (Time 2). At the end of the study, participants received monetary compensation of up to $175: $50 for the baseline survey and up to $125 for the daily diaries. Couples were also entered into a drawing to win an additional $500 at the end of the study.

Measures

Perceived regard. The 21-item measure, adapted from previous work (Murray et al., 1996, 2003), asked participants to report their perceptions of how they thought their partner saw them on different attributes (e.g., "kind and affectionate", "tolerant and accepting", "controlling and dominant", "thoughtless"). The responses were given on a 7-point scale (1 = *not at all characteristics*, 7 = *very characteristic*). Participants completed this measure during both the baseline survey and the follow-up survey. Negative items were reverse-scored such that higher scores indicating more favorable perceptions (α = .81 for T1, α = .81 for T2).

Affect variability. Daily positive affect and negative affect were assessed using daily diary surveys with 12 items taken from the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). Six items were used to assess PA ("alert", "cheerful", "excited", "happy", "interested", "proud"), and six items were used to assess NA ("angry", "ashamed", "dejected", "distressed", "nervous", "sad"). The responses were given on 9-point scale (1 = *not at all*, 9 = *extremely*). Composite scores for mean NA and mean PA were computed by averaging these items, with higher scores indicating a higher level of NA and PA. Within-person standard deviations of NA and PA over 21-day were calculated for NA and PA variability, respectively.

Covariates. Gender of the actor, gender of the partner, the interaction between actor and partner gender, and T1 perceived regard were included in models as covariates. Following prior work on affect variability (Dejonckheere et al., 2019), we controlled for mean affect, calculated by averaging affect scores across 21-days.

Analytic approach

To account for the interdependence of individuals within dyads, we used dyadic data analysis (i.e., Actor Partner Interdependence Model; APIM) (Kenny et al., 2006). APIM estimates both *actor effects* (associations between an individual's affect variability and their own perceived regard) and *partner effects* (associations between an individual's

affect variability and their partner's perceived regard) while accounting for the statistical non-independence among members of a given couple. In the current study, the majority of couples were heterosexual whereas 13 were same-sex couples. Following the strategy suggested by West et al. (2008), we included both heterosexual couples and same-sex couples in the analyses. Gender was contrast-coded (−1 = male, 1 = female). Given the small number of same-sex couples in the sample, both the main effect of gender and the interaction between actor and partner gender were not statistically significant and hence dropped from the final models. All analyses were conducted using the MIXED procedure in SPSS version 27.

NA variability and PA variability were examined separately as predictors of T2 perceived regard. More specifically, in *Model 1*, we examined unadjusted analyses for NA variability (both actor and partner variables) on T2 perceived regard, controlling for T1 perceived regard. In *Model 2*, we added actor and partner mean-level NA. Furthermore, to control for curvilinear trends of the two components of NA variables (mean-level and variability) in the analyses, we included quadratic terms of mean-level NA and NA variability (both actor and partner variables) in *Model 3*. Finally, two-way interactions of actor and partner NA variability with mean-levels NA were included in *Model 4*. Parallel models were tested for PA variability (*Models 5-8*).

Results

Descriptive statistics

Means, standard deviations, and zero-order correlations among primary variables are presented separately for males (lower diagonal) and females (upper diagonal) in Table 1. Actor and partner NA variability scores were positively correlated with each other, suggesting interdependence among couples. Similarly, actor and partner PA variability scores were positively correlated with each other as well. At Time 1, perceived regard was negatively correlated with actor NA variability ($r = -0.33$) and partner PA variability ($r = -0.23$) for males, whereas it was negatively correlated with actor and partner NA variability and actor PA variability for females (rs range from |0.21| to |0.27|). At Time 2, perceived regard was negatively correlated with actor and partner NA and PA variability for males (rs range from |0.20| to |0.45|); for females (all ps > .10), perceived regard was negatively correlated with actor NA variability ($r = -0.29$).

NA variability and perceived regard

APIM regression models tested whether actor and partner NA variability predicted perceived regard at T2 after controlling for T1 perceived regard. Results from these models are shown in Table 2. In unadjusted analyses, actor NA variability was a significant predictor of T2 perceived regard (Model 1, F (1, 243.63) = 20.79, $b = -0.31$, $p < .001$, 95% CI [−0.44, −0.18]) and remained significant when controlling for mean NA (Model 2; F (1, 243.43) = 5.24, $b = -0.20$, $p = 0.02$, 95% CI [−0.37, −0.03]). However, this association became non-significant when controlling for curvilinear effects (Model 3;

Table 1. Correlations among primary study variables.

Variable	1	2	3	4	5	6	7	8	9	10	M	*SD*
1. Actor NA iSD	—	0.40**	0.59**	0.21*	0.65**	0.32**	−0.33**	−0.19*	−0.23**	−0.29**	1.05	0.65
2. Partner NA iSD	0.41**	—	0.25**	0.46**	0.26**	0.67**	−0.27**	−0.34**	−0.27**	−0.13	0.90	0.62
3. Actor PA iSD	0.48**	0.21*	—	0.30**	0.19*	0.15	−0.35**	−0.34**	−0.21*	−0.15	1.37	0.64
4. Partner PA iSD	0.24**	0.61**	0.26**	—	0.07	0.19*	−0.33**	−0.48**	−0.11	−0.08	1.31	0.64
5. Actor NA mean	0.69**	0.32**	0.23**	0.13	—	0.37**	−0.40**	−0.07	−.41**	−.41**	2.11	1.22
6. Partner NA mean	0.27**	0.67**	0.07	0.24**	0.36**	—	−.16*	−.28**	−.31**	−.24**	1.89	1.02
7. Actor PA mean	−0.38**	−0.19*	−0.49**	−0.30**	−0.33**	−0.08	—	.45**	.44**	.36**	5.89	1.95
8. Partner PA mean	−0.24**	−0.39**	−0.27**	−0.38**	−0.15	−0.45**	0.42**	—	.22**	.13	5.96	1.83
9. Perceived regard T1	−0.33**	−0.15	−0.17	−0.23*	−0.33**	−0.15	0.42**	0.19**	—	.60**	5.06	0.81
10. Perceived regard T2	−0.45**	−0.20*	−0.21*	−0.23**	−0.45**	−0.22*	0.45**	0.24**	0.69**	—	5.07	0.89
M	.89	1.03	1.28	1.34	1.89	2.11	6.16	6.10	5.04	5.06		
SD	0.62	0.66	0.67	0.67	1.02	1.22	1.86	1.97	0.82	0.87		

Note. Males are in the lower diagonal; females are in the upper diagonal. M = Mean, *SD* = standard deviation; iSD = intraindividual standard deviation. *$p < .05$, **$p < .01$.

F (1, 239.49) = 0.78, b = −0.21, p = 0.37, 95% CI [−0.69, 0.26]). By contrast, partner NA variability was unrelated to T2 perceived regard (Model 1; F (1, 243.09) = 0.78, b = −0.06, p = 0.38, 95% CI [−0.07, 0.19]) and remained nonsignificant in subsequent models (Model 2–4, all ps > 0.11). Lastly, there was no evidence for any curvilinear effects of the two components of NA variables (mean-level and variability) (Model 3; all ps > 0.16) or two-way interactions of variability and mean levels (Model 4; all ps > 0.37).

PA variability and perceived regard

Parallel models tested whether actor and partner PA variability predicted perceived regard at T2 after controlling for T1 perceived regard. Results from these models are shown in Table 3. In unadjusted analyses, actor PA variability was not associated with T2 perceived regard (Model 5; F (1, 245.82) = 1.25, b = −0.07, p = 0.26, 95% CI [−0.21, 0.06]), and this association remained nonsignificant in models controlling for mean levels (Model 6; p = .91) and the interaction between variability and mean levels (Model 8; p = .16), respectively. Actor PA variability, however, was a significant predictor of T2 perceived regard in models that included curvilinear associations (Model 7; F (1, 234.18) = 4.60, b = −0.58, p = 0.03, 95% CI [−1.12, −0.05]). Partner PA variability was unrelated to perceived regard (Model 5; F (1, 245.80) = 0.55, b = −0.05, p = 0.46, 95% CI [−0.18, 0.08]) and this association remained nonsignificant across all models (Model 6–8; all ps > 0.16). In the models exploring potential curvilinear associations between the two components of PA variables (mean-level and variability), there was a significant curvilinear association between actor PA variability and perceived regard (Model 7; F (1, 232.91) = 4.82, b = 0.18, p = 0.03, 95% CI [0.02, 0.35]). Lastly, there was no evidence for any two-way interactions of actor and partner PA variability with mean levels (Model 8; all ps > 0.70).

Discussion

Although there is growing support for associations between affect variability and psychological well-being and physical health, the current study is among the first to examine the role of affect variability in relational well-being and test these associations in a dyadic context. Our findings indicated that higher levels of actor NA variability were associated with lower perceived regard over a 3-week period. This association remained significant in models controlling for mean levels of NA. These findings extend the literature on affect variability and well-being (Jenkins et al., 2018; Koval et al., 2013; Leger et al., 2019) by demonstrating that greater NA variability is associated with impaired relational well-being. The study also examined partner effects of affect variability. Contrary to our hypothesis, partner NA variability was not related to subsequent perceived regard. Why did partner NA variability not predict subsequent perceived regard? One possibility is that relational well-being is mainly explained by relationship-specific variables (e.g., baseline perceived regard) and additional individual differences (i.e., affect variability), especially partner variables, may not add much predictive value (Joel et al., 2020; Zuo et al., 2020). Moreover, consistent with previous research on within couple associations (Johnson et al.,

Table 2. NA variability predicting perceived regard.

	Model 1*b* [95% CI]	Model 2*b* [95% CI]	Model 3*b* [95% CI]	Model 4*b* [95% CI]
Baseline perceived regard	0.61*** [0.51, 0.72]	0.59*** [0.48, 0.70]	0.58*** [0.46, 0.69]	0.58*** [0.47, 0.69]
Actor NA iSD	−0.31*** [−0.44, −0.18]	−0.20* [−0.37, −0.03]	−0.21 [−0.69, 0.26]	−0.24 [−0.72, 0.23]
Partner NA iSD	0.06 [−0.07, 0.19]	0.14 [−0.03, 0.31]	−0.11 [−0.57, 0.36]	−0.14 [−0.61, 0.33]
Actor NA mean		−0.10 [−0.20, −0.00]	−0.41 [−0.87, 0.04]	−0.29 [−0.80, 0.21]
Partner NA mean		−0.07 [−0.17, 0.03]	0.09 [−0.37, 0.54]	0.21 [−0.30, 0.71]
Actor NA iSD^2			0.05 [−0.11, 0.20]	0.15 [−0.13, 0.44]
Partner NA iSD^2			0.09 [−0.06, 0.25]	0.20 [−0.08, 0.48]
Actor NA $mean^2$			0.04 [−0.02, 0.11]	0.05 [−0.02, 0.12]
Partner NA $mean^2$			−0.02 [−0.09, 0.04]	−0.02 [−0.09, 0.05]
Actor NA iSD* actor NA mean				−0.11 [−0.35, 0.13]
Partner NA iSD* partner NA mean				−0.11 [−0.35, 0.13]
Error variance	0.43*** [0.36, 0.51]	0.42*** [0.35, 0.50]	0.42*** [0.35, 0.50]	0.42*** [0.35, 0.51]
Correlation of errors	0.28** [0.11, 0.44]	0.27** [0.10, 0.43]	0.27** [0.10, 0.43]	0.27** [0.09, 0.43]

Note. Confidence intervals below coefficient values, NA= Negative Affect; PA= Positive Affect, iSD = intraindividual standard deviation, iSD^2 = intraindividual affect standard deviation squared, $Mean^2$ = mean affect squared. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 3. PA variability predicting perceived regard.

	Model 5*b* [95% CI]	Model 6*b* [95% CI]	Model 7*b* [95% CI]	Model 8*b* [95% CI]
Baseline perceived regard	0.66*** [0.55, 0.77]	0.59*** [0.48, 0.71]	0.59*** [0.47, 0.70]	0.59*** [0.47, 0.71]
Actor PA iSD	−0.07 [−0.21, 0.06]	−0.01 [−0.15, 0.13]	−0.58* −1.12, −0.05]	−0.75 [−1.82, 0.32]
Partner PA iSD	−0.05 [−0.18, 0.08]	−0.02 [−0.16, 0.12]	0.38 [−0.15, 0.92]	0.52 [−0.55, 1.60]
Actor PA mean		0.08** [0.02, 0.13]	0.15 [−0.13, 0.44]	0.12 [−0.23, 0.46]
Partner PA mean		−0.00 −0.05, 0.05]	−0.24 [−0.53, 0.04]	−0.21 [−0.56, 0.14]
Actor PA iSD^2			0.18* [0.02, 0.35]	0.20* [0.01, 0.40]
Partner PA iSD^2			−0.11 [−0.28, 0.05]	−0.13 [−0.32, 0.70]
Actor PA $mean^2$			−0.01 [−0.03, 0.02]	−0.01 [−0.03, 0.02]
Partner PA $mean^2$			0.02 [−0.00, 0.05]	0.02 [−0.00, 0.05]
Actor PA iSD* actor PA mean				0.02 [−0.08, 0.12]
Partner PA iSD* partner PA mean				−0.02 [−0.11, 0.08]
Error variance	0.46*** [0.38, 0.55]	0.45*** [0.37, 0.54]	0.44*** [0.37, 0.53]	0.44*** [0.37, 0.54]
Correlation of errors	0.24** [0.07, 0.40]	0.26** [0.09, 0.42]	0.29** [0.12, 0.45]	0.29** [0.12, 0.45]

Note. Confidence intervals below coefficient values, NA= Negative Affect; PA= Positive Affect, iSD = intraindividual standard deviation, iSD^2 = intraindividual affect standard deviation squared, $Mean^2$ = mean affect squared. *$p < .05$, **$p < .01$, ***$p < .001$.

2021; Zuo et al., 2020), the links between partner affect variability and perceived regard might be conceptualized better as covariation rather than a prediction of change. Another possibility is that more widely spaced longitudinal assessments of perceived regard are needed to assess meaningful intraindividual change (Nesselroade, 1991). How to relate affective dynamics that manifest on micro time scales (e.g., hours, days) to relationship outcomes that unfold over macro time scales (e.g., years, decades) is a question that warrants greater attention in daily process studies (see Ong & Leger, in press).

Building on emerging literature on PA variability (e.g., Gruber et al., 2013), we also examined the role of PA variability in perceived regard. We found that actor PA variability was unrelated to subsequent perceived regard over a 3-week period. The finding that NA variability, but not PA variability, is associated with less perceived regard is in line with work suggesting that NA dynamics might be more relevant to relationship processes than PA dynamics (Stanton et al., 2019). It will be important to investigate the role of PA variability on different relationship outcomes such as sexual satisfaction and intimacy in future work.

We did not find evidence of curvilinear associations between NA variability and perceived regard. However, there was a significant curvilinear association between actor PA variability and perceived regard. This is in line with past work showing that moderate amounts of PA variability are associated with more favorable cortisol profiles (Charles, 2010; Human et al., 2015). Future research should examine the curvilinear associations between affective dynamics and other relationship outcomes.

Broadly, these results suggest that there are multiple patterns of associations between affect variability and perceived regard. The current literature on affect variability draws a mixed picture on whether affect variability predicts well-being above and beyond mean levels of affect (Dejonckheere et al., 2019). Our findings regarding NA variability are consistent with studies suggesting that fluctuations in NA are associated with lower psychological well-being, above and beyond mean levels (e.g., Hardy & Segerstrom, 2017). In contrast, our results for PA variability are consistent with prior work demonstrating curvilinear associations between affect dynamics and optimal relationship functioning (Luginbuehl & Schoebi, 2020), with moderate levels of PA variability associated with higher subsequent perceived regard in the current study. Overall, these results suggest that it may be important to account for mean levels as well as and curvilinear effects when examining links between affect dynamics and relational well-being.

Research suggests that there are individual differences in perceived partner regard. Studies show that people high in self-esteem correctly believe that their relationship partners see them positively, whereas people low in self-esteem mistakenly believe that their relationship partners see them negatively (Gaucher et al., 2012; Murray et al., 2000). Similarly, people who are chronically sensitive to rejection or high in attachment anxiety also underestimate their partner's regard for themselves (Murray et al., 2003). This perception (or misperception) of felt security and confidence in a partner's continued caring and affection may be an important predictor of relationship functioning (Murray et al., 1998; Reis & Shaver, 1988). Future work should examine whether these individual difference variables moderate the impact of affect variability on perceived regard.

The current study has several strengths. First, by using a longitudinal burst design (i.e., a 21-day diary), we modeled within-person variation to capture the varying nature of people's emotional experiences and their impact on relational outcomes across time (Girme, 2020). This ecologically valid measurement offers an opportunity to observe emotions or behaviors in naturally arising contexts as people go through their lives (Reis & Gable, 2000; Reis & Gosling, 2010). Second, by obtaining data from both partners and at multiple points in time, we examined how dyadic processes (e.g., partner effects) evolve in dynamic ways over time (Eastwick et al., 2019; Gable & Reis, 1999; Girme, 2020; Muise et al., 2018). Lastly, a key strength of the current study was the examination of the role of affect variability on well-being in a sample of African American couples, thereby providing an opportunity for in-depth exploration of within-group effects (Bryant et al., 2010).

Despite these strengths, the findings should be interpreted in light of a few methodological limitations. The current study included participants who are mostly younger adults. Given that older adults usually report higher levels of PA and less variability in their lives than younger adults (Carstensen et al., 2011), it would be important for future studies to examine whether the effects observed in the present study are replicated in older samples. Second, it will be important for future research to consider the generalizability of these findings to other ethnic-racial populations and geographic areas in the US. Furthermore, in the current study, we investigated changes in perceived regard over a three-week period which raises a question about whether perceived regard is expected to change during this time. Thus, future studies should test how affect dynamics shape perceived regard over longer time spans. Lastly, the present study considered affect variability as a predictor of relational well-being; however, future work would benefit from investigating other indices of affect dynamics such as affective inertia and affective instability (Luginbuehl & Schoebi, 2020; Ong & Ram, 2017; Ong & Steptoe, 2020).

In sum, findings from the present study demonstrated that greater actor NA variability was associated with lower subsequent perceived regard even after controlling for mean levels of NA. The results also suggest that the mean levels of PA and moderate amounts of PA variability were associated with improved perceived regard. Given the differences between PA and NA components in predicting relationship outcomes, future researchers should examine both stable (i.e., mean level) and dynamic (i.e., variability) features of affective experiences and their relations to interpersonal outcomes. The current study also has important implications for couples' counseling. Given that affect variability is found to be a vulnerability factor for relationships, it could be beneficial to develop intervention programs that teach couples how to regulate their emotions as they go through their daily activities. For African American couples, affect dynamics may play a particularly important role in intimate relationships, with greater NA variability and too little or too much PA variability leading to less perceived partner responsiveness.

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Author contributions

BU and ADO developed the study concept. ALB and TD contributed to the study design and data collection. BU performed the data analysis and interpretation under the supervision of ADO. BU drafted the manuscript, and ADO, ALB, and TD provided critical revisions. All authors approved the final version of the manuscript for submission.

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Open science

All preregistration material and code are available via the Open Science Framework: osf.io/p7uws/

ORCID iD

Betul Urganci https://orcid.org/0000-0001-7449-7804

Open research statement

As part of IARR's encouragement of open research practices, the author(s) have provided the following information: This research was pre-registered. The registration was submitted to OSF: https://osf.io/aecdv. The materials and the syntax used in the research are available at OSF: https://osf.io/p7uws/. The data used in the research are available upon request. They can be obtained by emailing: bu33@cornell.edu

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