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The Emerging Study of Positive Empathy

Permalink

<https://escholarship.org/uc/item/12m108p4>

Journal

Social and Personality Psychology Compass, 9(2)

ISSN

1751-9004

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Publication Date

2015-02-01

DOI

10.1111/spc3.12157

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Peer reviewed

The Emerging Study of Positive Empathy

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Abstract

Lay intuitions suggest that the ability to share, celebrate, and enjoy others' positive emotions – a phenomenon we term *positive empathy* – bolsters individual well-being and relationship strength. However, it is unclear from the current literature whether (i) positive empathy is distinct from highly related constructs and (ii) whether positive empathy is associated with salutary social and personal outcomes. Here, we begin by examining basic evidence suggesting that positive empathy is related to, but independent from, constructs such as general positivity and empathy for others' distress. We then review evidence that positive empathy correlates with increased prosocial behavior, social closeness, and well-being. Lastly, we discuss open directions for the study of positive empathy, such as investigating the potential role of positive empathy (or its disruption) in psychiatric disorders.

Scientists, philosophers, and religious leaders have long recognized and discussed the importance of sharing and understanding others' positive emotions (a phenomenon we term *positive empathy*). In Buddhism, empathetic joy – finding joy in the happiness and success of others – comprises one of four central virtues (Wallace & Shapiro, 2006). Early mentions of positive empathy also appear in *Theory of Moral Sentiments* (1759/2010), in which Adam Smith described positive empathic processes that “interest [an observer] in the fortunes of others, and render their happiness necessary to him, although he derives nothing from it except the pleasure of seeing it”. More contemporary empirical and theoretical work surrounds positive empathy, often referring to it under different, but allied terms, such as vicarious conditioning (Aronfreed, 1968), empathic joy (Smith, Keating, & Stotland, 1989), responsiveness to others' positive emotional disclosures (Gable, Gonzaga, & Strachman, 2006; Reis et al., 2010), and vicarious reward (Mobbs et al., 2009; Morelli, Sacchet, & Zaki, invited revision).

Despite a long-standing interest in positive empathy, many characteristics of this phenomenon remain unclear. First, does positive empathy represent a unique construct, distinct from empathy for negative emotions (or negative empathy) and general positivity? Second, it is unclear whether positive empathy relates to beneficial interpersonal and intrapersonal outcomes, such as enhanced social relationships and increased happiness. Here, we will address these outstanding questions by reviewing studies that examine positive empathy, drawing on behavioral measures, neuroimaging data, individual difference surveys, and experience sampling data. We will conclude by suggesting new avenues for research in positive empathy, such as investigating the role of positive empathy in psychiatric disorders.

Because positive empathy is a new research topic, the current literature only provides an initial glimpse into the nature, antecedents, and consequences of positive empathy. As such, this review cannot provide a comprehensive understanding of positive empathy. Instead, we aim to (i) clarify what is currently known and unknown about positive empathy and (ii) chart a course for future work on this topic. Overall, we hope this review not only highlights the importance and promise of this topic, but also galvanizes researchers to address the remaining gaps in knowledge.

The Nature of Positive Empathy

Definition of positive empathy

We define positive empathy as understanding and vicariously sharing others' positive emotions (Morelli, Lieberman, Telzer, & Zaki, under review). Imagining, recalling, observing, or learning of others' positive outcomes can trigger positive empathy. Individuals may experience positive empathy as an uninvolved observer (e.g., seeing someone win the lottery on television), when interacting with others (e.g., hearing someone's good news in person), or when creating a positive experience for someone else (e.g., giving someone a gift). Positive empathy can occur in response to a variety of social targets, including individuals or groups, close or distant others, and real or fictional characters. Individuals can experience positive empathy as a transient emotional state, as well as a stable personality trait (Morelli, Lieberman, et al., under review). Below, we also describe several characteristics of positive empathy that distinguish it from highly related constructs (Table 1).

Positive empathy measures

The current literature provides many tools and methodologies for assessing positive empathy. Here we will focus briefly on our own operationalization of positive empathy to establish the validity of this construct as a state and trait. The Positive Empathy Scale (PES) measures trait positive empathy with seven items, such as "When someone else is enthusiastic, I can't help but be enthusiastic too" and "If I don't understand why someone is excited, I try to put myself in their shoes and understand what they're thinking and feeling" (Morelli, Lieberman, et al., under review). Across several samples, the PES showed strong internal reliability (average $\alpha = .81$), temporal stability (average $r = .62$ from Time 1 to Time 2, approximately 100 days apart), and consistency between self- and other-reports of trait positive empathy (average $r = .30$). It also correlated positively with related constructs such as negative empathy (i.e., empathic concern), perspective-taking, general positive affect, extraversion, and agreeableness (all r 's $> .30$). In addition, the PES did not significantly correlate with unrelated constructs such as neuroticism, conscientiousness, openness, social desirability, or behavioral inhibition (Morelli, Lieberman, et al., under review). We also developed and validated a daily measure of positive empathy in two daily diary studies. Participants responded to statements like "Today, I felt happy that something good happened to someone I know" and "Today, I felt excited when I saw someone else

Table 1. Overlap and key distinctions between positive empathy and highly related constructs.

Related constructs	Example measures	Overlap	Key distinction
Negative empathy	Empathic Concern from Interpersonal Reactivity Index (Davis, 1983)	Thinking about others' mental states	Valence of shared emotion: negative versus positive
General positive affect	Positive and Negative Affect Scale (Watson et al., 1988)	Experiencing positive emotion	Origin of positive emotion: self versus other
Warm glow	Preference for voluntary giving over mandatory giving (Harbaugh et al., 2007)	Positive feelings that motivate and/or reinforce prosociality	Reason for positive emotion: benefits the self versus other
Perceived positive empathy	Perceived Responses to Capitalization Attempts Scale (Gable et al., 2004)	Shared positive affect	Role in exchange: discloser versus empathizer

succeed.” This four-item measure demonstrated good internal reliability across two samples (average $\alpha = .75$) and significantly correlated with related constructs such as daily negative empathy, daily perspective-taking, and daily positive affect (all r 's $> .30$) (Morelli, Lieberman, et al., under review).

In addition to self-report measures, researchers have also utilized other-reports, observational coding, and biological measures to indirectly gauge levels of positive empathy. For example, the Perceived Responses to Capitalization Attempts (PRCA) Scale assesses *perceived* positive empathy with items like the following: “When I tell my partner about something good that happened to me, I sometimes get the sense that my partner is even more happy and excited than I am” (Gable et al., 2006; Gable, Reis, Impett, & Asher, 2004). In addition, observational coding can evaluate verbal (e.g., “Wow, this is great news!”) and nonverbal responses (e.g., smiling) to others' positive events as indirect measures of state positive empathy (Gable et al., 2006; Maisel, Gable, & Strachman, 2008; Sallquist, Eisenberg, Spinrad, Eggum, & Gaertner, 2009). Lastly, biological measures – such as facial electromyography or functional magnetic resonance imaging – can serve as proxies for positive empathy, quantifying how observers' physiologically react to others' positive experiences (de Wied, van Boxtel, Zaalberg, Goudena, & Matthys, 2006; Light et al., 2009; Montague et al., 2002; Morelli & Lieberman, 2013).

Positive empathy manipulations

More recently, researchers moved beyond simply measuring positive empathy and began manipulating positive empathy. For example, past studies increased positive empathy by training individuals to respond enthusiastically to others' positive event disclosures (e.g., “I'm really happy for you”) (Reis et al., 2010). In a recent neuroimaging study, researchers primed an interdependent self-construal (i.e., viewing the self in terms of one's relationships with others) and increased positive empathy, causing participants to experience rewards for a close other as strongly as they experienced rewards for the self (Varnum, Shi, Chen, Qiu, & Han, 2014). Similarly, individuals felt happier and showed increased neural activity in reward-related regions when ingroup (versus outgroup) members experienced positive events (Cikara, Bruneau, Van Bavel, & Saxe, 2014; Molenberghs et al., 2014). In contrast, researchers effectively dampened positive empathy by putting participants under cognitive load (Morelli & Lieberman, 2013), priming an independent self-construal (Varnum et al., 2014), or assigning targets to a salient outgroup (Cikara et al., 2014; Cikara & Fiske, 2011, 2012).

Although many researchers have manipulated positive empathy, it is unclear how these changes in positive empathy affect the empathizer's subsequent social behaviors and well-being. Thus, future work needs to build on this preliminary evidence to more formally establish a causal relationship between positive empathy and these important outcomes. In addition, future work should continue to explore how cognitive factors – such as perspective-taking and ego – affect positive empathy. Previous work suggests that perspective-taking represents a key component of empathy that can increase emotional resonance with the target (Batson, 2011; Davis, Conklin, Smith, & Luce, 1996; Zaki & Ochsner, 2012). In contrast, ego factors may focus individuals on the self and inhibit empathy (Watson, Grisham, Trotter, & Biderman, 1984). Thus, manipulating perspective-taking and ego factors will help clarify their effect on positive empathy.

Dissociating positive empathy from highly related constructs

In this section, we provide a theoretical framework that describes overlap and key distinctions between positive empathy and highly related constructs (Table 1) – such as negative empathy, positive affect, warm glow, and perceived positive empathy. We also review empirical findings

that test this framework and provide evidence that positive empathy dissociates from negative empathy and positivity.

Negative empathy. Past research suggests that the tendency to experience positive empathy closely relates to the tendency to experience negative empathy (i.e., sharing and understanding others' negative emotional states, such as distress). In fact, theories of empathy often treat empathy as a uni-dimensional construct, at least with respect to valence, rather than dividing it into two separate constructs. Several studies report a moderate but significant positive correlation between these two constructs at trait and daily levels (Gable et al., 2006; Morelli, Lieberman, et al., under review; Sallquist et al., 2009). In addition, positive empathy and negative empathy commonly activate the medial and dorsomedial prefrontal cortex, brain regions previously associated with thinking about the mental states of others (Mitchell, 2009; Morelli, Rameson, & Lieberman, 2014).

However, positive empathy and negative empathy differ in one regard: the empathizer shares differently valenced emotions (i.e., positive versus negative) with the target (Table 1). In support of this idea, positive empathy and negative empathy selectively activate regions associated with positive affect (e.g., ventromedial prefrontal cortex) and negative affect (e.g., anterior insula, dorsal anterior cingulate cortex), respectively (Morelli et al., 2014; Morelli, Sacchet, et al., invited revision). Further, positive empathy positively correlates with improved personal and social well-being, even after controlling for negative empathy (see below for more details) (Morelli, Lieberman, et al., under review).

Positive affect. Positive empathy also shows a significant amount of conceptual overlap with general positivity. Positive emotion promotes social bonding, making individuals more open to connecting and engaging with others (Fredrickson, 2001). Further, individuals high in positivity may relate to others' positive experiences more easily because they are experiencing a similar affective state (Loewenstein, 2005). In fact, positive empathy and positive emotion show neural overlap (i.e., in the ventromedial prefrontal cortex) and significantly correlate with each other in both child and adult samples (Light et al., 2009; Morelli, Lieberman, et al., under review; Morelli, Sacchet, et al., invited revision; Sallquist et al., 2009).

Despite this strong overlap, positive empathy only occurs when individuals learn of others' positive outcomes and then share their affective state (Table 1). In some cases, individuals appear to share a target's positive emotion (i.e., positive empathy), but they are actually focused on the self. For example, hearing about your spouse's raise at work might make you feel happy because it benefits you (e.g., more money to spend). In other cases, individuals may maintain their focus on the other person, but fail to share their affective state (Shiota, Campos, Keltner, & Hertenstein, 2004). For instance, you might feel proud of your friend for winning a championship game, but not share his or her happiness. Therefore, both of these examples represent instances of general positive emotion, rather than positive empathy. More broadly, general positive affect can occur when individuals *personally* experience positive outcomes, whereas positive empathy only occurs when individuals *vicariously* experience positive emotion. Initial evidence for this distinction shows that positive empathy positively correlates with prosocial behavior, social connection, and life satisfaction (see below), even after controlling for general positive affect and extraversion (i.e., a predisposition to experience positive emotions) (Morelli, Lieberman, et al., under review).

Warm glow. Both warm glow and positive empathy involve positive feelings that can reinforce prosociality. When individuals feel happy from the act of giving itself, they are experiencing warm glow (Andreoni, 1990; Andreoni & Miller, 2002). For example, individuals may feel happy when helping a stranger (i) because they feel like a good or virtuous person, or (ii) because they see how happy a help-recipient feels. In this example, the former case represents warm

glow, a self-focused reaction, whereas the latter case reflects positive empathy, an other-focused reaction (Table 1). Although warm glow and positive empathy may seem mutually exclusive, they likely co-occur in most cases of helping and jointly reinforce prosociality.

Both warm glow and positive empathy can drive helping behavior (Crumpler & Grossman, 2008; Morelli & Lieberman, 2013). However, a crucial difference separates these two constructs: positive empathy is an altruistic motivation – a motivational state with the ultimate goal of increasing another's positive emotions (Batson & Shaw, 1991), whereas warm glow exemplifies an egoistic motivation with the ultimate goal of increasing one's own positive affect. These motives should manifest themselves differently in helping behaviors and reactions to others' well-being. For example, individuals motivated by warm glow donate to charitable organizations even if their donations crowd out third party donations and thus provide no additional benefit to others (Crumpler & Grossman, 2008). By contrast, individuals motivated by positive empathy would only donate if it benefitted others in some way. Although we outline these theoretical distinctions between warm glow and positive empathy, very few studies have empirically tested these ideas.

Perceived positive empathy. Past studies examining positive emotional exchanges typically focus on the discloser and assess perceived positive empathy (Gable et al., 2006; Gable et al., 2004). In these exchanges, individuals seek out others to inform them about the occurrence of a personal positive event (a process called *capitalization*) and then see how others' respond to their shared positive event (Gable et al., 2004). The PRCA (see above) assesses how much positive empathy the discloser *perceives*, but this scale does not directly measure how much positive empathy the empathizer *experiences*. Although these two constructs seem highly similar, they actually capture distinct perspectives in a positive emotional exchange (i.e., discloser versus empathizer; Table 1). For example, empathizers might experience high levels of positive empathy, but fail to properly communicate their excitement and enthusiasm. As a result, disclosers may then report low levels of perceived positive empathy. Owing to a paucity of data on this distinction, we suggest that researchers simultaneously measure experienced *and* perceived positive empathy because we currently know very little about why these discrepancies occur and how they might impact close relationships.

The Relationship Between Positive Empathy and Key Outcomes

Prosocial behaviors

In this section, we will review evidence that positive empathy positively relates to helpful and generous behaviors (Figure 1). While a substantial body of research has shown a consistent, positive relationship between negative empathy and helping, much less research has examined the possibility that positive empathy may be positively associated with prosocial behavior (Batson et al., 1989; Batson, Duncan, Ackerman, Buckley, & Birch, 1981; Batson et al., 1988; Fultz, Batson, Fortenbach, McCarthy, & Varney, 1986; Toi & Batson, 1982). As Smith et al. (1989) posited, individuals may help others because they anticipate sharing vicariously in the needy person's joy and relief. While it is unclear whether positive empathy motivates prosocial behavior or is a result of prosocial behavior (Batson et al., 1991; Smith et al., 1989), past studies provide initial evidence that positive empathy positively relates to prosocial behavior. We divide the review of this literature into two parts: (i) direct empirical tests of the relationship between positive empathy and prosocial behavior and (ii) studies that attribute prosocial behavior to self-focused motives (e.g., warm glow), but could also be driven by other-focused motives such as positive empathy (i.e., indirect empirical evidence).

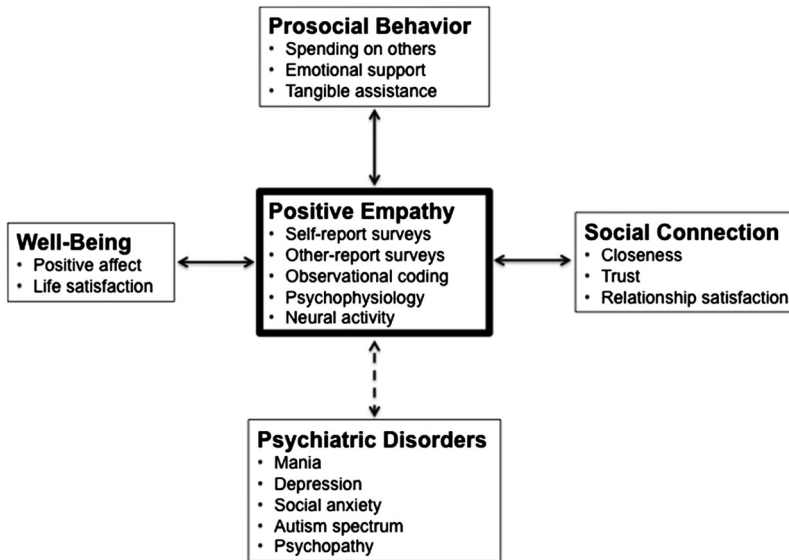


Figure 1. A model depicting relationships between positive empathy and key outcomes. Dotted arrows represent emerging, but tentative relationships. Solid arrows represent established relationships. Double-sided arrows represent a bidirectional relationship.

Direct empirical evidence. To test the link between positive empathy and prosocial behavior, studies have investigated if participants help more when they anticipate receiving positive feedback from the help recipient (Batson et al., 1991; Smith et al., 1989). Two different studies found that a subset of participants were more likely to help when they anticipated seeing the positive reaction of the help recipient, compared to when they were told they would not see the reaction of the recipient (Batson et al., 1991; Smith et al., 1989). Thus, it's possible that the anticipation of positive empathy motivated their helping behavior. Alternatively, participants may have helped more when anticipating positive feedback because they valued making a positive impact on others (i.e., prosocial impact), wanted to evaluate the potential for reciprocity, or wanted to confirm that their relationship partner felt valued (Aknin, Dunn, Whillans, Grant, & Norton, 2013; Gable & Reis, 2010; Rilling et al., 2002).

Fortunately, Batson et al. (1991) conducted additional studies that clarified participants' motivations to act prosocially. In two studies, individuals read about a needy person but were not given a chance to help. Instead, they chose whether to hear an update from the needy person or someone else. Participants then received information on the likelihood that the needy person's situation would be substantially improved (e.g., 20%, 80% chance of positive feedback). As the participants did not directly help the needy target, egoistic motives – such as warm glow, reciprocity, or relational benefits – could not motivate their decision to view positive feedback. However, positive empathy, an altruistic motive, might still drive individuals in this situation to watch videos that include others' positive outcomes. Indeed, participants were more likely to watch videos with a higher probability of positive feedback (i.e., 80% chance) than those with a lower probability (i.e., 20% chance) after collapsing across conditions. Although the authors did not originally analyze or interpret the data this way, we suggest that it provides initial evidence that positive empathy shows a positive relationship with prosocial behavior.

Correlational data also demonstrate that positive empathy positively relates to prosociality. First, trait positive empathy shows a strong positive relationship to trait prosociality (i.e., Prosocial Tendencies Measure; Carlo & Randall, 2002) across several samples (average $r = .49$) (Morelli, Lieberman, et al., under review). Second, daily positive empathy showed a positive association with helping strangers and friends, as well as with providing high quality emotional support (Morelli, Lieberman, et al., under review). Third, neural activity in a reward-related region (i.e., septal area) during positive empathy predicted average daily helping towards strangers (Morelli et al., 2014), suggesting that individuals who experience more vicarious positive emotion when observing others' positive outcomes are more likely to help people in their everyday lives.

Indirect empirical evidence. Early studies suggest that positive empathy may facilitate classical conditioning of prosocial behaviors (Aronfreed, 1968; Midlarsky & Bryan, 1967). In two different studies, children could choose one of two levers: one lever dispensed candy and the other lever turned on a red light. Some children consistently received positive reinforcement – that is, hugs and smiles combined with expressions of delight from the experimenter – after selecting the lever connected to the red light, while other children received less positive feedback from adults. Later, the first set of children was more likely to push the red light than the lever that produced candy, when compared to the children in other conditions. Further, the first set of children was more generous than other children even when later donating anonymously. Thus, if children empathized with the experimenter's positive reaction, it suggests that positive empathy reinforces prosocial behavior and eventually conditions children to act prosocially. Of course, demand characteristics or social rewards could also promote more prosocial behavior, but these data nonetheless suggest that positive empathy *could* reinforce prosocial behavior.

If positive empathy reinforces prosocial behavior, seeing (versus not seeing) a beneficiary's positive outcome should significantly boost positive empathy after giving. Recent behavioral research provides indirect evidence for this idea, demonstrating that direct contact with beneficiaries increases positive affect after giving (Dunn, Aknin, & Norton, 2014; Grant, 2007). However, these studies do not distinguish between self-focused (e.g., warm glow) and other-focused positive emotion (i.e., positive empathy) after helping. For example, when participants met someone who was personally involved with a charity and learned that this person would react positively to a donation, individuals who donated more money to the charity felt happier (Aknin, Dunn, Sandstrom, & Norton, 2013). In another study, giving more money to a peer boosted positive affect when participants directly delivered the money and saw their peer's emotional reaction (Aknin, Dunn, Sandstrom, et al., 2013). Similarly, when toddlers gave treats to others and could witness their positive reaction, they were happier than when they received treats for themselves (Aknin, Hamlin, & Dunn, 2012). In addition, when participants spent a gift card on someone else and were with this person at the moment he or she received the gift, participants were happier than when they spent the gift card on themselves (Aknin, Dunn, Sandstrom, et al., 2013). Although many researchers might attribute these results to other prosocial motives, we posit that positive empathy with the beneficiary contributes to the happiness associated with giving to others.

Recent findings from neuroscience also provide indirect support for the idea that positive empathy makes prosocial acts feel more rewarding. For example, donations to charities reliably activate reward-related brain regions (i.e., ventral striatum and ventromedial prefrontal cortex) (Harbaugh, Mayr, & Burghart, 2007; Hare, Camerer, Knopfle, & Rangel, 2010; Moll et al., 2006). In addition, individuals who strongly identify with their family and derive greater fulfillment from helping them show increased reward-related activity (i.e., ventral and dorsal striatum) when giving money to their family (Telzer, Masten, Berkman, Lieberman, & Fuligni, 2010).

Social connection

Although individuals can experience positive empathy for a variety of social targets (e.g., strangers, coworkers, acquaintances), past work suggests that individuals experience positive empathy almost exclusively in close relationships (e.g., friends, romantic partners, roommates, family) (Gable & Reis, 2010; Gable et al., 2004). Positive empathy may enhance social relationships by increasing perceptions of social closeness and building relationship resources (Gable et al., 2006; Gable et al., 2004). Social closeness may in turn increase overlap between self and other (Aron, Aron, & Smollan, 1992), thereby promoting positive empathy. Here, we do not claim that positive empathy *causes* increased social closeness (or vice versa). Instead, we review studies that find a positive *association* between positive empathy and social connection (Figure 1).

A large body of work on emotional responsiveness to others' positive events provides evidence that positive empathy is associated with increased social closeness. In three different studies, *perceived positive empathy* showed a positive association with relationship satisfaction, commitment, intimacy, and trust (Gable et al., 2006; Gable, Gosnell, Maisel, & Strachman, 2012; Gable et al., 2004). In one of these studies, dating couples came into the lab and were videotaped as they each discussed a personal positive event. Observational coding of positive event discussions revealed that verbal and nonverbal displays of positive empathy predicted increased relationship well-being and decreased likelihood of break-up two months later (Gable et al., 2006). Taken together, these studies demonstrate that positive empathy correlates with increases in relationship quality.

Studies using self-reports of trait and daily positive empathy also show a strong association between positive empathy and feelings of social connection (Morelli, Lieberman, et al., under review). Across several samples, trait positive empathy showed a positive association with trait social connection (e.g., "I generally felt connected to others") (average $r = .37$), as well as a negative association with trait loneliness (i.e., UCLA Loneliness Scale; Russell, 1996) (average $r = -.32$). In two daily diary studies, similar associations emerged at the within-subjects level: daily positive empathy showed a significant positive relationship with daily social connection and a significant negative relationship with daily loneliness. Taken together, the evidence above suggests that positive empathy is closely tied to positive social relationships.

Well-being

Although very little work exists on this topic, we will review the few studies that do examine the relationship between positive empathy and well-being (Figure 1). Positive empathy may be closely linked to well-being because empathizers benefit from sharing others' positive affect. Shared positive affect may bolster empathizers' personal resources (e.g., resilience), which they can then draw on to meet life's challenges and opportunities (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008). These successes, in conjunction with enhanced social connection (see above), may boost subjective well-being. Enhanced well-being may also cause individuals to more readily engage in positive empathy. This review cannot determine the directionality of this relationship, but it aims to provide early evidence that this relationship exists.

Correlational studies demonstrate that positive empathy closely relates to increased positive emotion and life satisfaction. Individuals in a relationship reported increased positive affect on days when their partners disclosed positive events to them, an effect called crossover capitalization (Hicks & Diamond, 2008). In this paper, we cannot determine if increased positive affect is due to self-focused versus other-focused reaction to partners' positive events. Instead, we simply suggest that it could be either type of reaction. In addition, a daily experience sampling study

found that daily empathy covaried positively with daily positive affect (Nezlek, Feist, Wilson, & Plesko, 2001). In our studies, trait positive empathy was positively associated with trait life satisfaction (i.e., Satisfaction with Life Scale; Diener, Emmons, Larsen, & Griffin, 1985) (average $r = .24$). Further, daily positive empathy showed a significant positive relationship with daily life satisfaction within individuals across two weeks (Morelli, Lieberman, et al., under review).

Conclusion

Although scientists and lay people alike have not acknowledged positive empathy as a distinct construct, this review suggests that positive empathy uniquely relates to prosocial behavior, sense of social connection, and subjective well-being (Figure 1). In addition, this review provides a practical guide for measuring and manipulating positive empathy. We hope future work can build on existing findings by moving beyond correlational data and determine if positive empathy increases prosocial behavior, enhances social relationships, and boosts well-being.

Lastly, the construct of positive empathy may help us gain insight into psychological disorders. Mania – a symptom of bipolar disorder – is characterized by elevated positive emotionality (Gruber, Johnson, Oveis, & Keltner, 2008), whereas depression and social anxiety are associated with blunted positive affect (Kashdan & Steger, 2006; Watson, Clark, & Tellegen, 1988). Individuals with Autism Spectrum Disorders have difficulty empathizing and interpreting what others are thinking or feeling (Baron-Cohen, 2009), whereas psychopaths can often recognize others' emotions but do not share others' affective states (Blair, 2005; Blair, Jones, Clark, & Smith, 1997). Given these altered experiences of positive emotion and empathy in these various disorders, we suspect that positive empathy may also be altered. In fact, an initial study shows that positive empathy positively correlates with mania risk ($r > .30$) but negatively correlates with depression, social anxiety, autism, and psychopathy (all r 's are less than $-.20$). Future studies should continue to explore the relationship between positive empathy and psychological disorders to more clearly understand how altered sensitivity to others' positive emotions contributes to clinical symptomatology.

Short Biographies

Sylvia Morelli is a postdoctoral fellow in psychology at Stanford University. She received her BA from Princeton University and her PhD from UCLA. She examines the neural and behavioral basis of empathy and felt understanding. Her research examines how positive empathy (i.e., empathizing with others' positive and rewarding experiences) enhances social relationships and promotes happiness. She is currently investigating whether neural responses to positive empathy predict how often individuals engage in prosocial behavior in their everyday lives. She uses a multi-method approach—combining neuroimaging, daily diaries, and behavioral experiments—to explore and comprehensively assess the origins of prosocial motivation.

Matthew Lieberman, PhD coined the term 'Social Cognitive Neuroscience' with Kevin Ochsner in 2000, at Harvard University where he received his PhD. He is professor of Psychology, Psychiatry, and Biobehavioral Sciences at UCLA. He has published more than 100 papers, many in the world's top journals (Science, Proceedings of the National Academy of Sciences, Nature Neuroscience, and American Psychologist). His work has been cited in more than 2000 scholarly papers and has been covered by various media outlets (New York Times, Wall Street Journal, CNN, Time, US News & World Report). Dr Lieberman won the American Psychological Association's Distinguished Scientific Award for Early Career Contribution to Psychology (2007). Dr Lieberman is also the founding editor-in-chief of the

journal *Social Cognitive and Affective Neuroscience* and author of the book 'Social'. Matthew is also one of the leading proponents for linking social cognitive neuroscience to the real world. He speaks worldwide to non-academic audiences about the significance of current brain science for education, business, and personal growth. His research focuses on social cognitive neuroscience and uses neuroimaging to examine how we make sense of others, ourselves, and the relation between these. More specifically, he focuses on mentalizing, persuasion and the spread of ideas, empathy, emotion regulation, and self-knowledge. He also focuses on the applications of these findings for education, business, and other organizations.

Jamil Zaki is an assistant professor of psychology at Stanford University. His research examines the physiological and cognitive bases of social inference and behavior: how people come to understand each other and decide to behave towards each other. This work spans a number of domains, including empathy, theory of mind, social influence, and prosocial behavior. Dr Zaki received his BA in cognitive neuroscience from Boston University and his PhD in psychology from Columbia University and conducted postdoctoral research on altruism and prosocial behavior at the Harvard Center for Brain Science. He has received research and teaching awards from the Society for Personality and Social Psychology, the Cognitive Neuroscience Society, the Society for Neuroscience, the American Psychological Association, the Association for Psychological Science, Autism Speaks, and Harvard University.

Note

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