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Characteristics and Consequences of Co-experienced Positive Affect: Understanding the Origins of Social Skills, Social Bonds and Caring, Healthy Communities

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Abstract:	Although affective states are typically viewed as belonging to individuals, psychological theories have begun to emphasize collective affective states or interpersonal affective systems that emerge and resonate at the level of dyads and groups. Here, we build on these theories with a focus on co-experienced positive affective states. We distinguish co-experienced positive affect from intraindividual positive affect, and highlight research suggestive that co-experienced positive affect has characteristics that are distinct from intraindividual positive affect with important implications. We review recent advances that indicate co-experienced positive affect plays critical roles in the development of social skills, social bonds, and caring communities, and consider potential implications of co-experienced positive affect for health and well-being.
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Characteristics and Consequences of Co-experienced Positive Affect: Understanding the Origins of Social Skills, Social Bonds, and Caring, Healthy Communities

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Highlights

- Co-experienced positive affective states have distinct characteristics from intraindividual affective states
- Co-experienced positive affect is important for socioemotional development
- Co-experienced positive affect is characteristic of high-quality relationships and cooperative groups
- Co-experienced positive affect likely has important implications for health and well-being
- More research is needed on positive affect at the level of the social unit

Abstract

Although affective states are typically viewed as belonging to individuals, psychological theories have begun to emphasize collective affective states or interpersonal affective systems that emerge and resonate at the level of dyads and groups. Here, we build on these theories with a focus on co-experienced positive affective states. We distinguish co-experienced positive affect from intraindividual positive affect, and highlight research suggestive that co-experienced positive affect has characteristics that are distinct from intraindividual positive affect with important implications. We review recent advances that indicate co-experienced positive affect plays critical roles in the development of social skills, social bonds, and caring communities, and consider potential implications of co-experienced positive affect for health and well-being.

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Introduction

"A human being is part of a whole." Albert Einstein shared these words to console a grieving friend, adding that when individuals experience their emotions as separated from that whole, "a kind of optical illusion of [their] consciousness" emerges. Einstein's phrasing suggests that we humans can be mistaken when we refer to "my" emotion or "her" emotion. Emotions, instead, are often "ours." Affective states may emanate and resonate across individuals and groups through numerous sensory systems (e.g., prosody, posture, facial movements, physiological changes). Although behavioral scientists have begun to theorize about macrolevel affect and affect dynamics, [1–3] few of these theories are specific to positive affect. Here we build the case that co-experienced positive affect warrants particular focus for its distinctive characteristics and potential contributions to social functioning.[1]

Co-experienced Positive Affect

Positive affect typically arises in response to circumstances interpreted – consciously or not – as holding good fortune or good prospects and is characterized by increases in the pleasantness of subjective experience, coupled with changes in behavior and/or physiology that support context-appropriate thought-action tendencies [4]. Co-experienced positive affect refers to moments or brief periods in which positive affect co-occurs in one or more individuals who are engaged with one another via real-time sensory connection (e.g., hearing, seeing, sensing each other as a social episode unfolds), and encompasses the joint subjective experience, co-expression, and co-embodiment of positive affect. Although interpersonal affective processes

[1] We use the term co-experienced affect rather than co-experienced emotion throughout the manuscript to emphasize that co-experienced positive affect requires co-occurring positively valenced states that may differ according to the specific emotions constructed by individuals. For example, in a moment when one individual feels affection while interacting with another individual who simultaneously feels joy, although the specific emotions differ between individuals, this circumstance would be characterized as co-experienced positive affect.

such as emotion contagion and empathy can lead to the emergence of momentary co-experienced affective states, affect that is simply "shared" (verbally or nonverbally) in the sense that it is passed on from one individual to another does not equate to co-experienced affect [5]. Rather, co-experienced positive affect falls under the umbrella of collective emotional states, which have been defined as, "macrolevel phenomena that emerge from emotional dynamics among individuals who are responding to the same situation" [1].[2]

Even when positive affect emerges simultaneously within two or more individuals, it may still reflect separable intraindividual phenomena. For example, individuals may each observe a single stimulus that triggers positive affect in each of them, or individuals could engage in a pleasant activity adjacent to one another without influencing or interacting with one another. Imagine two individuals at the movies. If they attend solely to the shared stimulus (the film), they may have moments when they each experience positive affect and smile, indicative of intraindividual positive affect. However, if they also engage with one another through sensory connection, for example, by seeing each other's mutual smiles or hearing their own shared laughter, a co-experienced state of positive affect can emerge via mutual influence. Importantly, external stimuli are not necessary for the emergence of co-experienced positive affect. Individuals often co-create co-experienced positive affect. For example, imagine those same two individuals waiting for the film to begin. Assuming the two are forming or involved in a romantic relationship, if one reaches out to take the hand of the other in a display of affection, their heart rates may rise and fall synchronously as they each receive endogenous hits of oxytocin and opioids, and begin to share a subtle pleasant moment. What may appear to be the ebb and flow of each partner's interdependent affective experiences, expressions, and

[2] Collective emotions have been defined in multiple ways in the literature, and to disentangle those definitions is beyond the scope of this paper [56,57].

physiological responses may also give rise to moments that can perhaps more aptly be described as co-experienced positive affect. Rather than carving apart these two people's affective states, we view them as an irreducible state of co-experienced positive affect that has distinct characteristics and consequences.

Characteristics of Co-experienced Positive Affect and their Implications

Co-experienced positive affect has several characteristics that may broaden its implications. First, compared to positive affect experienced individually, co-experienced positive affect appears to be characterized by somewhat greater longevity and magnitude. When positive affect arises intraindividually, it is most often fleeting and can dissipate within a number of seconds. The co-experience of positive affect, as it reverberates between and among individuals, may expand the temporal boundaries of positive affective states to a degree. For example, research suggests expressions of positive affect are sustained when reciprocated [6]. Studies also suggest positive experiences engender more intense positive affect when experienced with others [7,8], and this effect appears to diminish when individuals lack opportunity for real-time sensory connection [9,10]. Because more intense and shared positive experiences are particularly rewarding [11], co-experienced positive affect may leave social units wanting more togetherness compared to co-experienced negative affect. Positive spontaneous thoughts, known to follow enjoyment and motivate efforts to re-experience it [12], can be expected to bubble up within interaction partners who have shared enjoyments, and these thoughts can fuel motivations to reconnect.

Next, interpersonal synchrony is characteristic of co-experienced positive affect. Synchrony can emerge in subjective experience, nonverbal behavior, and/or physiology. We acknowledge that synchrony may emerge outside of co-experienced positive affect (e.g., during

the transmission of intraindividual positive affect), and that biobehavioral responses are unlikely to perfectly covary during co-experienced positive affect (e.g., the rate of change in one person's physiology may not map precisely onto another's). Nonetheless, extent research suggests synchrony is most reliably present during affective moments of co-experienced positive affect relative to moments of intraindividual affect or co-experienced negative affect. In mother-infant dyads as well as married couples, for instance, physiological synchrony is greatest during periods of shared positive affect compared to periods of unshared affect or shared negative affect [13,14]. And in dyads, partners are more prone to synchronize positive affective expressions than negative affective expressions, and to do so within milliseconds [15].

Synchrony is an important predictor of beneficial individual, relational, and group outcomes. Recurrent positive synchrony between parents and infants shapes a child's sociality, cognitive development, empathy, emotion regulation, academic achievement, and mental health well into adolescence [16]. Positive affective synchrony has also been associated with stronger feelings of connectedness in unfamiliar dyads who watch a television show together [17]. Specifically, greater synchrony in expressions of positive affect predicts stronger feelings of connectedness, and, unlike negative affect synchrony, the association between positive affect synchrony and connectedness grows stronger over several hours [17]. A meta-analyses of 42 studies (total $N = 4327$) that experimentally manipulated behavioral synchrony concluded that synchrony produces enhanced social cognition, increased prosocial behavior, and more positive perceptions of the strength of social bonds (effect sizes: .11 to .28) [18].

Co-experienced positive affect may also be characterized by synchronous release of the endogenous hormones such as oxytocin, dopamine, and opioids, which help to bind the social unit. In new relationships, synchronized behaviors, positive affect, and touch have each been

independently associated with higher levels of plasma oxytocin [19,20], and dopaminergic reward-related neural regions are activated specifically in response to happy faces [21]. Such shifts in the shared biological state of the social unit may reduce stress or aggressive tendencies and thereby induce shared psychological shifts, toward mutual feelings of civility, attachment, support and safety, each associated with bonding and health [22,23].

Positivity Resonance: A Subtype of Co-experienced Positive Affect

The *Positivity Resonance Theory* of co-experienced positive affect [24] holds that pleasant states that are co-experienced across individuals and marked by caring and synchrony are especially strong contributors to growth in personal and social resources, including mental and physical health. These high-quality emotional connections are termed "positivity resonance" because in them pleasant affective states resonate and reverberate between and among individuals. Moments of positivity resonance emerge in circumstances in which real-time sensory connection (e.g., face-to-face interaction) is combined with perceived safety. Importantly, positivity resonance is an emergent (i.e., latent) construct that is inferred from the presence of three key indicators: shared positive affect (an experiential component distributed across individuals), caring nonverbal synchrony (a behavioral component marked by nonverbal movements and gestures associated with care and love that are linked in form and tempo across individuals), and biological synchrony (a physiological component marked by shifts in affect-related biomarkers linked in form and tempo across individuals). Each of these dyad- or group-level indices of positivity resonance can be either absent or present to varying degrees during interactions characterized by real-time sensory connection. Positivity resonance emerges at any moment to the extent that this trio of multiple indices begin to co-occur in time.

Consequences of Co-experienced Positive Affect and Positivity Resonance

Although considerable research has illuminated the roles and functions of positive affect within social relationships [25–27], most of it has examined individuals as the focal unit of analysis. From this work we know that individuals experience and express more positive affect in the context of high-quality relationships [28,29], that positive affect is especially contagious, and expressing genuine positive affect is linked with social connectedness [26]. Likewise, positive affective behaviors such as capitalizing (i.e., sharing positive events) and expressing gratitude are linked with positive relational outcomes [30,31]. Such research explores how affect shapes and is shaped by collective level constructs, but does not typically define affect as a collective level construct, or measure it as such.

Even when researchers have been expressly interested in collective-level affective phenomena, such as team affect, measurement approaches often miss the mark. For instance, many studies of team affect simply infer it from a computed aggregate of individuals' self-reports of their own positive affect (e.g., [32]). These affective reports typically reflect lengthy periods of time, leaving it unknown whether affect truly co-occurred between individuals in groups during their interactions. More fine-grained temporal resolution is needed to capture the frequency of moments (e.g., seconds) in which positive affect co-occurs during interactions at the level of the dyad or group. We thus echo calls for methodological advances that capture affective phenomena distributed across individuals [36]. We predict that emergent dyadic or group level constructs such as co-experienced positive affect (e.g., positivity resonance or perceptions of it [33]) may be more predictive of positive relational and group outcomes relative to intra-individual affect. Next, we review studies that point to consequences of co-experienced positive affect for social skills, social bonds, and caring and healthy communities.

Social skills

Co-experienced positive affect appears to play an important role in children's social learning and the reinforcement of appropriate social behaviors. More responsive parents co-express more positive affect with their 3-year-olds during problem solving tasks, and more co-expressed positive affect with parents predicts less aggressive and negative behavior in school by children 2 years later [34]. Co-experienced positive affect may also be integral to the development of social skills and peer relationships in childhood. During interactions between preschoolers, preschoolers who express more positive affect at the same time as their peers have better affect recognition and perspective taking skills the following year [35]. Moreover, they are rated as more likeable by their peers the following year, even after accounting for initial likeability [35]. This research suggests that co-experienced positive affect, whether it occurs intergenerationally or among peers, supports early socioemotional development and social skills.

Social bonds

Co-experienced positive affect seems to promote connection in newly acquainted dyads. Experimentally induced co-experienced laughter between strangers promotes liking and affiliation, in part through increased perceptions of similarity [36]. Similar results obtain in close relationships. More moments of simultaneous laughter during conversations between romantic partners is associated with better relationship quality, perceptions of closeness, and social support, even after accounting for all individual laughter during the conversation [37]. During neutral or positive conversations, and even during conflicts, greater occurrence of co-experienced positive affect (moments in which both partners simultaneously experience positive affect) is associated with better marital quality in long-term married couples [38]. By contrast, individually-experienced positive affect and the overall affective tone of conversations is not as predictive of marital quality as co-experienced positive affect, and the relationship between co-

experienced positive affect and marital quality holds across a 15-year time period [38]. Likewise, a coding system that captures dyad-level behavioral indicators of positivity resonance during brief 30 second periods (e.g., mutual warmth, mutual concern, mutual affection, shared tempo, shared smiles, shared laughter) outperforms a well-validated coding system that targets individual-level affect in predicting the marital satisfaction of long-term married couples, even when spouses' individual-level positive affect codes are aggregated to estimate their degree of shared positive affect [39].

Caring and healthy communities

Co-experienced positive affect may also create more tight-knit, caring, and healthy communities. Positive affect within groups promotes prosocial and cooperative behaviors [41,42]. In teams, the aggregate intensity of positive affect across group members has been associated with better social integration and superior group performance [40]. Research has also unpacked mediating mechanisms: groups perceived more positively by their members build perceived group resources (i.e., cohesion, coordination, support, and teamwork), which in turn predicts better group performance (e.g., as judged by evaluators; [43]). Initial empirical work on the construct of positivity resonance suggests that perceived positivity resonance during social interactions predicts later prosocial and charitable behaviors, including efforts to safeguard public health (e.g., mask-wearing during the COVID-19 pandemic) [44]. Individuals who perceive more positivity resonance in their daily life are also less lonely and enjoy better mental health [33]. Importantly, these associations remain when accounting for their individual overall positive affect or negative affect and other factors such as sociality [33,44]. Moreover, during the COVID-19 pandemic, perceived positivity resonance was shown to mediate the link between trait resilience and mental health outcomes [45]. Thus, positive affect co-experienced by

individuals within dyads and groups may create more cooperative, prosocial, and healthy communities.

Open Questions

The reviewed studies begin to make a case that co-experienced positive affect, beyond intraindividual positive affect, helps to build and maintain social connections, which are critical for good health and well-being. However, longitudinal research is needed to investigate plausible bidirectional associations between co-experienced positive affect and social connection. Increased levels of co-experienced positive affect may enhance feelings of connectedness, yet feeling connected to others may also increase people's levels of co-experienced positive affect.

Research is also needed to map the boundary conditions of when and in what contexts co-experienced positive affect is beneficial for relationships. We expect that certain instances of social units simultaneously experiencing positive affect may be destructive or unhealthy. For example, in the same way that excessively intense, prolonged, and/or contextually-inappropriate self-focused positive affect may be detrimental for individuals (e.g., hubristic pride, all-consuming desire; [46]), intensely "group-focused" co-experienced positive affect could emerge that inhibits growth and adaptability to change (e.g. feeling intensely positive with a member of one's political party may promote partisanship [47], and intergroup schadenfreude may promote intergroup violence [48]). Our theorizing is also specific to genuine positive affect. We recognize that expressions of positive affect are often merely displayed and not felt. The service industry, for example, often requires emotional labor for public-facing workers, which can lead to surface acting and faked emotions [49]. Shared ingenuine positive affect likely has very different characteristics and consequences.

More research is also needed to understand how co-experienced positive affective states

interact and compare with individual and co-experienced negative affective states. For partners or groups that consistently manifest co-experienced positive affective states, the resulting relationship security may buffer against the harmful effects of negative mood states or environmental threats [50]. While a number of studies reviewed here suggest co-experienced positive affect predicts social connectedness and relationship quality more than co-experienced negative affect (e.g., [17,38]), there may be specific types of co-experienced negative affect more likely to promote bonding (e.g., shared distress, anger; [51,52], and certain cultures or contexts in which co-experienced negative affect may be more beneficial for social bonding (e.g., in the context of oppression or distress). Even so, co-experienced positive affect and co-experienced negative affect cannot necessarily be understood as mere opposites. Each should be studied independently.

Co-experienced positive affect will by definition wax and wane within relationships or communities, yet the factors that predict this variability in co-experienced positive affect remain unclear. Future research in clinical psychological science should explore best practices for cultivating co-experienced positive affect at the dyad or group level, as well as factors that shift perceptions of co-experienced affect [53]. Similarly, given our proposal that co-experienced positive affect increases reward and wanting, there are likely neurochemicals associated with co-experienced positive affect that make it psychologically compelling [54]. Withdrawal from co-experienced positive affect or the inability to attain co-experienced positive affect may have negative consequences. Problems such as loneliness and depression typically attributed to individuals may instead better be characterized as the painful lack of co-experienced positive affect. In line with this idea, recent research finds that loneliness is associated with impaired spontaneous smile mimicry, but not with mimicry of negative affect [55]. Future research is also

needed to examine potential bidirectional associations between co-experienced positive affect and individuals' well-being and health [33]. We suspect that individuals with greater health and well-being may more readily cultivate co-experienced affect, and more frequent co-experienced positive affect in relationships and groups may in turn improve well-being and protect against declines in health associated with aging.

Conclusions

Intraindividual positive affect and positive affect that occurs within interpersonal relationships have long been recognized for their role in the formation and maintenance of social bonds, but recent research suggests that co-experienced positive affect and positivity resonance may have important characteristics and potent consequences that cannot be fully attributable to intraindividual positive affect or to the absence of negative affect. Co-experienced positive affect is characterized by synchrony in both nonverbal behavior and affect-related biomarkers, and may occur with greater magnitude and longevity than intraindividual affect states. Co-experienced positive affect appears to play an important role in the development of social skills and in strengthening perceived similarity, cohesiveness, and entitativity in relationships, thereby helping individuals to form and maintain strong social bonds and caring communities. Given that social connectedness, in turn, boosts well-being and longevity, investigating positive affect at the level of the social unit is an important avenue for continued research. Individuals likely benefit by connecting via positive affect and in so doing, perceiving themselves as parts of a whole.

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