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Shared Emotions in Shared Lives: Moments of Co-Experienced Affect, More Than Individually Experienced Affect, Linked to Relationship Quality

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Abstract

Motivated by collective emotions theories that propose emotions shared between individuals predict group-level qualities, we hypothesized that co-experienced affect during interactions is associated with relationship quality, above and beyond the effects of individually experienced affect. Consistent with positivity resonance theory, we also hypothesized that co-experienced positive affect would have a stronger association with relationship quality than would co-experienced negative affect. We tested these hypotheses in 150 married couples across 3 conversational interactions: a conflict, a neutral topic, and a pleasant topic. Spouses continuously rated their individual affective experience during each conversation while watching video-recordings of their interactions. These individual affect ratings were used to determine, for positive and negative affect separately, the number of seconds of co-experienced affect and individually experienced affect during each conversation. In line with hypotheses, results from all 3 conversational topics suggest that more co-experienced positive affect is associated with greater marital quality, whereas more co-experienced negative affect is associated with worse marital quality. Individual level affect factors added little explanatory value beyond co-experienced affect. Comparing co-experienced positive affect and co-experienced negative affect, we found that co-experienced positive affect generally outperformed co-experienced negative affect, although co-experienced negative affect was especially diagnostic during the pleasant conversational topic. Findings suggest that co-experienced positive affect may be an integral component of high-quality relationships and highlight the power of co-experienced affect for individual perceptions of relationship quality.

Keywords

dyad; marriage; empathy; interpersonal interactions; positive psychology

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Recent theorizing on collective emotion and positivity resonance suggests that affect simultaneously co-experienced between individuals may have unique properties and correlates that cannot be captured at the individual or transactional level (Fredrickson, 2016; Goldenberg et al., 2020). *Collective emotion* refers to macrolevel affective phenomena that emerge from emotional dynamics among individuals who are responding to situations together and is theorized to lead to the formation of group-level qualities (Barsade & Gibson, 2012; de Rivera, 1992; Goldenberg et al., 2020). A dyad is the smallest group in which collective affective phenomena can emerge, and marriage is the closest dyadic relationship most adults experience. Marital interactions in which partners discuss and respond to conversational content create a fertile breeding ground for dyadic collective or co-experienced affect (i.e., moments when both partners feel negative affect or both partners feel positive affect while engaged with one another). Decades of research suggests that affect during marital interactions contributes to relationship quality (Levenson et al., 1993, 1994; Levenson & Gottman, 1983). Yet because this past research has examined each individuals' affect during interactions or the extent to which one partner's affect influences their partner's affect (Carstensen et al., 1995), it remains unclear whether simultaneously co-experienced affect is more strongly related to marital quality compared with individually experienced affect.

Co-experienced affect may be closely related to group-level qualities such as marital quality because moments of dyad-level, or co-experienced, affect provide a clear indication of how the group is feeling. When affect is discordant or unshared between group members, group-level feelings are less clear. For example, would a person who feels positive while their partner feels negative report that the group feels positive or negative? Moments of co-experienced affect may also have unique properties (e.g., greater intensity or interpersonal synchrony) that give them greater salience than an individual's overall or average level of affect during interactions. Additionally, affective states that a couple frequently co-experiences may reflect their perceptions of relationship quality (e.g., individuals who perceive their relationship to be good may be more likely to feel positive together). Thus, moments of co-experienced positive and negative affect may shape and be shaped by marital quality more so than individuals' unique affective experiences during interactions.

In line with these ideas, positivity resonance theory describes love as a macrolevel affective phenomenon that is emergent at the level of the group (e.g., dyad) rather than confined to one individual. Moments of shared positive affect are considered a core feature of love, along with mutual care/concern, and increased interpersonal synchrony in biology and nonverbal behavior (Fredrickson, 2013). Although positive affect co-experienced between and among individuals may be short-lived, such as a shared glance of affection, a greater frequency of these moments is theorized to build perceived resources (e.g., feelings of connectedness, safety, support) associated with marital quality (Fredrickson, 2016). Even low intensity co-experienced positive affect is thought to be particularly efficient for building relationship quality relative to similarly mild positive emotions experienced individually (Fredrickson, 2016).

Research has introduced a survey measure of perceived positivity resonance (Major et al., 2018), quantified behavioral indicators of positivity resonance (Otero et al., 2019), and linked shared laughter to relationship quality (Kurtz & Algoe, 2015). No work to our knowledge has examined continuous ratings of subjective affect during interactions to test the hypotheses that moments of co-experienced positive affect predict relationship quality more than individually experienced moments of positive affect, an individual's average level of affect, or co-experienced negative affect during interactions.

Past theory and research suggests that negative affect is a more potent predictor of marital quality than positive affect and must be offset by a high degree of positive affect for a marriage to thrive (Gottman, 1994; Gottman & Levenson, 2000; Levenson et al., 1994). However, in the case of co-experienced affect, some moments of co-experienced negative affect might be beneficial. co-experienced negative affect that arises because of constructive or supportive relational processes (e.g., empathizing with a partner's distress) may potentially weaken negative associations between co-experienced negative affect and marital quality (Brown et al., 2020). In contrast, co-experienced positive affect is theorized to be consistently beneficial (Fredrickson, 2016). Thus, co-experienced positive affect may be even more predictive of relationship quality than co-experienced negative affect.

The importance of co-experienced affect during marital interactions may be shaped by the topic of conversation (e.g., a conflict vs. pleasant topic). Conceivably, the topic of conversation might even render co-experienced affect inert (e.g., given the potential rarity of co-experienced positive affect during conflict, more frequent co-experienced positive affect may only be predictive of marital quality during discussions of pleasant or neutral topics, but not during disagreements). However, positivity resonance theory suggests that satisfied couples generate more moments of co-experienced positive affect, even in the context of a conflictual conversational topic.

Determination of the presence or absence of co-experienced affective states that occur moment-to-moment across varied topics requires continuous subjective affective reports from each group member across multiple interactions. These continuous affective reports must reflect whether each group member's affect is positive or negative at each moment during the interactions. The current study takes advantage of a unique archival dataset that meets these criteria at the dyadic level (Levenson et al., 1993). Wives and husbands in long-term marriages provided continuous subjective reports of affective valence across three conversational topics: events of the day, conflict, and a pleasant topic. For each conversation, we had three key hypotheses. First, we hypothesized that more time spent co-experiencing positive affect will predict higher marital quality (Model 1a) and that individually experienced positive affect or individual's overall average level of affect will add little explanatory value beyond co-experienced positive affect (Model 1b). Second, we hypothesized that more time spent co-experiencing negative affect will predict lower marital quality (Model 2a) and that individually experienced negative affect or individual's overall average level of affect will add little explanatory value beyond co-experienced negative affect (Model 2b). Finally, we hypothesized that co-experienced positive affect will outperform co-experienced negative affect in predicting marital quality (Model 3).

Method

Participants

Participants were drawn from a longitudinal study of 156 heterosexual married couples. The current sample ($N = 150$) consists of a subset who provided affect ratings for three conversational topics (M years of marriage = 30.37; M age = 52.79; see Table S1 in the online supplemental material for additional demographics and Section 1 of the online supplemental material for sampling and recruitment details and a list of prior publications using this dataset). Participants were primarily White (86%; 7% Black; 2% Hispanic; 4% Asian; 1% other), relatively well-off socioeconomically, and with children (95% had at least one child). The University of California, Berkeley Committee for the Protection of Human Subjects approved procedures.

Procedure

Data were collected at four time points over the course of 20 years (Time 1: 1989/1990; Time 2: 1995/1996; Time 3: 2001/2002; Time 4: 2008/2009). Our primary analyses focus on data collected at Time 1. Couples completed questionnaires and a laboratory session based on a well-validated protocol for studying emotion during interactions (Levenson & Gottman, 1983). Couples engaged in three 15-min conversations, each of which was on one of the following topics: (a) events of the day; (b) an ongoing conflict in the marriage; (c) or a mutually agreed-upon, pleasant subject.

Subjective Affect—Several days after the laboratory session, participants returned to the laboratory and individually watched video-recordings of their conversations while using a rating dial to provide continuous ratings of how they felt during the interactions. Participants manipulated a rating dial that traversed an 180° path, with the dial pointer moving over a nine-point scale anchored 1 (*extremely negative*) and 9 (*extremely positive*), with a line labeled *neutral* in the middle (at the 5 position on the scale).[1] Spouses were instructed to change the position of the dial as often as necessary so that it always represented how they felt during the interaction (Ruef & Levenson, 2007). The average dial position was computed every second. For each spouse, this resulted in a second-by-second time series, reflecting affective valence during each 15-min conversation. This procedure for obtaining continuous self-reported affect is well-validated (Gottman & Levenson, 1985).

Data Reduction—Cumulative *seconds of co-experienced positive affect* for each conversation was determined as the number (sum) of seconds in which both partners reported experiencing positive affect (5 on the rating dial at the same time).[2] Cumulative

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[1]The rating dial mirrors the affective circumplex model of valence, in which positive and negative affect fall along a unidimensional scale (Posner et al., 2005).

[2]We used the neutral line (5 on the rating dial) as a threshold for determining positive and negative affect because positivity resonance theory argues that even low intensity co-experienced positive affect is relevant for relationship quality. Given the nature of the rating dial (i.e., participants necessarily move through the neutral point on the rating dial as they shift from negative to positive affect, without necessarily feeling neutral), and given that neutral affect can be interpreted positively or negatively, we allowed seconds rated as neutral to be considered positive or negative for both shared and unshared affect. This analytic choice additionally reduces dependency in the data (e.g., for each spouse, each second is not necessarily coded as one of four affect categories that together sum to 900 s). For completeness, we repeated analyses without including seconds rated as neutral in calculations of positive and negative affect categories and found similar results (see Section 2, Tables S2 and S3 in the online supplemental material).

seconds of co-experienced negative affect for each conversation was determined as the number (sum) of seconds in which both partners reported experiencing negative affect (5 on the rating dial at the same time).

Cumulative *seconds of individually experienced positive affect* for each conversation was determined separately for husbands and wives as the number (sum) of seconds in which the individual reported experiencing positive affect (5 on the rating dial), whereas their partner did not. Cumulative *seconds of individually experienced negative affect* for each conversation was determined separately for husbands and wives as the number (sum) of seconds in which the individual reported experiencing negative affect (5 on the rating dial), whereas their partner did not.[3]

Individual's average level of affect for each conversation was determined separately for husbands and wives via their average rating dial level for each of the 15-min conversations. For each conversation, couples were excluded from analyses if husbands or wives were missing more than 15% of rating dial data for that conversation (this occurred for a few couples due to technical issues), resulting in slightly smaller sample sizes per conversational topic ($N_{conflict}$ = 147; N_{events} = 146; $N_{pleasant}$ = 148).

Survey Measures

Marital quality was assessed before couples visited the laboratory using two well-validated self-report inventories: (a) the 15-item Marital Adjustment Test (e.g., "Describe the degree of happiness, everything considered, of your present marriage…"; Locke & Wallace, 1959) and (b) the 22-item Marital Relationship Inventory (e.g., "How happy would you rate your marriage?"; Burgess et al., 1971). Consistent with past research (e.g., Carstensen et al., 1995) and to reduce Type I errors, we averaged the measures separately for husbands and wives to capture each spouse's perceived marital quality. Measures showed high internal consistency (α range = .80–.86), and husbands' and wives' scores were highly correlated (see Section 4 of the online supplemental material).

Statistical Analyses

To account for dependence in the data, a series of random intercepts multilevel models were constructed with the R lme4 package (Bates et al., 2015), with individuals nested within dyads. Dyads were treated as indistinguishable in the primary models based on preliminary empirical analyses (see Section 4 of the online supplemental material). The *p* values were derived with the lmerTest package (Kuznetsova et al., 2017; Satterthwaite's degrees of freedom method). For every model, marital quality served as an individual-level dependent variable. All variables were *z* scored so that coefficients would be standardized. For each of the three conversational topics, we ran five models (labeled to correspond to hypothesis labels). Model 1a assessed whether the number of seconds of co-experienced positive affect (dyad-level predictor) was associated with individuals' marital quality. In Model

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[3]To maintain statistical independence of the affect measures, we constrained the latter two variables to capture seconds of unshared affect rather than the total seconds of positive or negative affect that each individual experienced. For completeness, we repeated all analyses using each individual's total seconds of positive or negative affect (in place of individuals' unshared affect). Results were comparable (see Section 3 and Table S4 in the online supplemental material).

1b, we added individuals' average level of affect and seconds of individual positive affect as individual-level predictors to Model 1a. Next, we addressed co-experienced negative affect. Model 2a assessed whether seconds of co-experienced negative affect (dyad-level predictor) was inversely associated with individuals' marital quality. In Model 2b, we added individuals' average level of affect and seconds of individual negative affect as individual-level predictors to Model 2a. Next, in Model 3 we compared seconds of co-experienced positive affect to seconds of co-experienced negative affect by including these variables as joint predictors of individuals' marital quality. Finally, we conducted dominance analyses (Luo & Azen, 2013) to examine the relative importance of all affect variables in the prediction of marital quality.

Because data are archival in nature, the sample size was predetermined. However, we calculated power to detect the fixed effect of co-experienced affect in a random intercept model based on Monte Carlo simulations (Green & MacLeod, 2016). For a sample of 146 (our smallest sample size), we had 89.5% power (95% confidence interval [87.43, 91.33]; 1,000 simulations) to detect a small effect size of .20.

Results

Table 1 displays means and standard deviations for affective predictors. As expected, the number of each type of affective moment tracked conversational context (e.g., positive moments were highest during the pleasant topic, negative moments were highest during conflict). The sole exception was individually experienced moments of positive affect, which were relatively higher during conflict. Note that co-experienced affect was not consistently more or less common than individually experienced affect. Table S5 in Section 5 of the online supplemental material displays correlations among all variables.

Table 2 displays the results by conversation topic.[4] Regarding positive affect, as hypothesized, results from Model 1a indicate that more seconds of co-experienced positive affect were associated with higher marital quality for each conversation topic. In Model 1b, co-experienced positive affect remained a significant predictor of marital quality, whereas individually experienced positive affect and individuals' average level of affect were not significantly associated with marital quality. Regarding negative affect, results from Model 2a suggest that more seconds of co-experienced negative affect were associated with lower marital quality for each conversational topic. In Model 2b, co-experienced negative affect remained significantly associated with marital quality for the conflict and pleasant conversations, and marginally significant for the events conversation. Again, as for positive affect, individually experienced negative affect and individuals' average level of affect were not significantly associated with marital quality.

When comparing co-experienced positive affect with co-experienced negative affect in Model 3, for the events and conflict topics, co-experienced positive affect had a significant relationship with marital quality whereas co-experienced negative affect did not. However,

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[4]Additional test statistics are available in Section 5 and Table S6 of the online supplemental material.

for the pleasant topic, co-experienced positive and co-experienced negative affect each independently related to marital quality.

Given the number of models tested (15 total; five for each of the three conversational topics), we adjusted *p* values using the Benjamini-Hochberg procedure to control for a potential false discovery rate of 5% (Benjamini & Hochberg, 1995; see Section 6, Table S7 of the online supplemental material). After correcting for multiple comparisons, results for Models 3, 1b, and 2b became marginal during the events conversation (i.e., for the events conversation, co-experienced affect was only marginally predictive beyond other affect variables). However, additional formal comparisons of nested models (Model 1a vs. Model 1b; Model 2a vs. Model 2b) revealed that individual-level affect variables did not significantly improve model fit indices for any conversational topic, including the events conversation (See Section 6 of the online supplemental material for statistical details).

The pattern of results was also comparable across husbands and wives (see Section 7 of the online supplemental material). Findings were also similar when individually experienced affect and average dial were included in separate models, and when an individual's positive to negative affect ratios were as used as an alternative metric of individual affect (see Section 7 and Table S8 in the online supplemental material). Moreover, we conducted three dominance analyses (one for each conversational topic) to examine which variables were the best predictors of marital satisfaction. Co-experienced positive affect demonstrated greater relative importance for marital quality than all other affective predictors, followed by co-experienced negative affect (see Section 8 and Tables S9, S10, and S11 in the online supplemental material).

Finally, to explore potential longitudinal effects of co-experienced positive affect on marital quality, we examined whether co-experienced positive affect predicts husbands' and wives' marital quality at each of the following time-points. We found that co-experienced positive affect was significantly or marginally associated with marital quality at every later time point (i.e., 5 years later, 10 years later, and 15 years later) for each of the conversations. However, these effects generally became nonsignificant after controlling for initial marital quality. The one exception was co-experienced positive affect during the events conversation, which predicted marital quality 10 years later, even after accounting for initial marital quality. This pattern of effects may result from stability in marital quality across time (see Section 9 of the online supplemental material for details).[5]

Discussion

The current study examined whether dyadic, co-experienced positive and negative affect during marital interactions are better predictors of individuals' perceived relationship quality than individually experienced moments of affect and individuals' average level of affect during these same conversations. Results suggest co-experienced affect was not simply a better predictor of marital quality, but rather, across models, individual level affect factors

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[5]We present figures of raw data (associations among co-experienced affect variables and marital quality) in Section 10 of the online supplemental material.

added little to no explanatory value beyond co-experienced affect. Thus, when individuals consider the quality and nature of their interpersonal relationships, they may afford greater weight to moments of co-experienced affect than their own individual affect.

Results suggest that more co-experienced positive affect is associated with better relationship quality, whereas more co-experienced negative affect is associated with worse relationship quality. Although negative affect during interactions is typically viewed as detrimental, some instances of co-experienced negative affect may be beneficial during interactions (e.g., sharing a partner's distress; Brown et al., 2020). In contrast, co-experienced positive affect is theorized to be consistently beneficial for relationship quality. This may help to explain why co-experienced positive affect generally outperformed co-experienced negative affect. Only for the pleasant topic conversation did co-experienced negative affect become an additional significant predictor of marital quality. We speculate that when co-experienced negative affect seeps into contexts that are normatively pleasant it becomes especially diagnostic.

These findings provide support for collective emotion theories that emphasize the power of macrolevel affect beyond individually experienced affect (Goldenberg et al., 2020) and join a broader body of evidence linking shared positive affect and interpersonal synchrony with affiliation and social attachments in dyads and groups (Algoe et al., 2013; Gable et al., 2004; Hove & Risen, 2009; Mauss et al., 2011; Páez et al., 2015; Rennung & Göritz, 2016). Findings also provide empirical support for a critical claim of positivity resonance theory (Fredrickson, 2016), that positive affect co-experienced between individuals is more strongly linked with relationship quality than is positive affect experienced solely by individuals. Last, findings provide novel information regarding the affective features of interpersonal interactions that are associated with better relationship quality, which points to potential targets for future intervention studies (e.g., examining whether increasing brief moments of co-experienced positive affect promotes better relationship quality).

Several study limitations are worth mentioning. First, these findings are correlational in nature. We cannot make conclusions regarding the causal direction of effects. Although we suspect that co-experienced affect may be both cause and consequence of perceived relationship quality, such reciprocal causation remains to be tested. Additionally, participants retrospectively rated their affect experienced during the conversation. This method for capturing continuous retrospective ratings cued by video-recall has been validated in a number of ways (e.g., physiology when viewing the interaction tracks physiology during the original conversation, suggesting that participants are reliving their emotional experience; Gottman & Levenson, 1985) and retrospective ratings of emotion are known to contain accurate information about momentary emotion reports (Barrett, 1997). However, appraisals of affect may also be influenced by a host of factors and affect ratings may not map perfectly onto the temporal resolution of participants' actual subjective affect during the conversation. Moreover, the nature of the rating dial assumes that participants feel either positive, negative, or neutral throughout the conversation, and does not allow for more nuanced mixed emotional states. Second, our analyses examined the overall amount of individually experienced affect during interactions. We did not capture specific types of individually experienced or discordant affect that may have strong predictive value for

relationship quality (e.g., individually experienced affect that compensates or regulates a partner's negative emotions; Bloch et al., 2014; Goldenberg et al., 2017). Finally, the present results were found in a sample of long-term married couples. Although both collective emotions theory and positivity resonance theory suggest that these findings will generalize to other groups and relationships, we cannot be sure from the current data that our conclusions will generalize to other dyadic or group relationships (e.g., friendships, classmates) or samples of married couples who differ in length of marriage, gender, income, marital quality, and so forth. Future research is needed to replicate and extend these findings.

In conclusion, findings suggest co-experienced dyadic affective moments are more relevant to relationship quality than are individually experienced affective moments. Co-experienced positive affect appears to be a robust predictor of marital quality. Future research is needed to replicate and extend these findings, examine the role that co-experienced affect plays in the development and maintenance of social relationships, and understand the ways in which individuals integrate their partners' affective experiences into their own judgments of relationship quality.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Table 1

Means and Standard Deviations for Predictor Variables by Conversation Type

Variable	Conflict		Events of the day		Pleasant	
	M	*SD*	*M*	*SD*	*M*	*SD*
Seconds of co-experienced positive affect	260.91	229.60	523.66	227.92	662.91	216.77
Seconds of co-experienced negative affect	291.06	250.15	96.25	128.61	43.76	86.79
Seconds of individual positive affect						
Husbands	208.83	208.58	162.87	181.05	114.18	151.24
Wives	170.47	178.69	135.16	158.51	87.7	140.30
Seconds of individual negative affect						
Husbands	167.01	176.7	146.59	166.63	97.91	145.38
Wives	210.64	205.86	177.77	185.55	128.96	157.78
Individual average level of affect						
Husbands	4.96	1.03	5.70	0.79	6.09	0.81
Wives	4.81	1.14	5.70	1.07	6.17	0.98

Table 2

Results From Dyadic Multilevel Models (Individuals Nested Within Dyads) Predicting Husbands' and Wives' Individual Reports of Marital Quality From Experienced Affect by Conversation Type

Model/variable	Conflict		Events of the day		Pleasant	
	B	p	B	p	B	p
Model 1a	Positive affect					
Seconds of co-experienced positive affect	0.298	<.001 ***	0.239	.003 **	0.346	<.001 ***
Model 1b						
Seconds of co-experienced positive affect	0.266	.004 **	0.185	.046 *	0.342	<.001 ***
Seconds of individual positive affect	−0.001	.898	−0.011	.80	0.021	.580
Individual average level of affect	0.047	.504	0.088	.14	0.032	.514
Model 2a	Negative affect					
Seconds of co-experienced negative affect	−0.241	.002 **	−0.184	.021 *	−0.343	<.001 ***
Model 2b						
Seconds of co-experienced negative affect	−0.212	.030 *	−0.146	.081 †	−0.324	<.001 ***
Seconds of individual negative affect	−0.004	.941	−0.013	.757	−0.021	.594
Individual average level of affect	0.046	.527	0.073	.235	0.040	.436
Model 3	Positive affect vs. negative affect					
Seconds of co-experienced positive affect	0.259	.020 *	0.212	.048 *	0.214	.025 *
Seconds of co-experienced negative affect	−0.054	.623	−0.038	.716	−0.207	.030 *

† $p < .10$, uncorrected.

* $p < .05$.

** $p < .01$.

*** $p < .001$.