To cite this article:

Verhees, M. W. F. T., Mesquita, B., Ceulemans, E., Hofmans, J., Verhofstadt, L., & Kuppens, P. (in press). A unifying taxonomy of dyadic emotional processes. *Trends in Cognitive Sciences*.

A unifying taxonomy of dyadic emotional processes

Martine W. F. T. Verhees[1], Batja Mesquita[2], Eva Ceulemans[1], Joeri Hofmans[3], Lesley Verhofstadt[4], & Peter Kuppens[1]

[1] Quantitative Psychology and Individual Differences, KU Leuven, Leuven, Belgium

[2] Social and Cultural Psychology, KU Leuven, Leuven, Belgium

[3] Department of Work and Organizational Psychology, Vrije Universiteit Brussel, Brussel, Belgium

[4] Department of Experimental-Clinical and Health Psychology, Ghent University, Ghent, Belgium

Corresponding author: martine.verhees@kuleuven.be (M. Verhees)

Abstract

Traditionally, emotions have been viewed as intrapersonal experiences, but recent perspectives emphasize their interpersonal nature. Yet, research on interpersonal emotional processes is scattered across subfields and lacks a unifying framework. We propose a taxonomy that structures the different methodological ways dyadic emotional processes can and have been empirically studied. Reviewing recent work, we apply this taxonomy to identify well-studied versus neglected areas and clarify gaps between empirical work and theory. Our review highlights two key insights: to advance theory, empirical research should (1) consider context, and (2) move beyond simple bivariate approaches. Laying the methodological groundwork, the taxonomy provides a first step toward unifying the literature and fostering cumulative progress in understanding interpersonal emotional processes.

Keywords: emotions, dyadic emotional processes, emotional covariation, interpersonal emotion regulation

Emotions as Interpersonal and Dynamic Phenomena

Emotions (see Glossary) have typically been considered private, intrapersonal experiences. In this view, emotions emerge within an individual in response and in relation to the outside world, and are communicated and regulated based on personal considerations. This traditional perspective is challenged by viewpoints that see emotions as deeply interpersonal, where emotions originate in, give meaning and intention to, and are regulated by the interaction between people [1,2]. From an interpersonal perspective, an emotion kindles a relationship with our social environment, but its trajectory is also co-constructed in interaction with others. This means that emotions are dynamic, continuously evolving over time. For instance, if anger implies an attitude of non-acceptance, its trajectory depends on others' yielding to the angry person's wishes and goals, or, contrarily, challenging the angry person's right to impose their wishes. A truly interpersonal approach to emotions, therefore, recognizes the dynamic unfolding of emotions (and associated goals and behaviors) between individuals. It moves the focus of emotion science beyond the individual to examine emotions as *interpersonal* and *dynamic* phenomena.

Recent years have seen a surge in research examining emotions from an interpersonal perspective. However, this research is scattered across different subdomains of psychology and lacks a unifying framework. For example, leader-follower synchronization and transmission [3], emotional interdependence in couples [4], and mother-child affective coregulation [5] all describe interpersonal alignment of emotions over time. Yet, it is unclear how these observations relate to each other. The Babylonian confusion of terms used to describe interpersonal emotional processes impedes integration of findings from different subdomains. Additionally, varying conceptualizations and methods hinder systematic comparison and synthesis, thereby limiting cumulative scientific progress.

If the goal of emotion science is to move beyond individual states to interpersonal processes, we need ways to integrate and compare these processes across different subdisciplines. To this end, we propose a unifying taxonomy that classifies the methodological approaches through which these processes have been and could be studied empirically. The focus is on dyadic processes, where

emotions unfold dynamically between two individuals. The taxonomy helps to organize existing research, identify well-studied versus neglected areas, and clarify gaps between empirical work and theory. This way, it provides a first step towards unification of the literature, provides a structured tool for situating work, and points toward relevant avenues for future research. In what follows, we introduce the dimensions of the taxonomy and illustrate them with findings from different subdomains (e.g., couple, family, and work relationships). We provide examples of different dyadic patterns and of their associations with individual and relational outcomes. We end by discussing insights gained from organizing the literature using our taxonomy, supplemented by examples of statistical approaches for each cell of the taxonomy, to support future research.

A Taxonomy of Dyadic Emotional Processes

The taxonomy of dyadic emotional processes is represented in Figure 1. It distinguishes approaches to linking interaction partners' (hereafter: partners') emotions over time based on the number of variables per partner and how these are combined (first dimension, taxonomy rows). These approaches include (A) bivariate associations between one variable of each partner, (B) constellations, grouping several emotion variables into patterns or profiles, and (C) combinations/sequences, linking multiple specific variables across partners and over time. The taxonomy also distinguishes between single-context and multiple-context approaches (second dimension, taxonomy columns). Context refers to the situational, relational, cultural, or temporal settings in which emotions occur. Single-context approaches examine emotional processes without considering (variation across) contexts. Multiple-context approaches explicitly compare processes across contexts, assessing variability across situations, relationships, cultures or time. In the following sections, we discuss research for each approach to linking partners' emotions (first dimension), considering both single- and multiple-context approaches (second dimension).

Bivariate approaches

Bivariate approaches (first taxonomy row) refer to the association between two variables, one for each partner, e.g., how one partner's happiness covaries with the other partner's happiness. These associations can be concurrent, meaning they capture how partners' emotions fluctuate together (concurrently), or lagged, capturing how one person's emotion predicts the other's over time (see Box 1 for a discussion of time in dyadic emotional processes).

In the following, we make a conceptual distinction between (1) the covariation between partners' emotions, which may or may not be social in nature, and may occur without deliberate intent, and (2) emotion regulation, the regulation of one partner's emotions by the other, which is typically motivated, involving deliberate effort [6] (Figure 1). At the same time, we recognize that regulation can also occur more automatically or habitually, making empirical separation from covariation sometimes challenging (Box 2). We also explore (3) how bivariate processes relate to outcomes.

Emotional Covariation. Emotional covariation occurs when one partner's emotion is associated with the other's, either concurrently or lagged, without partners necessarily intentionally influencing each other's emotions. Covariation of emotions can either mean that partners' emotions align (an in-phase pattern) or diverge (an antiphase pattern [4,7,8]). Most research has focused on the extent to which emotions interpersonally converge (in-phase patterns), meaning the extent to which partners experience similar emotions over time. Partners' emotions may converge (or diverge) for different reasons [9]. Emotional convergence may occur when partners respond to a shared environment that affects their emotions in a similar way [10]. However, this type of covariation arguably does not capture an interpersonal dynamic. Alternatively, (lagged) positive linkages between the same emotions may reflect them catching their partner's emotions (or emotional expressions) over time (also referred to as emotional contagion or transmission) [11,12]. One process underlying emotional contagion or transmission may be **physical mimicry** [13]; an alternative process may be **social appraisal**, in which one appraises a situation in light of the other's emotion [14,15]. Finally, one partner may be the target or object of the other's emotion, such that the partner is part of the antecedent

event eliciting the emotion. For example, one partner may become irritated with the other person's stress.

Statistical covariation alone does not reveal whether emotions are truly interpersonally linked or simply co-occur due to being exposed to shared external factors (known as the common input problem [16]). To distinguish between mere statistical covariation and true dyadic processes, additional variables or specific study designs are needed. One strategy is to test whether emotional co-variation differs across different contexts, such as *types of relationship* (upper-right taxonomy cell), as such differences can be indicative of truly interpersonal linkage. Indeed, research has shown variation by relationship type. For example, emotional convergence was higher when adolescents interacted with friends than parents, in line with the increased importance of friendships and gaining independence from parents during this developmental period [17]. Moreover, positive emotional contagion was larger in friends than strangers in a laboratory task [12]. These findings suggest that relationship closeness may promote emotional convergence. These patterns may reflect different processes, e.g., selection processes, e.g., **assortative mating** [18], or actual social influence, e.g., individuals becoming more similar in their emotions over time [10]. They also illustrate the role of **shared vantage point (SVP)** [9]. Generally speaking, convergence is higher with a higher SVP, such as when one belongs to the ingroup rather than the outgroup [19], there is cooperation versus competition [20], and one is motivated to take another person's perspective [21].

Moreover, *situational factors* within the same relationship context may affect emotion covariation. For example, negative mood spills over from work to home and crosses over from one spouse to the other, but the presence of children in the family weakens this effect (potentially due to limited attention to spouses' emotions or reduced expression of negative emotions [22]). Relatedly, leaders' morning positive affect crosses over to followers' midday positive affect, with the crossover being stronger when followers felt less recovered from the previous workday and less energized in the morning [23]. Taken together, these findings demonstrate that covariation depends on contextual moderators.

Emotion Regulation. The bivariate patterns described above may also reflect social influence in the form of interpersonal emotion regulation. For instance, lagged associations allow examining lead-lag effects, and have been interpreted as reflecting the **coregulation** of one partner's affect by the other. An example of this is the contingency between mother and subsequent child positive affect, which has been described as parent-child coregulation [5]. Again, contextual factors (right taxonomy column) may help to explain whether and how emotional states covary. For example, increased child arousal has been found to link to increased parental arousal, except when the parent's arousal was already high, in which case increases in child arousal were followed by decreases in parental arousal [24]. This has been understood as parental coregulation to maintain stability within the dyad.

Interpersonal emotion regulation as captured with bivariate associations may, alternatively, pertain to links between one partner's certain specific regulatory behavior and the other partner's emotions. Relevant examples include forms of **intrinsic** and **extrinsic interpersonal emotion regulation** [25,26] (Box 2). For example, sharing emotions with a romantic partner may affect not only the emotions of the sharer but also those of the listener [27]. Similarly, behavior aimed at regulating someone else's emotions may have that effect [28] or may (also) impact the emotions of the regulator [29,30]. Together, these findings show that interpersonal regulation can shape both partners' emotions. Finally, partners can transmit emotion regulatory strategies themselves to each other [31]. For example, the degree to which one partner of a couple engaged in daily **surface acting** at home was found to be associated with that of the other partner [32]. Thus, bivariate associations can also capture the spread of regulatory styles across partners.

Outcomes. Emotional convergence in general has been proposed to benefit interpersonal coordination, understanding and closeness [33]. Some research indeed suggests that co-experiencing affect may be beneficial, relating to, e.g., reduced child aggressive behavior [34] and improved **empathic accuracy** [35]. However, effects are not uniformly positive [4]. For example, parent-child

covariation of anger related positively to adolescent depression [36]. In mother-child dyads, higher lagged contingency (child following mother) predicted more positive child outcomes in positively valenced or neutral interactions, but more negative outcomes in negative interactions [5]. In romantic couples, co-experiencing positive emotions has been associated with higher well-being, whereas co-experiencing negative emotions was unrelated or maladaptive [7,37]. Indeed, shared negative emotions (or the lack of positive ones) may sometimes be more maladaptive than non-shared emotions, if not sharing means that one partner experiences or expresses more positive or less negative feelings [38,39]. Together, these findings suggest that adaptiveness depends on the type of co-experienced emotion.

Contextual factors such as relationship type, interaction context, or timescale (right taxonomy column) may also shape the effects of emotional covariation and interpersonal emotion regulation. For example, the co-experience of negative affect appears detrimental to relationship well-being during pleasant interactions, whereas its impact seems less pronounced in conflictual contexts [37]. Additionally, socio-emotional processes unfold at different timescales [40] and may have varying effects depending on the assessed timescale. For example, in German romantic couples, sharing negative emotions with a partner led to short-term negative emotions in the listener, but fostered relationship closeness over the longer term [27]. Sometimes, people may elicit negative emotions in others in the short term to benefit them in the longer term, e.g., increasing someone's anger in preparation for a confrontation [41].

As discussed above, bivariate associations may reflect different conceptual processes. Moving to the upper-right corner of the taxonomy, comparing bivariate associations across contexts may reveal how the nature and effects of dyadic emotional processes vary depending on situational, relational, or temporal factors. However, bivariate associations remain limited by their focus on single-variable associations, overlooking the complexity of emotional experiences. People often experience several emotions at the same time, each of which and their combinations may have distinct meanings or implications. Moreover, emotions themselves are multi-faceted and multi-modal, with each facet or

modality and their interactions worth considering. Constellation-based approaches address these limitations by capturing multiple co-occurring emotional variables within individuals.

Constellations

Constellation-based approaches (second taxonomy row) group multiple emotional variables into patterns or profiles. Emotional states are not monolithic blocks composed of tight packages of feelings, bodily changes, and behavior, but are constructed from the momentary mix of these different modalities that, in general, only loosely covary and may be subjectively experienced as a mixture of different emotions [42]. Constellation-based approaches allow examining how general patterns of (facets of) emotions take shape in interpersonal interactions. These patterns (profiles) may be considered separately for each partner to examine their (dis)similarity and dynamics. For example, when faced with a shared obstacle, will the emotional response profiles of both partners be similar or not? Alternatively, dyad-level profiles may be created, synthesizing emotional patterns from both partners simultaneously. For instance, what are the types of parent-child profiles during times of stress? As before, we distinguish below between emotional covariation and emotion regulation and explore associations with outcomes.

Emotional Covariation. Constellation-based approaches may examine how partners' emotional profiles align over time, examining similarity in emotions, including more than one emotional variable per person, e.g., valence and arousal [43] or a range of different emotions [44]. Constellations provide a more comprehensive view of the emotional blends people experience compared to bivariate associations. Yet again, consideration of context sheds light on the interpersonal nature of profile similarity. For instance, research yielded higher emotional profile similarity in romantic partners than in strangers, and this difference held over and above effects of experiencing similar contexts [45], suggesting that emotional profile similarity goes beyond simply sharing similar situations.

Additionally, constellation-based approaches may examine emotion profiles at the dyad level. For example, one study identified different dyadic profiles of emotions in romantic couples from Belgium and Japan [46]. These included profiles of similarity between partners (e.g., both partners experiencing high positive emotions, or both partners experiencing predominantly calm emotions), and of dissimilarity (e.g., male partner experiencing high negative/low positive emotions, female partner experiencing average negative and positive emotions). The prevalence of these profiles depended on the cultural context. For example, Belgian couples more often experienced the profile in which both partners were high on positive emotions, whereas Japanese couples spent more time in a dyadic calm state. Constellation-based approaches have also been used to examine the fit of dyadic emotional profiles with the normative profiles of a group, e.g., to what extent do the dyadic emotions of romantic couples resemble the normative response pattern of a cultural group [47,48]. Thus, constellations can reveal not only whether partners' emotions align, but also how such alignment relates to the normative emotions in the culture.

Emotion Regulation. Constellation-based approaches may also provide valuable insights into interpersonal emotion regulation dynamics. As a rule, people simultaneously recruit various emotion regulation strategies [49]. Constellation-based approaches allow for mapping the deployment of profiles of emotion regulation strategies. Research on dyadic similarity in the use of interpersonal emotion regulation strategies suggests variations in the similarity of emotion regulation profiles across both couples [50] and days [51]. These profiles may reflect symmetrical regulation (e.g., both partners high or low in regulating emotions) or asymmetrical regulation (e.g., one partner high and the other low). Additionally, the prevalence of such profiles can be context dependent. For example, parents tended to jointly engage in higher levels of emotion regulation of their child's emotions rather than lower levels when their child experienced higher distress [51].

Outcomes. The associations between emotional profile similarity and outcomes appear to be context dependent. For example, the immediate *interactional context* matters: emotional convergence related to lower relationship well-being on days when partners had a conflict, but to higher well-being on days when partners engaged in sexual activity [44]. Additionally, the *cultural context* interacts with the *type of emotional convergence* that contributes to well-being. In Belgian couples, experiencing shared positive emotions was positively related to relational well-being, whereas in Japanese couples, co-experiencing calm emotions was more beneficial [46]. These findings indicate that the specific dyadic constellations fostering relationship well-being vary across cultures. In line with this, couples whose emotional profiles during interactions aligned with the respective normative patterns in their culture also reported greater relational well-being [47,48].

In sum, constellation-based approaches offer a more comprehensive view of dyadic emotional processes than bivariate associations. Yet, neither bivariate nor constellation-based approaches capture the underlying processes connecting emotions and emotional behavior between people. To grasp these processes, approaches that involve combinations or sequences are needed.

Combinations and Sequences

A third class of approaches (third taxonomy row) links combinations or sequences of specific emotional variables across partners, focusing on multiple variables across partners (unlike bivariate associations) and on specific relational associations, i.e., links between variables across or within partners that contribute to a specific partner or dyadic emotional state, rather than broader profiles (as in constellations). *Combinations* link different emotional variables across partners, e.g., how one partner's felt and expressed happiness relate to the other partner's felt happiness. *Sequences* add to combinations by capturing the temporal flow of emotional variables within and between partners, e.g., how one partner's felt happiness relates to their subsequent happiness expression, which in turn relates to the other partner's felt happiness.

Emotional Covariation. Combinations and sequences can provide insight into how dyadic emotional processes unfold or come about by allowing consideration of additional variable(s) in a way bivariate associations and constellations do not. For example, emotional contagion has been understood as the outcome of one partner's reverse-engineering of the appraisal of the other partner's emotional response [14]. In this respect, and in contrast to a purely physical mimicry interpretation of contagion, a combinatorial approach established that emotional contagion in couples was mediated by how one partner thinks the other partner felt [52]. Combinations and sequences may also point to specific emotion-related behaviors that mediate the crossover of emotions between partners. For example, a study with romantic partners found that participants' own emotional experience related to their emotional expression, which in turn affected the partner's emotion [53]. As another example, the crossover of positive affect from customers to service employees has been shown to be mediated by customer-initiated support [54]. These examples highlight how combinations and sequences provide insight into the variables contributing to emotional covariation.

Emotion Regulation. Combinations and sequences may also capture how interpersonal emotion regulation unfolds between individuals. In the context of co-rumination between friends, one friend's co-ruminative behavior was linked to their friend's increased perception of that co-rumination, which in turn predicted higher co-rumination by the second friend [55]. This again suggests that a person's appraisal of the partner's emotional behavior shapes their own behavior. As another example, sequences of emotional expressions and behaviors in parent-adolescent dyads identified unfolding patterns of dyadic emotion states [56]. Parent-adolescent dyads differed in terms of who took the lead in regulating positive emotions, e.g., who led transitions to shared positive emotional states. The specific sequential patterns found varied depending on the emotional content discussed (e.g., happiness, sadness, pride), further highlighting the context-dependent nature of interpersonal dynamics.

Interpersonal accounts of depression constitute another well-known example. Depression is thought to be maintained by a dynamic in which excessive reassurance-seeking by the depressed partner increases irritation in or rejection by their partner, prompting even more reassurance-seeking in the depressed partner [57]. Few studies have included both partners to test this account. One study found that female anxious affect predicted their subsequent reassurance-seeking, but this did not relate to subsequent male partner's affect [58]. The interpersonal effects of reassurance-seeking may be context-specific, as they seem to depend on relationship insecurities of both partners [59].

Outcomes. Combinations and sequences can also provide insights into (mal)adaptive functioning. For example, sequence-based analysis of negative affect expressed in parent-child interactions indicated that children's behavioral problems were higher in dyads where children, rather than parents, were the first to transition out of mutual negative affect [60]. However, the adaptiveness of sequences may again depend on the context and content of emotional dynamics (thus requiring multiple-context approaches). For instance, during discussions of happiness, mother-daughter sequences reflecting a lack of positive emotion reciprocity were associated with higher daughter social anxiety, whereas during discussion of sadness, independent regulation of positive emotions by the daughter was linked to lower social anxiety [56]. In a conflict discussion, mothers and adolescents' mutual turn-taking of validation and interest behavior, but not of negative affective behavior, was related to psychosocial adjustment in the adolescent [61]. A study on teams rather than dyads found that humor patterns within the team (e.g., a joke that is followed by laughter and subsequently by another joke) are positively related to team performance, but only in teams with low (rather than high) job insecurity [62]. Taken together, these findings indicate that how combinations and sequences relate to (mal)adaptive functioning depends on the context and the type of emotional processes examined.

Insights from Organizing the Literature: Advancing Dyadic Emotion Research

Organizing existing literature with our taxonomy yields two main insights. Research should expand beyond the upper left corner of the taxonomy (where most research has taken place) and (1) consider context (moving to the right taxonomy column) and (2) adopt more complex approaches using constellations, combinations and sequences (moving to the second and third taxonomy rows). These insights themselves are not novel theoretical principles, but the patterns and gaps revealed by organizing literature with our taxonomy highlight the ways in which empirical work may advance theory, and guide future studies to expand the scope of dyadic emotion research.

The Importance of Context

Our review shows that examining the occurrence and adaptiveness of dyadic emotional processes requires careful consideration of different contextual factors. Even studies not explicitly considering context are inevitably conducted within particular situational, relational, or cultural environments (hence labeled single-context approaches in the taxonomy). By disregarding context, we may fail to map heterogeneity in emotional processes, as when particular relational or cultural scripts are taken to be general patterns, or when null findings stem from unexplored contextual moderators masking associations. Context may also account for contradictory findings across studies. The reviewed literature highlights the need to consider a range of contextual variables, including situation, relationship type, timeframe, and culture. A detailed level of specificity may be required: for example, emotional covariation may fluctuate within a specific couple [63], and even over time within a specific interaction [64].

These ideas align with social constructionist theories of emotions proposing that emotional interactions are shaped by contexts and their intentionality is defined in relation to those contexts, that is, they are geared towards achieving contextually relevant goals or end states [42]. Partners need not necessarily be aware of these goals. Yet, how people emote together is not random, but functional and motivated [65–67]. This means that the typical emotions, or their unfolding, may differ between dyads, depending on their history of (emotional) interactions, and these histories may vary by situational,

relational or cultural context. Interpersonal accounts of emotion [68–70] likewise emphasize that interpersonal emotion dynamics and their adaptiveness are shaped by the emotions involved, relational, situational and temporal contexts. Such frameworks may help identify relevant moderators for future research (see Outstanding questions). Besides incorporating context in a theory-driven way via measured moderators or predictors, context can also be incorporated in a data-driven way, letting the data reveal when and how dynamics may change or differ (see Table 1).

From Simple Links to Complex Patterns

Another key insight is that to date, phenomena have often been studied at the bivariate level, which offers a limited and rarely justified snapshot of the actual processes, which likely involve more complex dynamics. Future research should move beyond bivariate associations in singular contexts to adopt more sophisticated methods allowing for a richer, multifaceted exploration of dyadic emotion dynamics. Constellation-based approaches enable researchers to move beyond single variables or averages, offering more differentiated insights into the complex blend of emotions [42]. Additionally, combinations and sequences can help identify plausible mechanisms through which emotions unfold and become interconnected between partners over time. Statistical tools to examine bivariate associations in longitudinal dyadic data are complex but available [71–76]; Table 1 lists examples of statistical approaches for each taxonomy cell. Yet, to date, less attention has been given to analyzing constellations and sequences. It will be crucial to refine methods (including careful study design choices, see Box 3) and analytical approaches to better capture the complexities of dyadic emotional processes.

Concluding Remarks

Traditionally, emotions have been viewed as intrapersonal experiences, but recent perspectives challenge this by considering emotions as deeply interpersonal. Methodological and statistical developments have allowed examining emotions as they continuously evolve between individuals.

However, variations in terminology, conceptualization, and methods across subdomains limit cumulative scientific progress and underscore the need for an integrative framework. Similar concerns have been raised in the field of interpersonal emotion regulation, where scholars recently emphasized the need for greater clarity and integration across domains [77] (Box 2). Here we proposed a taxonomy of dyadic emotional processes, which can help organize research and stimulate knowledge accumulation across various fields. Note that the taxonomy and its associated statistical approaches could also be applied to other interpersonally relevant phenomena (e.g., empathic accuracy, perception, interpersonal behavior [78–82], see also [83]).

Two key insights emerge from our review. Research should move beyond single-context bivariate approaches to (1) consider context, which critically shapes dyadic emotional processes and their adaptiveness, and (2) use more complex approaches, such as examining constellations and sequences, to better capture the multifaceted nature of interpersonal emotions and the processes that underpin them. The proposed taxonomy offers a framework as well as a roadmap for studying the dynamic interplay of emotions between individuals. As such, it will also pave the way for research on emotional interactions within larger human systems, e.g., families or groups [84,85].

Figure legend

Figure 1: Taxonomy of dyadic emotional processes. The right side of the figure represents the taxonomy. Rows correspond to the first dimension of the taxonomy, reflecting methodological approaches to linking partners' emotions over time: bivariate associations between one variable of each partner, constellations which group several variables into patterns or profiles, and combinations/sequences which link multiple specific variables across partners and over time. Columns correspond to the second dimension, contextual scope: single-context approaches examine processes without comparing them across contexts, whereas multiple-context approaches compare processes across different contexts. The left side relates to the conceptual distinction between two broad forms of interpersonal emotional processes: emotional covariation and emotion regulation.

Acknowledgements

This work was supported by the Vlaamse Interuniversitaire Raad, grant number: iBOF/21/090, and by the Research Foundations FWO and F.R.S.-FNRS under the Excellence of Science (EOS) program (EOS 40007528 / G0I2422N). The authors declare no competing interests.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used ChatGPT in order to improve readability, language, and phrasing. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

References

1. Parkinson, B. (2021) Heart to Heart: A Relation-Alignment Approach to Emotion's Social Effects. *Emot. Rev.* 13, 78–89
2. Boiger, M. and Mesquita, B. (2012) The Construction of Emotion in Interactions, Relationships, and Cultures. *Emot. Rev.* 4, 221–229
3. Hofmans, J. et al. (2019) Capturing the dynamics of leader–follower interactions: Stalemates and future theoretical progress. *J. Organ. Behav.* 40, 382–385
4. Sels, L. et al. (2020) The occurrence and correlates of emotional interdependence in romantic relationships. *J. Pers. Soc. Psychol.* 119, 136–158
5. Lobo, F.M. and Lunkenheimer, E. (2020) Understanding the parent-child coregulation patterns shaping child self-regulation. *Dev. Psychol.* 56, 1121–1134
6. Tamir, M. et al. (2020) Emotion regulation is motivated. *Emotion* 20, 115–119
7. Chen, K.-H. et al. (2024) Interpersonal Linkage in Positive and Negative Emotional Behaviors, Emotional Well-Being, and Physical Functioning in Dementia Caregivers. *Clin. Psychol. Sci.* 12, 1039–1055
8. Schouten, A. et al. (2025) Negotiating Conflict: Affective Behavioral Sequences in Belgian and Japanese Couple Interactions. *Affec Sci.* 6, 515-525
9. Elfenbein, H.A. (2023) Emotion in Organizations: Theory and Research. *Annu. Rev. Psychol.* 74, 489–517
10. Anderson, C. et al. (2003) Emotional convergence between people over time. *J. Pers. Soc. Psychol.* 84, 1054–1068
11. Hubbard, J.A. et al. (2023) Emotion transmission in peer dyads in middle childhood. *Child Dev.* 94, 1017–1032
12. Lin, D. et al. (2024) Emotion contagion and physiological synchrony: The more intimate relationships, the more contagion of positive emotions. *Physiol. Behav.* 275, 114434
13. Olszanowski, M. et al. (2020) Mimicking and sharing emotions: a re-examination of the link between facial mimicry and emotional contagion. *Cogn. Emot.* 34, 367–376
14. Hess, U. and Fischer, A. (2022) Emotional mimicry as social regulator: theoretical considerations. *Cogn. Emot.* 36, 785–793

15. Parkinson, B. (2020) Intragroup Emotion Convergence: Beyond Contagion and Social Appraisal. *Personal. Soc. Psychol. Rev.* 24, 121–140
16. Hamilton, A. (2020) Hype, hyperscanning and embodied social neuroscience. *PsyArXiv*. Published online June 22, 2020. https://doi.org/10.31234/osf.io/rc9wp
17. Renjaän, D. et al. (2024) Emotion coupling across socialization contexts in adolescence: Differences in parent–child and peer interactions. *Dev. Psychol.* https://doi.org/10.1037/dev0001865
18. Schwartz, C.R. (2013) Trends and Variation in Assortative Mating: Causes and Consequences. *Annu. Rev. Sociol.* 39, 451–470
19. Van Der Schalk, J. et al. (2011) Convergent and divergent responses to emotional displays of ingroup and outgroup. *Emotion* 11, 286–298
20. Lanzetta, J.T. and Englis, B.G. (1989) Expectations of cooperation and competition and their effects on observers' vicarious emotional responses. *J. Pers. Soc. Psychol.* 56, 543–554
21. Van Kleef, G.A. et al. (2008) Power, Distress, and Compassion: Turning a Blind Eye to the Suffering of Others. *Psychol. Sci.* 19, 1315–1322
22. Song, Z. et al. (2008) Mood spillover and crossover among dual-earner couples: A cell phone event sampling study. *J. Appl. Psychol.* 93, 443–452
23. Kim, S. et al. (2023) Benefits of leaders' pleasurable recovery activities on follower performance via emotional contagion. *J. Appl. Psychol.* 108, 1336–1355
24. Wass, S.V. et al. (2019) Parents Mimic and Influence Their Infant's Autonomic State through Dynamic Affective State Matching. *Curr. Biol.* 29, 2415-2422.e4
25. Niven, K. (2017) The four key characteristics of interpersonal emotion regulation. *Curr. Opin. Psychol.* 17, 89–93
26. Zaki, J. and Williams, W.C. (2013) Interpersonal emotion regulation. *Emotion* 13, 803–810
27. Rauers, A. and Riediger, M. (2023) Ease of Mind or Ties That Bind? Costs and Benefits of Disclosing Daily Hassles in Partnerships. *Soc. Psychol. Personal. Sci.* 14, 551–561
28. Pauw, L.S. et al. (2024) May I Help You? The Relationship Between Interpersonal Emotion Regulation and Emotional and Relational Wellbeing in Daily Life. *Collabra Psychol.* 10, 90797
29. Gadassi-Polack, R. et al. (2025) Interpersonal Emotion Regulation and Depressive Symptoms in Parent-Adolescent Dyads: A Daily-Diary Investigation. *Emotion* 25, 473–487
30. Boker Segal, N. et al. (2024) Knowing me, knowing you: Are people good at regulating their emotions good at regulating another's emotions? *Emotion* 24, 1137–1148
31. Pinus, M. et al. (2025) Emotion regulation contagion drives reduction in negative intergroup emotions. *Nat. Commun.* 16, 1387
32. Sanz-Vergel, A.I. et al. (2012) The daily spillover and crossover of emotional labor: Faking emotions at work and at home. *J. Vocat. Behav.* 81, 209–217
33. Anderson, C. and Keltner, D. (2004) The Emotional Convergence Hypothesis: Implications for Individuals, Relationships, and Cultures. In *The Social Life of Emotions* (1st edn) (Tiedens, L. Z. and Leach, C. W., eds), pp. 144–163, Cambridge University Press
34. Lunkenheimer, E. et al. (2020) The role of dynamic, dyadic parent–child processes in parental socialization of emotion. *Dev. Psychol.* 56, 566–577
35. Berlamont, L. et al. (2022) Associations between affect and empathic accuracy during conflict interactions in couples. *J. Soc. Pers. Relatsh.* 39, 2239–2261
36. Bodner, N. et al. (2018) Affective family interactions and their associations with adolescent depression: A dynamic network approach. *Dev. Psychopathol.* 30, 1459–1473
37. Brown, C.L. et al. (2022) Shared emotions in shared lives: Moments of co-experienced affect, more than individually experienced affect, linked to relationship quality. *Emotion* 22, 1387–1393
38. Goldenberg, A. et al. (2017) Emotional compensation in parents. *J. Exp. Soc. Psychol.* 69, 150–155
39. Sasaki, E. et al. (2023) Feeling loved as a strong link in relationship interactions: Partners who feel loved may buffer destructive behavior by actors who feel unloved. *J. Pers. Soc. Psychol.* 125, 367–396

40. Hollenstein, T. et al. (2013) A Model of Socioemotional Flexibility at Three Time Scales. *Emot. Rev.* 5, 397–405
41. López-Pérez, B. et al. (2017) Cruel to Be Kind: Factors Underlying Altruistic Efforts to Worsen Another Person's Mood. *Psychol. Sci.* 28, 862–871
42. Mesquita, B. and Parkinson, B. (2024) Social Constructionist Theories of Emotions. In *Emotion Theory: The Routledge Comprehensive Guide* (1st edn) (Scarantino, A., ed), pp. 388–407, Routledge
43. Sels, L. et al. (2020) Actual and Perceived Emotional Similarity in Couples' Daily Lives. *Soc. Psychol. Personal. Sci.* 11, 266–275
44. Levavi-Francy, N. et al. (2020) Relational events are more consequential when accompanied by emotional similarity. *Cogn. Emot.* 34, 859–874
45. Carlier, C. et al. (2025) Are romantic partners more emotionally similar in the moment than two strangers: context versus couple effects. *PsyArXiv.* Published online May 19, 2025. https://doi.org/10.31234/osf.io/nj5x4_v1
46. Pirrone, D. et al. (2025) Happy or Calm? A Daily Diary Study on Couple Emotions Associated with Well-Being in Belgium and Japan. *PsyArXiv.* Published online December 4, 2025. https://doi.org/10.31234/osf.io/uj5nf_v1
47. Schouten, A. et al. (2024) Couple conflict observed: Emotions in Belgium and Japan. *Emotion* 24, 1776–1780
48. Boiger, M. et al. (2022) Different bumps in the road: The emotional dynamics of couple disagreements in Belgium and Japan. *Emotion* 22, 805–819
49. Battaglini, A.M. et al. (2023) Interpersonal emotion regulation flexibility: Effects on affect in daily life. *Emotion* 23, 1048–1060
50. Verhelst, P. et al. (2025) It's a match: Exploring joint emotion regulation profiles among mixed-sex couples. *J. Soc. Pers. Relatsh.* 42, 1315–1338
51. Arbel, R. (2024) Daily profiles of parents' supportive extrinsic emotion regulation of adolescents' negative emotion. *Emotion* 24, 1885–1898
52. Weber, E. and Hülür, G. (2021) Affect contagion in daily life is mediated by perceptions of partner affect: An experience-sampling study with older couples. *Emotion* 21, 1699–1711
53. Versyp, O., Ceulemans. E., Horn., A. B., & Kuppens, P. (2025) The Interplay Between Momentary Experienced and Verbally Expressed Negative Affect Within Interactions. *Emotion* 25, 1807–1818
54. Zimmermann, B.K. et al. (2011) On the positive aspects of customers: Customer-initiated support and affective crossover in employee-customer dyads: Customer-initiated support and crossover. *J. Occup. Organ. Psychol.* 84, 31–57
55. Tudder, A. et al. (2024) "Let's go over it again": Examining the intra- and interpersonal processes that perpetuate co-rumination in close relationships. *Emotion* 24, 769–781
56. Lougheed, J.P. et al. (2020) Emotion socialization as a dynamic process across emotion contexts. *Dev. Psychol.* 56, 553–565
57. Starr, L.R. and Davila, J. (2008) Excessive reassurance seeking, depression, and interpersonal rejection: A meta-analytic review. *J. Abnorm. Psychol.* 117, 762–775
58. Lord, K.A. et al. (2020) The affective dynamics of reassurance-seeking in real-time interactions. *J. Soc. Pers. Relatsh.* 37, 676–694
59. Evraire, L.E. et al. (2022) The contribution of attachment styles and reassurance seeking to trust in romantic couples. *Eur. J. Psychol.* 18, 19–39
60. Moed, A. et al. (2015) Parent–Adolescent Conflict as Sequences of Reciprocal Negative Emotion: Links with Conflict Resolution and Adolescents' Behavior Problems. *J. Youth Adolesc.* 44, 1607–1622
61. Lougheed, J.P. et al. (2020) Mother–adolescent emotion dynamics during conflicts: Associations with perspective taking. *J. Fam. Psychol.* 34, 566–576
62. Lehmann-Willenbrock, N. and Allen, J.A. (2014) How fun are your meetings? Investigating the relationship between humor patterns in team interactions and team performance. *J. Appl. Psychol.* 99, 1278–1287

63. Johal, S.K. and Ferrer, E. (2024) Variation in emotion dynamics over time is associated with future relationship outcomes. *Front. Hum. Neurosci.* 18, 1331859
64. Sels, L. et al. (2022) Introducing change point detection analysis in relationship research: An investigation of couples' emotion dynamics. *J. Soc. Pers. Relatsh.* 39, 3133–3154
65. Parkinson, B. et al. (2016) Sharing concerns: Interpersonal worry regulation in romantic couples. *Emotion* 16, 449–458
66. Goldenberg, A. et al. (2020) Beyond emotional similarity: The role of situation-specific motives. *J. Exp. Psychol. Gen.* 149, 138–159
67. Pirrone, D. et al. (2023) Relational needs frustration: an observational study on the role of negative (dis)engaging emotions. *Front. Psychol.* 14, 1232125
68. Randall, A.K. and Schoebi, D. (2018) Conceptual approaches to studying interpersonal emotion dynamics. In *Interpersonal Emotion Dynamics in Close Relationships* (1st edn) (Randall, A. K. and Schoebi, D., eds), pp. 7–26, Cambridge University Press
69. Butler, E.A. (2011) Temporal Interpersonal Emotion Systems: The "TIES" That Form Relationships. *Personal. Soc. Psychol. Rev.* 15, 367–393
70. Lougheed, J.P. and Keskin, G. (2021) Parent-Adolescent Emotion Dynamics at Multiple Time Scales. *Child Dev. Perspect.* 15, 125–131
71. Laurenceau, J.-P. and Bolger, N. Analyzing Diary and Intensive Longitudinal Data from Dyads. In *Handbook of Research Methods for Studying Daily Life* (1st edn) (Mehl, M. and Conner, T. S., eds), pp. 407–422, Guilford
72. Gistelinck, F. and Loeys, T. (2019) The Actor–Partner Interdependence Model for Longitudinal Dyadic Data: An Implementation in the SEM Framework. *Struct. Equ. Model. Multidiscip. J.* 26, 329–347
73. Berkhout, S.W. et al. (2025) A tool to simulate and visualize dyadic interaction dynamics. *Psychol. Methods* 30, 599–621
74. Bodner, N. et al. (2021) Accounting for auto-dependency in binary dyadic time series data: A comparison of model- and permutation-based approaches for testing pairwise associations. *Br. J. Math. Stat. Psychol.* 74, 86–109
75. Kenny, D. A., Kashy, D. A., Cook, W. L. (2020) *Dyadic data analysis*, The Guilford Press
76. Ji, Y. et al. (2025) Performance of the longitudinal actor-partner interdependence model in case of large amounts of missing values: challenges and possible alternatives. *Psychometrika* 90, 508-530
77. Walker, S.A. et al. (2025) The need for a unified language framework in extrinsic interpersonal emotion regulation research. *Emotion* 25, 922–928
78. Brown, C.L. et al. (2023) Empathic Accuracy and Shared Depressive Symptoms in Close Relationships. *Clin. Psychol. Sci.* 11, 509–525
79. Zoppolat, G. et al. (2025) Accuracy and bias in the perceptions of partner's negative emotions: the role of trait mindfulness. *Sci. Rep.* 15, 9977
80. Kim, J.J. et al. (2024) Half Empty *and* Half Full? Biased Perceptions of Compassionate Love and Effects of Dyadic Complementarity. *Pers. Soc. Psychol. Bull.* 50, 1423–1437
81. Halberstadt, A.L. and Pincus, A.L. (2023) The impact of personality traits on interpersonal dynamics at zero acquaintance. *Int. J. Personal. Psychol.* 9, 61–77
82. Overall, N.C. et al. (2020) Does expressing emotions enhance perceptual accuracy of negative emotions during relationship interactions? *Emotion* 20, 353–367
83. Burns, S.M. et al. (2025) Interdependent Minds: Quantifying the Dynamics of Successful Social Interactions. *Curr. Dir. Psychol. Sci.* 34, 271-277
84. Goldenberg, A. (2024) What Makes Groups Emotional? *Perspect. Psychol. Sci.* 19, 489–502
85. Paley, B. and Hajal, N.J. (2022) Conceptualizing Emotion Regulation and Coregulation as Family-Level Phenomena. *Clin. Child Fam. Psychol. Rev.* 25, 19–43
86. Bodner, N. and Ceulemans, E. (2022) ConNEcT: An R package to build contingency measure-based networks on binary time series. *Behav. Res. Methods* 55, 301–326

87. Carlier, C. et al. (2024) A Comparison of Measures for Assessing Profile Similarity in Dyads. *Psychol. Belg.* 64, 72–84
88. Mildiner Moraga, S. and Aarts, E. (2024) Go Multivariate: Recommendations on Bayesian Multilevel Hidden Markov Models with Categorical Data. *Multivar. Behav. Res.* 59, 17–45
89. Hale, W.W. and Aarts, E. (2023) Hidden Markov model detection of interpersonal interaction dynamics in predicting patient depression improvement in psychotherapy: Proof-of-concept study. *J. Affect. Disord. Rep.* 14, 100635
90. Sels, L. et al. (2016) Emotional Interdependence and Well-Being in Close Relationships. *Front. Psychol.* 7
91. Pesigan, I.J.A. et al. (2025) Inferences and effect sizes for direct, indirect, and total effects in continuous-time mediation models. *Psychol. Methods* https://doi.org/10.1037/met0000779
92. Brinberg, M. et al. (2018) Analyzing Dyadic Data Using Grid-Sequence Analysis: Interdyad Differences in Intradyad Dynamics. *J. Gerontol. Ser. B* 73, 5–18
93. Bringmann, L.F. et al. (2024) Changing networks: Moderated idiographic psychological networks. *Adv. Pscyhol.* 2, e658296
94. Haslbeck, J.M.B. et al. (2021) A Tutorial on Estimating Time-Varying Vector Autoregressive Models. *Multivar. Behav. Res.* 56, 120–149
95. Ernst, A.F. and Haslbeck, J.M.B. (2025) Modeling Qualitative Between-Person Heterogeneity in Time-Series using Latent Class Vector Autoregressive Models. *PsyArXiv* Published online February 13, 2025. https://doi.org/10.31234/osf.io/qvdac_v1
96. Verduyn, P. et al. (2015) Determinants of Emotion Duration and Underlying Psychological and Neural Mechanisms. *Emot. Rev.* 7, 330–335
97. Fischer, A. et al. (2018) Why We Hate. *Emot. Rev.* 10, 309–320
98. Frijda, N.H. et al. (1991) The duration of affective phenomena or emotions, sentiments and passions. In *International Review of Studies on Emotion* (1st edn) (Strongman, K. T., ed), pp 187-225, Wiley.
99. Rimé, B. (2007) Interpersonal emotion regulation. In *Handbook of Emotion Regulation* (Gross, J., ed), pp 466-485. Guilford Press
100. Niven, K. and López-Pérez, B. (2025) Interpersonal emotion regulation: Reflecting on progress and charting the path forward. *Emotion* 25, 277–286
101. Dixon-Gordon, K.L. et al. (2015) Recent innovations in the field of interpersonal emotion regulation. *Curr. Opin. Psychol.* 3, 36–42
102. Niven, K. et al. (2009) A classification of controlled interpersonal affect regulation strategies. *Emotion* 9, 498–509
103. Lafit, G. et al. (2025) The Effect of Different Construct Operationalizations, Study Duration, and Preprocessing Choices on Power-Based Sample Size Recommendations in Intensive Longitudinal Research. *Assessment* 32, 206–223
104. Brose, A. et al. (2020) The measurement of within-person affect variation. *Emotion* 20, 677–699
105. Verhees, M.W.F.T. et al. (2024) Examining stress in adolescents' daily lives: Feasibility of triadic paradigms. *J. Fam. Psychol.* 38, 989–994
106. Batra, R. et al. (2023) Consequences of sampling frequency on the estimated dynamics of AR processes using continuous-time models. *Psychol. Methods* 30, 843-865
107. Revol, J. et al. (2025) Episode-contingent experience-sampling designs for accurate estimates of autoregressive dynamics. *Psychol. Methods* https://doi.org/10.1037/met0000758
108. Ji, Y. et al. (2025) Evaluating the feasibility of episode-contingent experience-sampling designs. *Psychol. Assess. 37*, 520-534.
109. Lafit, G. et al. (2022) PowerLAPIM: An application to conduct power analysis for linear and quadratic longitudinal actor–partner interdependence models in intensive longitudinal dyadic designs. *J. Soc. Pers. Relatsh.* 39, 3085–3115
110. Revol, J. et al. (2024) A new sample-size planning approach for person-specific VAR(1) studies: Predictive accuracy analysis. *Behav. Res. Methods* 56, 7152–7167

111. Revol, J. et al. (2024) Preprocessing Experience-Sampling-Method Data: A Step-by-Step Framework, Tutorial Website, R Package, and Reporting Templates. *Adv. Methods Pract. Psychol. Sci.* 7, 25152459241256609

Table 1. Statistical Approaches for Each Cell of the Taxonomy of Dyadic Emotional Processes

Approach to linking partners' emotions	Contextual scope	
	Single Context	Multiple Contexts
Bivariate	• Pearson correlation, Euclidian distance, for associations between partners' continuous variables across time [4] • Proportion of agreement, Jaccard index, Cohen's kappa, for measuring similarity in binary variables across time [86] • Actor-Partner Interdependence Model (APIM), for estimating partner effects within dyads [72,75]	• Theory-driven: Add moderators/predictors of correlations/regression coefficients or compare associations across subsets of data [4] • Data-driven: Change point detection [64]
Constellations	• Spearman rank correlation, Bray-Curtis similarity, Euclidean distance, for assessing similarity of emotion profiles across partners at each timepoint, then averaged across timepoints [87]	• Theory-driven: Add moderators/predictors of correlations or distance measures [44]; Multilevel hidden Markov models (HMM) with predictors [88] • Data-driven: Multilevel hidden Markov models (HMM) [89]
Combinations & Sequences	• Multilevel multiple regression, e.g. Vector autoregressive (VAR) models, for modeling combinations [90] • Multilevel mediation models, for assessing combinations or sequences [52,91] • Grid-sequence analysis, for analyzing sequences of dyadic emotions [92]	• Theory-driven: Moderated VAR [93]; Moderated mediation [52] • Data-driven: Time-varying VAR [94]; Latent Class VAR [95]

Note. Theory-driven approaches incorporate measured moderators or predictors; Data-driven approaches let the data reveal when and how dynamics differ.

Box 1. Time in the Taxonomy of Dyadic Emotional Processes

Time is important to understanding dyadic emotional processes. Emotions unfold dynamically, not only within a single interaction but across multiple contexts, i.e., multiple interactions, relationships, or timeframes. In Figure 1, which illustrates our taxonomy, the rows represent different methodological approaches for capturing short-term dynamics, whereas the right column refers to these same short-term dynamics across multiple contexts (among which timeframes). By comparing short-term dyadic emotional dynamics across multiple timeframes, it is thus possible to study if and how emotional dynamics evolve.

Short-term dynamics: Emotions continuously evolve across time. The approaches in our taxonomy rows (whether concurrent or lagged bivariate associations, constellations, combinations or sequences) capture associations between partners in these moment-to-moment fluctuations. Concurrent associations quantify how partners' emotions are associated at the same moment in time, whereas lagged effects and sequences predict how one person's emotions relate to the other's at the subsequent timepoint. These approaches thus capture short-term temporal dynamics of dyadic emotions.

Longer-term change: Short-term dynamics may themselves be subject to change across time. Multiple-context approaches (right column of taxonomy) that take time as context, compare if and how short-term dynamics change over time, potentially capturing developmental or relational trajectories. For example, romantic partners and roommates have been found to show increased emotional convergence after one year, as compared to at the beginning of the relationship [10]. Additionally, although emotions are typically considered to be relatively brief states [96], they can also persist beyond the eliciting interaction or event, shaping subsequent exchanges and the overall relational climate. These longer-lasting states, also referred to as sentiments [97,98], are usually conceptualized from an intrapersonal perspective and are not the primary focus of our taxonomy, which centers on dyadic, dynamic and momentary processes. However, sentiments may potentially influence or be influenced by short-term dyadic emotional processes. In this way, short-term dyadic

emotional processes may both reflect and contribute to the development of longer-term relational emotional climates.

Box 2: Interpersonal Emotion Regulation and Integration Challenges

Since the seminal work of Butler [69], Rimé [99], and Zaki and Williams [26], among others, the study of interpersonal emotion regulation has developed rapidly over the past decade. As in interpersonal emotion research more broadly, emotion regulation studies have shifted from focusing on intrapersonal processes to recognizing the frequency and importance of regulating emotions through others (intrinsic interpersonal emotion regulation) and regulating others' emotions (extrinsic interpersonal emotion regulation). Although the concept of interpersonal emotion regulation is relatively new, it has grown into a vibrant research area. In a recent overview and special issue, Niven and López-Pérez [100] highlight the challenge of studying interpersonal emotion regulation as a dynamic and social process, requiring dynamic and dyadic empirical approaches, resonating with our proposed taxonomy of methodological approaches to dyadic emotional processes.

In the specific area of extrinsic interpersonal emotion regulation, Walker et al. [77] warn that progress is threatened by the lack of consistent terminology across research domains, emphasizing that a lack of unified language limits interpretation, integration and collaboration. Our taxonomy responds to the same concern. Whereas Walker et al. [77] call for the development of a unified language framework to harmonize terminology and definitions in extrinsic interpersonal emotion regulation, our taxonomy focuses on classifying the methodological approaches through which such processes are studied empirically. Together, these efforts address complementary aspects of unification: conceptual clarity through shared terminology, and methodological clarity through systematic classification, fostering cumulative, rigorous, and interpretable research on interpersonal emotional processes.

An important conceptual-empirical challenge, which underscores the importance of clear terminology, methodology and integration, is the blurred boundary between interpersonal emotion

covariation and regulation. Although interpersonal emotion regulation is usually defined as goal-directed [25,26,101], goals may be implicit and regulation can occur automatically or habitually [102]. This means that, empirically, automatic regulation and covariation may appear very similar, and sometimes their differentiation depends more on theoretical framing than on measurement. Our taxonomy does not attempt to resolve this ambiguity, but it does highlight how different methodological approaches can capture both intentional and unintentional processes. Moreover, applying the taxonomy reveals that similar empirical methods are sometimes framed differently conceptually across studies, illustrating the importance of systematic classification for integration across different strands of interpersonal emotion research and cumulative understanding.

Box 3: Study Design

To advance the field of dyadic emotional processes, careful study design choices are essential alongside the selection of appropriate analytical approaches, including more complex approaches such as constellations, combinations and sequences (see Table 1). In general, all approaches in our taxonomy require repeated measures from both members of the dyad to capture the dynamic interplay of emotions:

- Bivariate approaches require collecting one variable per partner over time.
- Constellations require the collection of at least two variables per partner over time.
- Combinations and sequences require at least three variables across partners (e.g., two variables from one partner and one from the other) over time.

Multiple-context, theory-driven approaches additionally require measuring relevant predictors or moderators.

Important decisions regarding study design concern which variables to collect [103,104], at what timescales [105,106], in which samples, and in which contexts [107,108]. Different types of designs and data sources (e.g., daily life and lab-based data) can offer complementary insights into the processes as they unfold in everyday life and in more controlled settings. Whereas naturalistic

studies can help generate hypotheses on the mechanisms that underpin dyadic emotional connections, experiments and interventions will be needed to test these hypotheses. Moreover, power considerations are essential, as more complex models typically require larger datasets [109,110]. Finally, since more refined design choices go hand in hand with more stringent data preprocessing requirements, further development of preprocessing tools is called for [111].

Glossary

Assortative mating: individuals' tendency to form relationships with others who are similar to themselves.

Coregulation: the process by which individuals influence each other's emotions. It can involve mutual emotional regulation or one person regulating the emotional state of another.

Emotions: valenced responses to the environment, made up or constructed from a momentary mix of subjective feelings, thoughts, bodily sensations and behavior.

Empathic accuracy: the degree of similarity between a target's thoughts and feelings and a perceiver's inference about the target's thoughts and feelings, during actual interactions.

Extrinsic interpersonal emotion regulation: when people try to influence or regulate the emotions of others.

Intrinsic interpersonal emotion regulation: when people use others to regulate their own emotions.

Physical mimicry: the automatic imitation of another person's facial expressions, bodily movements, gestures, or postures.

Shared vantage point: the extent to which the individuals being emotionally linked experience the same event from the same perspective.

Social appraisal: the process of interpreting or evaluating a situation in light of another person's emotional response to it.

Surface acting: expressing emotions that are not genuinely felt and/or suppressing emotions that are felt but not desirable.