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The Interplay Between Momentary Experienced and Verbally Expressed Negative Affect Within Interactions

Otto Versyp[1], Eva Ceulemans[1], Andrea B. Horn[2, 3, 4], and Peter Kuppens[1]

[1] Research Group of Quantitative Psychology and Individual Differences, Faculty of Psychology and Educational Sciences, Katholieke Universiteit Leuven

[2] CoupleSense: Health and Interpersonal Emotion Regulation Lab, University Research Priority Program "Dynamics of Healthy Aging," University of Zurich

[3] Center of Gerontology, Healthy Longevity Center, University of Zurich

[4] Department of Psychology, Gerontopsychology and Gerontology, University of Zurich

Emotions dynamically unfold and are jointly constructed throughout social interactions between individuals. Yet, how exactly the experience and expression of emotions interact throughout such interactions remains poorly understood. In this study, we investigated the interplay between the experience and verbal expression of negative affect within and between romantic partners during negative interactions. We examined this interplay in terms of four possible relations: (a) how one's experienced negative affect predicts the verbal expression thereof, (b) how the verbal expression of negative affect predicts a subsequent change in one's own experienced affect, (c) how the verbal expression of negative affect predicts change in a partner's experienced affect, and (d) how one's experienced negative affect predicts the verbal expression of negative affect by a partner. We answered these questions by analyzing second-to-second data of self-reported affect ratings and verbatim transcripts of videotaped negative interactions between romantic partners. Our findings reveal inconsistent evidence for intraindividual relationships between the experience and verbal expression of negative affect. Yet, they demonstrate a consistent, though small, interpersonal relation with the expression of negative affect in one partner predicting the subsequent experience of negative affect in the other. These results suggest that verbal negative emotion expression may be more consistently related to others' experience than one's own, and highlight the role of emotion expression in interpersonal emotion regulation and the social construction of emotional experience, though the small effect sizes suggest this relationship may be subtle and that many other factors contribute to our emotional experiences.

Keywords: language, verbal expression, interpersonal emotion regulation

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Emotions for the most part originate in interactions between people (Fischer & van Kleef, 2010). During such interactions emotions dynamically unfold as the interaction partners experience and express their feelings. How you feel may lead you to verbally express an emotion to your interaction partner, and this expression may subsequently impact again your own feelings as well as those of your interaction partner. As such, interactions form the context in which feelings originate, are expressed, and exchanged (Boiger & Mesquita, 2012; Parkinson, 2021). This is a central notion in social constructionist (among other) views of emotion (Mesquita & Boiger, 2014), where it is argued that emotions are dynamically changing in conjunction with changes in the social context. Examining how people feel and verbally express emotions during interactions therefore can shed light on how emotions arise and are regulated interpersonally.

In this study, we will examine the temporal interplay between the experience and verbal expression of negative emotion, both within individuals (e.g., how does my experience predict my expression,

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Otto Versyp https://orcid.org/0000-0002-9536-3634

The analyses and hypotheses of this study were pre-registered and can be found together with the code on the following link: https://osf.io/p5ujr. At this time the data is not publicly available due to institutional privacy regulations for this type of data. The authors have no conflicts of interest to disclose. This study was funded by Vlaamse Interuniversitaire Raad Interuniversitait bijzonder onderzoeksfonds Funding 21/090 awarded to Peter Kuppens.

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Correspondence concerning this article should be addressed to Otto Versyp, Research Group of Quantitative Psychology and Individual Differences, Faculty of Psychology and Educational Sciences, Katholieke Universiteit Leuven. Email: otto.versyp@kuleuven.be

and vice versa) as well as between individuals (e.g., how does my verbal expression predict the other person's experience, and vice versa). We will specifically focus on the experience and verbal expression of *negative* emotions within negative interactions between partners in romantic relationships. Due to the negative valence and high salience of these interactions, this context is of high value in terms of its relevance for people's emotional lives as well as for researchers who wish to understand what drives healthy or unhealthy relationships.

Intrapersonal Relation Between the Experience and Verbal Expression of Negative Affect

A first straightforward prediction would be that people *verbally* express their feelings in interactions. Indeed, previous research shows that people typically tend to share the past emotional episodes they experience (Rimé, 2009), also to romantic partners (Rauers & Riediger, 2023). Yet, we know that the relation between momentary emotional experience and *nonverbal* (i.e., facial, bodily, etc.) expression is not unequivocal (Hollenstein & Lanteigne, 2014). Emotions may be felt but not expressed, or expressed but not felt (Greenaway & Kalokerinos, 2019). Prior research has indicated that the connection between emotional experience and its nonverbal expression is not strictly one-to-one, but rather exhibits a probabilistic nature (Parkinson, 2005). Furthermore, people often strategically suppress the nonverbal expressions of their emotions for various reasons, such as managing others' impressions of themselves and avoiding conflict with others (Cameron & Overall, 2018; English et al., 2017).

The question therefore remains whether and to what extent people typically *verbally* express negative feelings or not during interactions with romantic partners, and whether a similar probabilistic relationship could be observed in the context of verbal emotional expression. Based on previous literature, we expect that the experience of negative emotions will consistently be related to its subsequent verbal expression (Kahn et al., 2007; Lee & Wagner, 2002). Importantly, however, these studies have mostly examined verbal expression in a nondynamical or noninteractional context (i.e., while watching a video or using questionnaires; Kahn et al., 2007; Lee & Wagner, 2002). Consequently, it is important to examine how the experience and verbal expression of emotion are related to each other in a dynamic, interactional context such as conversations between romantic partners, where people might be more inclined to avoid verbally expressing their emotions for various reasons.

Vice versa, one may wonder to what extent the verbal expression of emotion would subsequently impact one's experience. Originally, there was a widely held belief that sharing emotional experiences with others could diminish their emotional impact, implying that sharing could reduce the overall emotional effect. For instance, a study by Hokanson and Burgess (1962) suggested that expressing negative affect can lead to the reduction of physiological arousal in angered subjects. However, other (more recent) studies often (not always: Rauers & Riediger, 2023) suggest that sharing past emotional events with others may influence one's subsequent feelings, but in the opposite direction. These studies argue that there is little evidence for the idea of reducing negative affect through its expression and report *increases* (instead of decreases) in negative experience following the expression or social sharing of emotion, which could be attributed to the "reactivation" or strengthening of the emotional experiences being shared (Bushman, 2002; Choi & Toma, 2014; Ebbesen et al., 1975; Nils & Rimé, 2012; Rimé et al., 2020).

Importantly, most existing studies have typically examined how expression impacts feelings *following* conversations or after emotional episodes, but not often what happens during conversations (i.e., when expressing affect during an ongoing emotional episode). We, therefore, aim to uncover which pattern of effects can be observed *within* conversations and examine whether second-to-second intrapersonal fluctuations in experienced negative affect can be linked to verbal expressions of negative affect (and vice versa). Considering the previous literature, we expect that the odds of expressing negative emotions will be higher following moments where people report stronger negative affect, and that expressing negative affect will be paired with subsequent increases in experienced negative affect, due to reactivation or strengthening effects.

Interpersonal Relation Between the Experience and Verbal Expression of Negative Affect

Instead of merely reflecting an inner state, expressions of emotion might also signal social motives (Fridlund, 1994) geared to impact (the emotional experience of) others. Functionalist accounts generally consider emotions to have their own relational/social functions where, for example, sadness could signal the need for support, and anger might communicate to others that they are impeding one's progress toward a certain goal (Fischer & Manstead, 2008). Others argue that one of the reasons why we express our emotions could be to induce (similar) feelings in others (Parkinson & Simons, 2012). Also in work on interpersonal regulation of emotions, it is assumed that emotional expressions toward others may serve the function of impacting the other's feeling states (Parkinson et al., 2016). From this perspective, the expression of emotion can be expected to be predictive of a change in the other's emotional state. Moreover, in the context of romantic relationships, prior research has offered support for distinct associations between the expressions and experiences of negative affect in partners. Specifically, studies such as those by Gottman et al. (1998) and Krokoff et al. (1988) have demonstrated a connection between the expressions of negative affect, indicating that when one partner expresses their negative affect, the other partner is also more likely to do so. Additionally, research by Saxbe and Repetti (2010) as well as Levenson and Gottman (1983) has shown a relationship between the *experiences* of negative affect in partners (negative affect reciprocity), at least for unhappily married couples. This observed synchrony between expressions or experiences of partners may stem from either similar reactions to a common environment or the direct influence of one partner on the emotional states of the other, leading to a state of "synchronization." By directly examining the association between one person's emotional expressions and the subsequent changes in the emotional experience of the other within negative interactions, we can effectively model the latter scenario.

One can also wonder about the reverse relationship: would my partner's feelings impact my expression of feelings? According to Butler (2011, 2017), emotions can be considered temporal interpersonal systems. One category of temporal interpersonal systems is "interpersonal state models," where "emotion is conceptualized as a dynamic latent state that generates interdependent emotional observations for two or more people over time" (p. 129). According

to interpersonal state models, one could then expect that the affect levels of one partner might be related to expressions of affect in the other, due to them being in a shared dyadic state. Parkinson (2021) also argued that emotions consolidate as a result of socially distributed reciprocally adjusted cues, which are not exclusively verbal. This would mean that when people report increased negative affect, implicit cues could evoke emotional expression in partners.

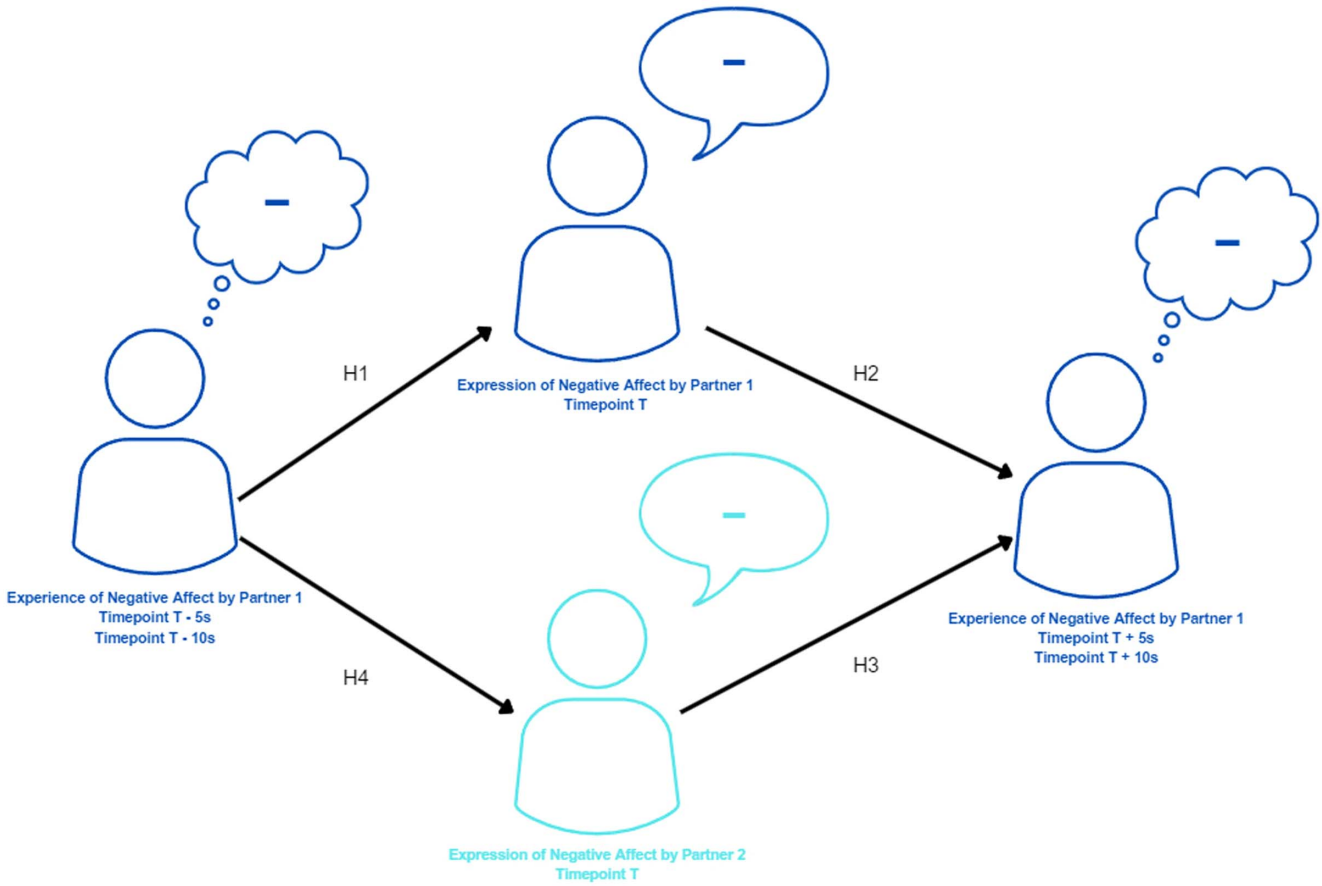
In terms of the interpersonal relations between experience and expression, we therefore formulate two predictions. We expect that elevated negative affect in one individual may be predictive of an increased likelihood of their partner expressing negative emotions, and that verbal expressions of negative emotions will likely predict subsequential increases in the partner's experienced negative affect. For an overview of our hypotheses, see Figure 1.

This Study

In this study, our primary focus was to explore the dynamic relationship between negative emotional experiences and the verbal expressions of negative emotions within and between romantic partners. Our approach encompasses a comprehensive examination of the lagged associations between experience and expression of emotion, both within and between individuals. Through our research, we aim to contribute to the ongoing exploration of fundamental questions on how the experience and expression of emotions are temporally interrelated throughout interactions and how emotions are exchanged between partners. Our research may help to shed light on the question of how *verbal* expressions of emotions are related to both one's own, and others' subjective experience of emotions. While some researchers have argued that there is no direct one-on-one relationship between emotional experience and expression, thereby suggesting that expressions do not always represent inner states, much of this discussion has primarily centered on *facial* expressions of affect. In our study, we explore whether this similarly applies to *verbal* expressions of affect. Our unique contribution lies in our concurrent examination of these questions within the context of real-time interpersonal interactions, and our focus on microprocesses within an interaction such as the temporal unfolding and direction

Figure 1

Visual Overview of the Hypothesized Intra- and Interpersonal Relationships Between the Experience and Verbal Expression of Negative Affect



Note. H1 = the odds of expressing negative emotions will be higher following moments where people report stronger negative affect; H2 = expressing negative affect will be paired with subsequent increases in experienced negative affect, due to reactivation or strengthening effects; H3 = verbal expressions of negative emotions will likely predict subsequential increases in the partner's experienced negative affect; H4 = elevated negative affect in one individual may be predictive of an increased likelihood of their partner expressing negative emotions; H = hypothesis. T = timepoint of expression. "-" = negative affect. See the online article for the color version of this figure.

between subjective experience and verbal expressions. Note that, given the focus on negative interactions between romantic partners, our results might not generalize to different contexts. Since the expressions of negative affect in this particular context are likely to be related to the person with whom they are interacting, and not related to others (as is often the case when talking with friends and family, or in different contexts with a romantic partner), the relationship between experiences and expressions might be unique.

To examine our research questions, we will analyze time-stamped verbatim transcripts of negative interactions between romantic partners, coupled with second-to-second valence ratings obtained through video-mediated recall. The research questions, hypotheses, and analyses for this study were preregistered and can be accessed alongside the accompanying code on https://osf.io/p5ujr (Versyp, 2024).

Method

Participants

Data were collected from 100 heterosexual couples or 200 participants (obtained in 2016–2017). Due to practical and technical issues (missing or unclear audio/transcripts, inaccurate timestamps), only 96 ($n = 192$) couples were included in the final analyses. All participating couples were at least 18 years of age and in heterosexual romantic relationships for at least 2 months. The mean age of participants was 26.04 years ($SD = 5.35$), and the average relationship duration was 4.54 years ($SD = 2.82$). Most participants carried the Belgian nationality (177), although some participants reported being from the Netherlands (nine), Germany (three), Ukraine (one), China (one), or Armenia (one). Upon completion of the study, couples were paid 100 euros. Informed consent was acquired from all participants. Ethical approval for this study was obtained from the Katholieke Universiteit Leuven Social and Societal Ethics Committee.

Procedure

Participants were invited to have three different videotaped conversations. First, participants had a 2-min "neutral" interaction where they discussed their daily lives to get used to talking in front of the cameras. Afterward, participants were asked to write down characteristics that they liked and disliked in their partner. Next, they were asked to mutually discuss the disliked characteristics in the next 10-min "negative"/conflict interaction. After 8 min of conversation, the experiment leader told the participants that the conversation was ending soon and that they should "wrap up" (knock on the door; Granic & Lamey, 2002). The interaction was then followed by questions concerning how they felt about their conversation, how natural it was, and more. Participants were then instructed to have a 10-min "positive" interaction, where they had to discuss what they liked about their partner. The procedure was identical to the negative interaction. After all three interactions had been completed, participants rewatched the negative and positive conversation while rating how they felt during the interactions through video-mediated-recall. In addition, time-stamped verbatim transcripts of the recordings were made. In this particular study, only transcripts and ratings from the *negative* interaction will be used. For more information on the entire data-collection procedure, see Sels et al. (2020).

Materials

Video-Mediated Recall of Experienced Emotion

After the conversations, participants were seated in an individual cubicle with a computer and were instructed to watch recordings of the interactions while continuously reporting their affect at that time during the interaction using a joystick (from entirely negative to entirely positive; −1 to +1 in 255 increments of ±0.008 to allow fine-grained measurement). Ratings were obtained every second, meaning that each video yielded 600 measurements of rated affect.

Coding of Expressed Emotion

The time-stamped verbatim transcripts were analyzed for the expression of negative emotion. To automatically identify verbal negative emotion expressions, we first relied on the Dutch linguistic inquiry and word count (LIWC) 2015 "negative emotion" dictionary (Boot et al., 2017). Particularly, we ran an R script (R Core Team, 2021) that indicated for each word in the transcript whether it was negative or not based on the dictionary. However, this method of identifying (negative) affect expressions through a dictionary has its limitations and falls short in recognizing elements such as sarcasm, negations, and context (Tausczik & Pennebaker, 2010) but also references to the affective states of others, which might be prevalent in the current data set. It should also be noted that LIWC identifies negative emotional language more broadly, as opposed to exclusively identifying verbal expressions of negative affect (i.e., words like *stress*, *problem*, or *conflict* are marked but do not necessarily always represent an expression of affect in that moment). Given these limitations, we also had an independent human coder identify negative affect expressions in the transcripts. The independent coder examined all transcribed interactions and indicated where people expressed their negative affect, paying special attention to the contextual factors mentioned above which LIWC cannot take into consideration (i.e., the coder was instructed to take into account context, more complex verbal behavior such as sarcasm, references to emotional states of others, past emotional experience vs. current expressions of negative affect, etc.). They were instructed to identify a partner's expressions of a current emotional state to their romantic partner, but not necessarily directed *at* their romantic partner (note that due to the nature of the interaction, most expressions were directed at each other). So theoretically if one of both partners was upset with something outside of the relationship and was discussing this, it was also coded as an expression of affect. The coder was also instructed to code expressions of negative affect which might not include these prototypical words or behaviors (e.g., "I wish you wouldn't act like that"), and LIWC therefore might miss. Finally, they were instructed specifically to examine verbal expressions of negative affect, and not mere negative emotional language. The coding was done based on the transcripts of the interactions. In other words, they were unable to use any visual, auditory, or other nonverbal cues to identify expressions. Given the aforementioned limitations for LIWC, we report the results for the manually coded expressions in the main text, and the analyses with LIWC in the Supplemental Materials.

Negative affect expression was coded as a binary variable indicating whether or not someone had expressed negative affect (as indicated by LIWC or coders) at a certain timepoint. The

timestamped expressions of negative affect based on LIWC and the human coder were then combined with the continuously reported affect of both partners over time into a single data set.

Transparency and Openness

At this time, the data are not publicly available due to institutional privacy regulations for this type of data. Data were analyzed using R, Version 4.4.0 (R Core Team, 2021). This study's research questions, hypotheses, and analyses were preregistered and can be found together with the code at https://osf.io/p5ujr. No power analyses were conducted prior to the collection of these data. We reported all data exclusions, manipulations, and measures in this study.

Analyses

Preprocessing

Data were preprocessed and analyzed using R, Version 4.4.0 (R Core Team, 2021). The valence ratings (600 observations per person; 1 per second for 10 min) and time-stamped transcripts (timestamp available for every word[1]) were combined yielding second-to-second data on both experienced affect and verbal expression.[2]

As mentioned, we wanted to examine how the experience or expression of negative affect predicts the subsequent expression or experience of affect (of self or other). We used two different time lags to examine these subsequent relations: one at 5 s and the other at 10 s. We based these delays on a window of −10 to +10 s, used in previous research to examine the coherence between experience and expression (Mauss et al., 2005). Given that we analyzed outcomes at exact 5- or 10-s delays before and after instances of emotion expressions (i.e., we examine affect exactly 5 and 10 s before or after a verbal expression of negative emotion), we acknowledge the potential overlap between different occurrences of affect expressions. To address this, we focused on isolating instances where emotion expressions were not preceded or followed by any other emotional expressions. This approach aimed to prevent the influence of multiple expressions on the outcomes we examined, ensuring a clearer understanding of the impact of individual emotion expressions (i.e., when one examines the third in a series of negative affect expressions, there might be a cumulative effect, possibly inflating the observed effect). Additionally, to avoid overlap even across different time windows of included expressions, we selected instances where they were not accompanied by emotional expressions from any partner in the preceding or subsequent 20 s. Similarly, when examining instances of none-motion expression, we ensured they were not preceded or followed by instances of emotion expression within the same time frame. Since it might be considered unnaturalistic to isolate expression as such (although it should be noted that in the case of our manually coded expressions, 60% were not followed or preceded by other expressions), or because one might worry that isolating expressions may yield too little remaining expressions we also performed an additional set of sensitivity analyses where we also included the first in a series of expressions, but not the subsequent expressions. The results remain almost identical. Details can be found in Supplemental S3.

Statistical Models

For all of our statistical analyses, we person-mean centered the continuous predictors, to specifically focus on within-person effects. Moreover, we addressed the dyadic longitudinal nature of the data (i.e., to account for the possible dependencies between observations nested within the same dyad) in the linear mixed-effect models by specifying the random structure of our models to include dyad-correlated residuals as suggested by Laurenceau and Bolger (2012). Importantly, while the estimated fixed effects are pooled across males and females, the random effects are estimated separately for males and females. The first level of the model accommodates variability arising from within-person repeated measures for both male and female partners separately, while the second level captures between-couples variability. Notably, at both levels, the variances of the residuals for males and females are assumed equal but allowed to correlate. While not identical, the model resembles actor-partner interdependence models as described by Laurenceau and Bolger (2012). For the first and the fourth research questions (are the odds of expressing negative affect predicted by one's own/their partner's experienced negative affect) where the outcome variable was binary negative affect expression (by oneself and one's partner respectively), a logistic mixed effect model was used. To account for nonindependence and differences across dyads here, we introduced a random effect for the intercept (McMahon et al., 2006). Because we specifically wanted to evaluate whether *negative* affect (e.g., negative affect becoming more negative, as opposed to positive affect becoming less positive) was associated with the expression of negative affect, we included two predictor variables along with their interaction. We included the reported affect at either exactly 10 or 5 s before the observed expression, and a binary variable indicating whether this reported affect was positive (assigned a value of 0) or negative (assigned a value of 1). In this context, our primary focus is on the interaction effect, which examines how the reported negative affect (as opposed to positive affect) relates to the likelihood of expressing negative affect. The main and interaction effects which we report are all obtained from the same model. For these research questions, we will report the odds ratio (*OR*).

For the second and third research questions (is the expression of negative affect predicted by intra-/interpersonal changes in negative affect?), regular linear mixed-effects models were used. The outcome variable was the reported affect by participants, or participants' partners, at 5 and 10 s *after* the expression of affect. We included expressions of affect, either by the participants themselves (Research Question 2) or their partners (Research Question 3), as predictor variables in our analysis. Importantly, we controlled for the current experienced affect at the moment of expression.[3] By doing so, we can

[1] In our preregistration we discussed extrapolating some missing timestamps, but due to the inaccuracy of the proposed method we left out the missing data and did not proceed with these additional analyses (see Supplemental S1 for more information).

[2] If an emotion expression and non-emotion expression occurred within the same second, that second was assigned as containing an emotion expression.

[3] Please note that we control for momentary affect when studying affect 5 and 10 s later. However, we do not control for momentary expression when examining expression 5 and 10 s later. The reason for not controlling for previous expressions of negative affect in the latter case is because we have already isolated the emotion expressions, ensuring they do not occur within a 20-s window of each other (as explained in the "Pre-Processing" section).

accurately assess the effect associated with our predictor variable, which then represents specific changes in affect that occur following the expression. For these research questions, we will report Cohen's f^2 as an effect size measure, calculated by comparing the residual variances of a null model (without the predictor of interest) and the actual model with predictor (Selya et al., 2012).

For our analyses, we used R Version 4.4.0 (R Core Team, 2021), and to estimate our models, we used the *glmmTMB* (Brooks et al., 2017) and *nlme* (Pinheiro et al., 2025) packages. All code for this article can be found at https://osf.io/p5ujr.

Results

The detailed results for the analyses using expressions of affect identified via LIWC are reported in Supplemental S2, while we report the results for the manually identified expressions below. Moreover, we discuss any divergences between the results obtained via LIWC and the manual coder below. As mentioned earlier, a set of sensitivity analyses was conducted where instances of emotion expression were isolated less strictly (i.e., the first in a series of emotion expressions was also included here). The results for these sensitivity analyses remain almost identical (see Supplemental S3 for details).

Descriptives

Throughout the negative interaction, participants reported a mean affect rating of .127 ($SD = 0.355$). As visible in the distribution of the reported affect (Figure 2) participants more often reported feeling positive, but generally did not report very high ratings of affect (neither positive nor negative). Correlations between the concurrently experienced affect (not lagged) and verbal expressions of negative affect *across* the conversation can be found in Table 1.

Figure 2

Distribution of Reported Affect During Negative Interactions Across All Participants

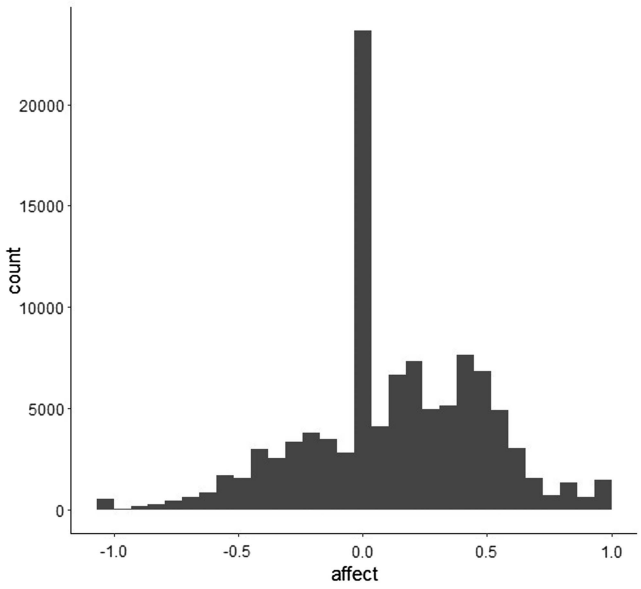


Table 1

Correlations Between Own and Partners' Momentary Experienced Affect, and Own and Partners' Expression of Negative Affect

Construct	1	2	3	4
1. Affect	—	.19*	−.012	−.022*
2. Affect partner	.19*	—	−.022*	−.012
3. Own expression	−.006	−.009	—	−.018*
4. Partner expression	−.009	−.006	−.013*	—

Note. Below the diagonal are the correlations for the automatically coded expressions, and above the diagonal the correlations for the manually coded expressions. Note that these correlations are with affect at the moment of expression.

* $p < .05$, statistically significant coefficients.

Because the reported affect is rather positive in this negative interaction, we also report the experienced affect in the positive interaction for comparison. Note that we will not examine positive interactions within this article, we report this here merely as a manipulation check. Within the positive interaction, the mean reported affect was .372 ($SD = 0.333$), compared to a mean of .127 ($SD = 0.355$) in the negative interaction (an average difference of .245). The experienced affect as reported by participants was also significantly lower in the negative, compared to the positive interactions, as determined by a multilevel model with reported affect as the outcome and a binary variable for the type of interaction as a predictor, $b = 0.248$, $t(223{,}502) = 209.506$, $p < .001$.

Analysis Based on Manually Coded Expressed Negative Affect

An overview of the results for the manually coded expressions can be found in Table 2.

Descriptives and Overlap

On average, participants expressed their negative affect 1.63 times per interaction ($SD = 1.91$). Based on the manual coding, several participants did not express negative affect throughout the interaction, while others exhibited a maximum of 11 expressions. As for the relation between the LIWC coding, there is a significant positive linear relation across participants between the number of affect expressions detected manually and automatically via LIWC, $r(172) = .39$, $p < .001$, which can also be observed in Figure 3 (for a complete overview of the descriptives using the automatically coded expressions of negative affect see Supplemental S2). Furthermore, about 50% of all the cases recognized by our manual coder(s) were also detected by LIWC, meaning that about half of the manually identified emotion expressions were uniquely identified by our manual coder. Note that the large differences and lack of overlap may indicate many false positives in the LIWC-based automatically detected expressions of affect. As a result of isolating the expressions of affect (i.e., analyzing only those which were not preceded or followed by other expressions as discussed in the Analyses section), 40% of the automatically coded expressions were removed from the subsequent analyses. As mentioned in the Analysis section, we conducted additional analyses where we also included the first in a series of expressions where only 35% of the automatically coded

Table 2
Results for the Four Different Research Questions Using the Manually Coded Expressions of Affect

RQ	Delay	Effect	Estimate	*SE*	*z* or *t*	*df*	Test statistic	*p*	*OR*	95% CI *LL*	95% CI *UL*
RQ 1	10 s	Intercept	−5.83	0.173	*z*	20,701	−33.666	<.001*	0.003	0.002	0.004
		Lagged affect	−0.462	0.702	*z*	20,701	−0.658	.511	0.63	0.159	2.496
		Binary lagged affect	0.359	0.37	*z*	20,701	0.969	.332	1.431	0.693	2.956
		Interaction	0.833	1.2	*z*	20,701	0.694	.488	2.3	0.219	24.175
	5 s	Intercept	−5.926	0.177	*z*	20,701	−33.452	<.001*	0.003	0.002	0.004
		Lagged affect	−1.067	0.759	*z*	20,701	−1.405	.16	0.344	0.078	1.523
		Binary lagged affect	0.92	0.322	*z*	20,701	2.86	.004*	2.51	1.336	4.717
		Interaction	2.486	1.18	*z*	20,701	2.107	.035*	12.016	1.189	121.452
RQ 2	10 s	Intercept	0.092	0.027	*t*	20,652	3.377	.001*		0.039	0.145
		Own expression	−0.03	0.026	*t*	20,652	−1.152	.249		−0.081	0.021
		Affect	0.673	0.005	*t*	20,652	129.895	<.001*		0.663	0.683
	5 s	Intercept	0.086	0.028	*t*	20,652	3.099	.002*		0.032	0.14
		Own expression	−0.028	0.02	*t*	20,652	−1.409	.159		−0.067	0.011
		Affect	0.825	0.004	*t*	20,652	209.018	<.001*		0.817	0.833
RQ 3	10 s	Intercept	0.11	0.03	*t*	20,183	3.622	<.001*		0.051	0.17
		Partner expression	−0.119	0.024	*t*	20,183	−4.94	<.001*		−0.167	−0.072
		Affect	0.651	0.005	*t*	20,183	123.791	<.001*		0.641	0.662
	5 s	Intercept	0.107	0.03	*t*	20,183	3.53	<.001*		0.047	0.166
		Partner expression	−0.085	0.019	*t*	20,183	−4.498	<.001*		−0.122	−0.048
		Affect	0.805	0.004	*t*	20,183	195.309	<.001*		0.797	0.813
RQ 4	10 s	Intercept	−5.862	0.17	*z*	20,232	−34.53	<.001*	0.003	0.002	0.004
		Lagged affect	−1.172	0.849	*z*	20,232	−1.382	.167	0.31	0.059	1.634
		Binary lagged affect	0.291	0.378	*z*	20,232	0.769	.442	1.337	0.638	2.804
		Interaction	0.295	1.23	*z*	20,232	0.24	.811	1.343	0.121	14.944
	5 s	Intercept	−5.824	0.165	*z*	20,232	−35.292	<.001*	0.003	0.002	0.004
		Lagged affect	−1.537	0.859	*z*	20,232	−1.79	.073	0.215	0.04	1.157
		Binary lagged affect	0.295	0.377	*z*	20,232	0.783	.434	1.343	0.642	2.809
		Interaction	0.849	1.261	*z*	20,232	0.673	.501	2.337	0.197	27.694

Note. The lower and upper limits of the confidence intervals are around the odds ratio (*OR*) for the logistic regression models (RQ 1 and RQ 4), while they are around the regression coefficients for the regular linear mixed effect models (RQ 2 and RQ 3). All estimates at a specific delay for a specific research question come from the same model. RQ = research question; *SE* = standard error; CI = confidence interval; *LL* = lower limit; *UL* = upper limit.
* $p < .05$.

expressions were removed from subsequent analyses (see Supplemental S3).

Interrater Reliability

To assess the interrater reliability of our coding process, a second rater rated 10% of all the conversations. The transcripts that were coded by both raters were selected via random sampling. The κ coefficient yielded a value of $\kappa = .696$, $p < .001$ indicating substantial agreement between the raters (Landis & Koch, 1977). This analysis suggests that our coding process is reliable and that the raters' interpretations of the transcripts were consistent, supporting the validity of our findings.

Research Question 1: Does Affect Predict the Likelihood of Expressing Negative Affect?

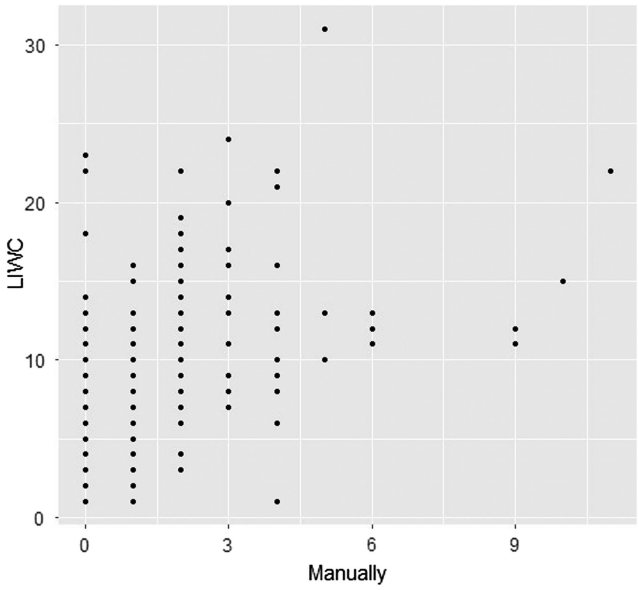
At a 5-s delay ($b = 2.49$, $z = 2.11$, $p = .035$, $OR = 12.02$, 95% CI [1.19, 121.45]), the interaction effect was significant (not at a 10-s delay; $b = 0.83$, $z = 0.69$, $p = .488$, $OR = 2.30$, 95% CI [0.22, 24.18]), meaning that the *negative* affect predicted the subsequent odds of expressing negative affect. More specifically, when people reported an increase in *negative* affect, they were significantly more likely to report expressing their negative affect 5 s later (but not 10 s). Moreover, the overall affect did not significantly predict subsequent expressions at 5- ($b = -1.07$, $z = -1.40$, $p = .160$, $OR = 0.34$, 95% CI [0.08, 1.52]) or 10- ($b = -0.46$, $z = -0.66$, $p = .511$, $OR = 0.63$, 95% CI [0.16, 2.50]) s delays. The binary indicator of positive and negative affect significantly predicted the odds of expressing negative affect at a 5-s delay ($b = 0.92$, $z = 2.86$, $p = .004$, $OR = 2.51$, 95% CI [1.34, 4.72]), but not 10-s delay ($b = 0.36$, $z = 0.97$, $p = .332$, $OR = 1.43$, 95% CI [0.69, 2.96]). Therefore, when people reported experiencing negative affect versus positive affect (not taking into account the extent), they were more likely to express their Negative Affect 5 (but not 10) seconds later. The analyses using LIWC are mostly similar, but reveal no significant interaction effects, and reveal that the binary indicator significantly predicts subsequent expression at 10- but not 5-s delays (see Supplemental S2 for more details).

Research Question 2: Does Expression of Negative Affect Predict Subsequent Changes in Affect?

The results of our linear mixed-effect model examining the changes in affect following one's expression of affect reveal no significant effects, neither 5, $b = -0.03$, $t(20{,}652) = -1.41$, $p = .159$, 95% CI [−0.07, 0.01], $f^2 = 0$, nor 10, $b = -0.03$, $t(20{,}652) = -1.15$, $p = .249$, 95% CI [−0.08, 0.02], $f^2 = 0$, seconds following expression. An identical pattern of results is observed using the automatically identified expressions (Supplemental S2).

Figure 3

Scatterplot Depicting the Between-Person Relation Between Verbal Expression of Negative Affect as Detected by LIWC and the Manual Coder



Note. LIWC = linguistic inquiry and word count.

Research Question 3: Does Expression of Negative Affect Predict Subsequent Changes in Partner's Affect?

The results of our linear mixed-effect model examining changes in partners' affect following one's expression of affect did reveal significant effects, both 5, $b = -0.08$, $t(20{,}183) = -4.50$, $p < .001$, 95% CI [−0.12, −0.05], $f^2 = 0.003$, and 10, $b = -0.12$, $t(20{,}183) = -4.94$, $p < .001$, 95% CI [−0.17, −0.07], $f^2 = 0.002$, seconds after expressions of affect. In other words, when people expressed their negative affect, we observed a small subsequent decrease in their partners affect at both 5- and 10-s delays (i.e., partner affect was significantly predicted by own expression of negative affect). An identical pattern of results is observed using the automatically identified expressions (Supplemental S2).

Research Question 4: Does Affect Predict Partners' Likelihood of Expressing Negative Affect?

Neither at a 5, $b = 0.85$, $z = 0.67$, $p = .501$, $OR = 2.34$, 95% CI [0.20, 27.69], or 10, $b = 0.29$, $z = 0.24$, $p = .811$, $OR = 1.34$, 95% CI [0.12, 14.94], second delay the interaction effect was significant, meaning that specifically *negative* affect was not significantly predictive of partner's subsequent odds of expressing negative affect. Moreover, the overall affect did not significantly predict subsequent expressions at 5, $b = -1.54$, $z = -1.79$, $p = .073$, $OR = 0.21$, 95% CI [0.04, 1.16], or 10, $b = -1.17$, $z = -1.38$, $p = .167$, $OR = 0.31$, 95% CI [0.06, 1.63], second delays. The binary indicator of positive and negative affect did not significantly predict the odds of expressing negative affect at a 5-s delay, $b = 0.29$, $z = 0.78$, $p = .434$, $OR = 1.34$, 95% CI [0.64, 2.81], or 10-s delay, $b = 0.29$, $z = 0.77$, $p = .442$, $OR = 1.34$, 95% CI [0.64, 2.80]. In other words, one's affect did not in any way predict subsequent negative affect expression by a partner. When examining the automatically identified expressions of negative affect we observe a significant interaction effect at a 5-s delay, suggesting that specifically the *negative* affect did predict the partners' odds of expressing Negative Affect 5, but not 10 s later. We also observe a significant binary indicator at a 10-s delay. This suggests that when people are experiencing negative as opposed to positive affect, their partner is more likely to express their Negative Affect 10, but not 5, seconds later (see Supplemental S2 for more details).

Discussion

With this study, we set out to investigate how the verbal expression and experience of affect interact during interpersonal interactions, both on an intra- and interpersonal level. Concerning our intrapersonal research questions, we found inconsistent evidence to support our hypotheses. At different delays and using different coding methods, negative affect inconsistently predicted subsequent expressions of negative affect, and affect generally did not change following negative expressions of affect. Furthermore, on an interpersonal level, we found limited evidence to support our hypothesis that participants' affect could predict affect expressions by their partner. Moreover, we did observe a consistent, though weak (i.e., small effect size), relationship between one's expressions of negative affect and the subsequent increase in negative affect as experienced by their partner (Figure 4). Our additional analyses examining not only the isolated expressions of negative affect (see Supplemental S3) reveal very similar results.

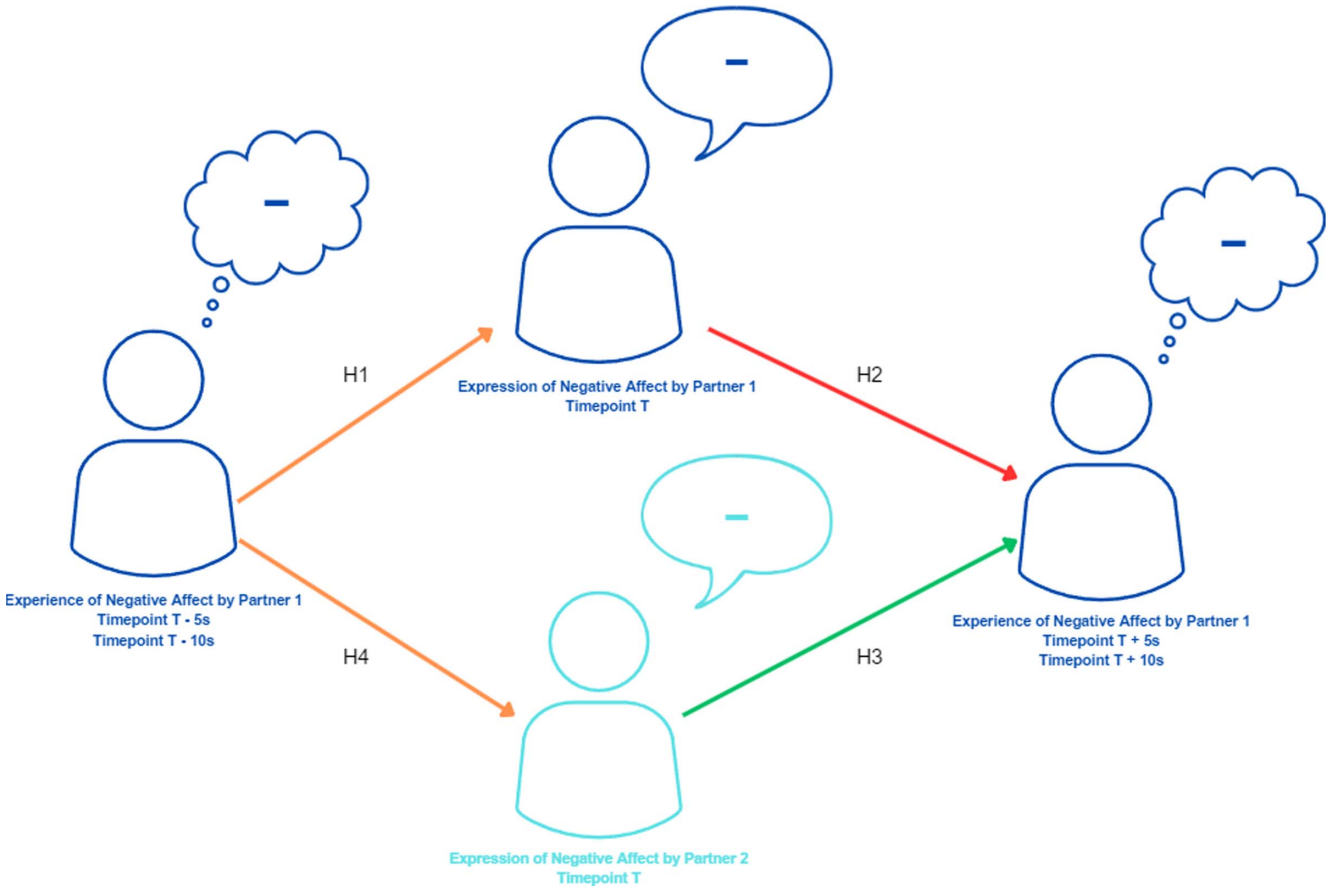
Intrapersonal Findings

Our findings provide weak and inconsistent evidence that (changes in) negative affect can be predictive of subsequent expressions of negative affect. Using automatically coded expressions, the valence of the reported affect (but not the level) at a specific timepoint predicted the subsequent expression of negative affect 10 s later (not 5). When examining the manually coded expressions this significant association was only observed at a 5-s delay (not 10). On top of this, only using the manually coded expressions a significant interaction effect between the binary indicator and affect was observed, suggesting that changes specifically in the *negative* affect are predictive of the (manually identified) expression of negative affect 5 (but not 10) s later. These inconsistent results could suggest that while (changes in) negative affect could be related to one's own subsequent expression of negative affect, the relationship generally is not very strong or clear.

In the view of the literature, these findings are not entirely unexpected (Greenaway & Kalokerinos, 2019) and further highlight the complicated relationship between the experience and expression of affect (Hollenstein & Lanteigne, 2014). Our results indicate that even though individuals may be inclined to share their negative affect *following* negative affect-inducing events in daily life, experiencing heightened negative affect within a single conversation does not consistently result in the sharing or verbal expression of negative emotions, suggesting that different mechanisms might be at play at different timescales. This could also explain the absence of the reactivation effects, where our null findings also align with some earlier research (Rauers & Riediger, 2023). Furthermore, these results suggest that affective labeling (Lieberman et al., 2007) within negative interactions does not lead to (short-term) reductions of negative

Figure 4

Visual Overview of the Observed Intra- and Interpersonal Relationships Between the Experience and Verbal Expression of Negative Affect



Note. Orange arrows indicate inconsistent significant results across different coding methods and delays (weak or inconsistent evidence for a relationship). Red arrows indicate the absence of significant relationships across different coding methods and delays. Green arrows indicate the presence of significant relationships across different coding methods and delays. H1 = the odds of expressing negative emotions will be higher following moments where people report stronger negative affect; H2 = expressing negative affect will be paired with subsequent increases in experienced negative affect, due to reactivation or strengthening effects; H3 = verbal expressions of negative emotions will likely predict subsequential increases in the partner's experienced negative affect; H4 = elevated negative affect in one individual may be predictive of an increased likelihood of their partner expressing negative emotions; H = hypothesis; T = timepoint of expression; "-" = negative affect. See the online article for the color version of this figure.

affect. Importantly, this does not necessarily imply that the same is true for long-term consequences, where the general labeling and sharing of negative experiences could have (beneficial) effects on one's well-being. Second, these findings indicate that people may strategically suppress their verbal expressions in negative interactions. As mentioned in the introduction, people often tend to suppress their (non-verbal) emotion expression during interactions to avoid conflict (English et al., 2017), which also might obscure the relationship between verbal expression and experience in this particular context.

Interpersonal Findings

At both 5- and 10-s delays, for both the manually and automatically coded expressions, we found that the expression of negative affect by one partner consistently predicted a small subsequent increase in the experienced negative affect by the other. However, the valence of the experienced affect was only inconsistently predicted by the partner's subsequent expression. While the consistent interpersonal effects observed offer some support for the notion that emotions are social, bear an impact on others, and serve a relational or communicative function (Fischer & Manstead, 2008) it is important to note that the effect sizes were small. Thus, while verbal expressions of negative affect contribute to the affective states of others, many other factors play a significant role as well.

Our findings suggest that, within negative interactions, a small but consistent interdependence can be observed between verbal expressions of negative emotion and the affective experience of a partner. This interdependence could imply that emotional expression communicates needs or goals to others, potentially inducing affective changes in those around us. As discussed by Parkinson (2021), the expression of anger, for example, can assign blame or imply potential negative consequences, influencing and aligning people's orientations. Similarly, the expression of anxiety to a partner could serve to elicit support (signal a need). However, the

observed interdependence could also potentially arise through other processes. For instance, expressing anger, contempt, or disgust ("you make me sick") toward a partner could also act as an interpersonal cue and elicit a similar emotion, leading to increased negative affect. Or perhaps this interdependence can simply be attributed to emotional contagion (i.e., the spontaneous spread of emotions from one partner to the other), empathic sharing or the mere escalation of the conflict. Future research is needed to further discriminate between these different processes, as well as for insight into the effects of verbalizing discrete emotions, and how these are related to discrete emotions of partners (i.e., investigating how the expression of anger, disgust, and contempt invokes these emotions in a partner).

Our findings also have implications for better understanding interpersonal affect dynamics. As proposed by Sels et al. (2020), we should consider the role of (nonemotional) behavior when considering interpersonal affect dynamics, or emotional interdependence. Our study highlights a key aspect: expressions of affect that may influence a partner's emotional state are not always necessarily tied to the individual's own emotional state (at least as measured in self-report). In simpler terms, someone can say something that affects their partner emotionally without having a corresponding emotional experience themselves. Verbal expression opens the door for higher complexity of semantic construction which might refer to more general mental representations of the self and relationships. Therefore, merely examining when emotions appear together or when they are expressed in tandem might not provide the complete picture of how emotions are dynamically shared and influence one another in interpersonal relationships.

Importantly, these findings might not generalize to different interpersonal contexts. We now examined verbal expressions of negative affect, specifically within negative interactions where they discuss their interactional partner's negative qualities, and expressions of negative affect are thus likely to be addressed to each other. Note, however, that we did not examine whether expressions of affect were directed at each other within this particular study. In a different context, where people are expressing negative affect about situations unrelated to the person with whom they are interacting (e.g., expressing anger at something that happened to them earlier in the day, or sadness at a recent loss they experienced), the relation between experience and expression might be very different. In those scenarios, suppression, for example, might occur less frequently because your expression of negative affect might have less severe (negative) interpersonal consequences.

Limitations

One important limitation is perhaps that our negative interactions were not very "emotionally intense," as can be seen in the distribution of affect (see Figure 2). In more "intense" interactions, perhaps negative emotion expression might be more frequent, and effect sizes could be expected to be larger. People mostly reported feeling neutral, leaned more toward reporting their positive as opposed to negative affect, and often did not express their negative affect even *once* according to our manual coder. This could suggest that mostly well-adjusted couples participated in this study, since these may manage to maintain positive affect even when discussing negative topics (Gottman et al., 1998). Second, the artificial nature of interactions in the laboratory might obscure effects that could be observed in more ecologically valid interactions, where people freely express and experience affect (Hollenstein & Lanteigne, 2014). However, it is reasonable to assume that in real life, most interactions are relatively mundane, with more intense exchanges being the exception rather than rule.

Moreover, continuous affect ratings by participants were obtained via video-mediated recall. With this method, there might be a delay between when participants watch the interaction, and when they react appropriately using the joystick (i.e., reporting how they felt at that moment). Using two different time lags was intended to rule out this possibility to a certain extent, however. Another possible issue is the potential bias as a result of the video-mediated recall. Since participants already know how their interactions unfolded when rewatching them perhaps this could color their memory of how they felt at the moment of rating. Furthermore, it could be possible that participants rely on the observed behavior during the recordings to extrapolate how they felt at that moment in time, instead of trying to remember (i.e., seeing how one says that they find something annoying about their partner may lead them to indicate that they experienced negative affect at that time, while this does not necessarily have to be the case). We tried to minimize this possibility by giving clear instructions to participants not to do this, and to try and remember their feelings then. Moreover, if participants relied on the recordings to reconstruct affective states, one would expect to consistently see that identified expressions of negative affect correspond with their emotional experience, which is not the case (see the results for Research Question 1).

Relatedly, note that we exclusively used verbal information in this particular study. Future research could also examine nonverbal behavior to determine whether language (i.e., verbal expressions of emotions, or negative emotional word usage) is able to uniquely explain fluctuations in the reported affect, over and above other information.

One broader limitation is related to the coding and defining of "expressions of affect." While we tried to use two different approaches to code the interactions to increase the robustness surrounding our findings, the automatic and manual coded data showed remarkable differences. As mentioned before, the large differences between verbal expressions identified by LIWC and the coders possibly indicate that LIWC detected many false positives. Further examination of the expressions identified by LIWC appears to confirm this as well. Take the Dutch word "alleen," for example. This is one of the most frequently detected expressions (128 times, the second most commonly identified expression) of negative affect by LIWC. Now, while this word also means "alone" (i.e., to be without anyone else, potentially indicating loneliness), the same Dutch word also refers to "only," which is often used in a way which does not express negative affect. Although there are no other clear examples of potential false positives, this highlights the importance of not only analyzing the automatically detected expressions of affect but also considering them alongside the manually identified expressions. Moreover, the words detected by LIWC do not merely resemble expressions of negative affect, but just negative emotional language in general. This is different for the instances identified by the manual coders, where it is not mere emotional word usage but expressions of negative affect more specifically. Importantly, however, our results remain mostly consistent despite these coding differences. Relatedly, in the current article, we grouped all different negative emotions, given that we only had affect ratings and no specific emotion ratings. However, one might expect that the urge

which people feel to express anger, for example, might differ from the urge which people feel to express other emotions such as sadness or fear. Moreover, the interpersonal consequences of expressing anger are likely to differ from the consequences of expressing sadness. By grouping them, potential effects could be weakened or even obscured.

Finally, it is worth noting that the instances of negative emotion word use as detected by LIWC do not exclusively indicate *expressions* of emotion, but can also indicate the affective labeling of emotions within interactions or general negative emotion word usage. However, as suggested by our results, labeling an affective state within an interaction, or using negative emotional language, can still serve as a (weaker—the estimated coefficients for the LIWC expressions generally appear smaller) interpersonal signal or *expression* to a partner, and does not seem to have any robust intrapersonal short term consequences or correlates.

Conclusion

When examining how negative affect experience and expression predict one another both within and between individuals, we found most consistent evidence for the expression of one partner being predictive of a small increase in the other partner's negative affect. Notably, our study reveals a lack of consistent (second-to-second) correlation between individuals' emotional experience and their subsequent emotional expression, or the reverse. Importantly, this does not reflect the long term consequences of sharing emotions with others. This highlights the possibility that verbal expressions of emotions do not always reflect an inner state, and can be expressed or suppressed strategically. These findings underscore the idea that emotions are not solely individual, internal experiences but are partially coconstructed through interpersonal exchanges. Emotions are, in part, products of our social interactions, where the expression of negative emotions functions as a means to communicate, influence, and shape the emotional experiences of others. The effect sizes suggest that the role of expression is small, so many other intra- and interpersonal factors are likely to contribute to our emotional experiences as well.

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