

The Positive (and Negative) Psychology of Empathy
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In this chapter we review research on empathy in terms of its benefits and costs. Scholars have a difficult time agreeing on a definition of empathy. Some think of empathy as emerging from more cognitive mechanisms (emphasizing perspective taking and related theory of mind) which involves imagining another's point of view or internal experience (Borke, 1971; Deutsch & Madle, 2009), while other scholars think of it as a more affective process (Batson, 1990; Bryant, 1982; Panksepp, 1998; Watt, 2007) with relatively ancient roots in the mammalian kingdom. This affective process includes emotion-matching with others, which is typically described as 'contagion' or affective resonance (Feshbach & Roe, 1968; Watt, 2007). It also includes concern for others' suffering and a desire to reduce suffering that does not necessarily involve isomorphism with the other's feelings, often called 'empathic concern' (Batson, Ahmad, & Stocks, 2004; Davis, 1983). Some have posited that affective resonance naturally implies empathic concern, which is an important point to address in future research (Watt, 2007). Still other theorists see the emotional and cognitive aspects of empathy as more overlapping than separate (Hoffman, 1984). Finally, another relevant distinction is between 'dispositional' or 'trait' empathy (Bryant, 1982; Davis, 1983) versus 'situational' or induced empathy (Batson, 1990). People scoring high in dispositional empathy see themselves as having chronic tendencies to respond empathically, yet nearly everyone can have their empathy engaged under the right circumstances, or conversely, disengaged under opposed circumstances, suggesting that empathy is a heavily 'gated' or modulated process (Watt, 2007). Dispositional empathy measures are typically used in correlational studies, limiting the causal inferences that can be made, whereas situational empathy is induced by randomly assigning participants to imagine the world from needy targets' perspectives versus remaining objective when exposed to needy targets (see the work of Daniel Batson and colleagues for more details).

Despite all of these distinctions, it is still possible to come up with a general definition that encompasses both cognitive elements and emotional ones, and can also be applied to trait and situational empathy. Thus, we would define empathy in line with prior theorists as experiencing perspectives and feelings more congruent with another's situation than with one's own (Decety & Lamm, 2006).

Part 1: The Positive Psychology of Empathy

Empathy has a good reputation, and as we will review, there are good reasons for this. The majority of research on empathy finds desirable correlates (for dispositional empathy) and outcomes (for situational empathy), whether for empathic individuals themselves, or their social interaction partners. It is difficult to find studies that point out potential problems with empathy, but even roses have thorns, and empathy comes with a few potential thorns despite its mostly prosocial, attractive, and adaptive qualities. These will be discussed in Part 2 of this chapter.

Is empathy good for others?

Empathy for strangers. The most obvious and widely studied benefit of high empathy is its association with more prosocial behaviors directed toward strangers. In a meta-analysis examining the relationship between different kinds of empathy and prosocial behaviors such as helping, sharing, and giving to others, researchers found significant positive relationships between the two, regardless of how empathy was measured (i.e. self-reported traits, observer-

reported traits, self-reported empathic emotions, or situational inductions to empathize versus remain objective; Eisenberg & Miller, 1987).

Moreover, the work of Daniel Batson and his colleagues has tested the limits of such empathy-based prosocial responding (for a detailed overview, see (Batson, 2011). Using experimental studies, they have found that when participants are asked to imagine the feelings and perspectives of others they are more likely to demonstrate prosocial behaviors and attitudes even when:

- i) escaping from the situation is easy (Appendix B in Batson, 2011),
- ii) helping is anonymous and participants cannot receive credit for helping (Appendix C),
- iii) there are good reasons to avoid helping; doing so is easily justified (Appendix D),
- iv) participants are not given feedback about the effectiveness of their help, thus they are not motivated by feelings of gratification or self-efficacy (Appendix F), and
- v) when not helping leads to a similar mood boost as helping would (Appendix G).

Moreover, increased situational empathy also makes the helping more sensitive and attuned to the recipient's needs. After empathy is induced, participants seem to genuinely care about whether their help actually addresses the other's need, and report feeling bad if their efforts were not helpful, even if it was through no fault of their own (Batson et al., 1988; Batson & Weeks, 1996). This suggests some kind of direct linkage between affective resonance/contagion mechanisms and an intrinsic motivation to reduce suffering (as hypothesized in Watt, 2007). More evidence of their increased sensitivity comes from research finding that empathy-induced participants *are only more likely to help if it is good for the recipient in the long-term*. If there is a short-term benefit of helping the recipient, but at the cost of a long-term harm to this recipient, people induced to be in more empathic states are actually *less* likely to help (Sibicky, Schroeder, & Dovidio, 1995).

Situational empathy also increases people's cooperativeness in *prisoner's dilemma games* (Batson & Ahmad, 2001; Batson & Moran, 1999; Cohen & Insko, 2008; Rumble, Van Lange, & Parks, 2010), which are games in which participants choose to cooperate or defect with partners and receive payoffs based on their decisions. If both participants cooperate, the payoffs are highest, however, individual participants can receive a high payoff if they defect but their partner cooperates, which increases the incentive to defect. If both participants defect though, payoffs are low for both. Remarkably, empathy increases cooperation rates in prisoner's dilemma games even when participants are aware that their partner has already defected (Batson & Ahmad, 2001). For example, in this extreme situation, cooperation rates increased from 5% in the control condition ("remain objective") to 45% in the empathizing condition on a one-shot (single-interaction) prisoner's dilemma game (Batson & Ahmad, 2001). Related to this, empathizing has been shown to be helpful in negotiation settings as well, leading to greater gains for *both parties* relative to not empathizing (Galinsky, Maddux, Gilin, & White, 2008).

Empathy in close relationships. Considering that empathizing makes people kinder and more cooperative, it is not surprising to find that empathy may have positive implications within close relationships. For example, empathy in parents seems to have a noticeable positive effect on their children (Feshbach, 1990; Moses, 2012; Rosenstein, 1995). One example of this is a study of pediatric cancer patients in which the researchers found that more empathic parental

responses to their children's pain during a medical procedure was associated with the subjective experience of less pain in the children (Penner et al., 2008).

Within romantic relationships, some research has found that people scoring high in perspective taking (cognitive empathy) report being more satisfied with their relationships (Franzoi, Davis, & Young, 1985). Of course, this could mean that more relationship satisfaction leads to higher perspective taking, but this explanation is less likely because relationship satisfaction is more likely to fluctuate than a personality trait (as a classic example of state versus trait). Another interesting study found that married people with higher dispositional empathy are less likely to ruminate over perceived transgressions, and more likely to forgive their partners for these transgressions, with downstream consequences on higher marital quality (Fincham, Paleari, & Regalia, 2002; Paleari, Regalia, & Fincham, 2005). Again, the correlational nature of the study makes interpretations difficult, but the same reasoning applies to this study: perceptions of marital quality are also more likely to fluctuate than personality traits.

Longitudinal studies confirm that the direction of causality is likely to go from empathic traits towards better relationships. For example, one recent study found that higher compassionate goals at one time point were associated with increased closeness, trust, and support in relationships at a later time point (Crocker & Canevello, 2008). Another study found that people with higher dispositional empathy (measured at baseline) gave more emotional and instrumental support when their relationship partner was put in a stressful situation during a later laboratory session (Feeney & Collins, 2001).

Yet here is where things may get more complicated. Most of us enjoy having (and being) empathic partners, but there are certain circumstances where this may not be as desirable. For example, when there is uncertainty or threat in the relationship, being able to accurately read your partner's mind might give you a window into his or her doubt, interest in others, or desire to end the relationship. There are a number of studies that confirm such a possibility, by using a performance-based measure of perspective taking. This involves having Partner A report on what he or she was thinking and feeling during a videotaped segment (e.g. while discussing a relationship problem together), and then having Partner B guess what Partner A was thinking and feeling. The more similar Partner B's guesses are to Partner A's responses, the higher his or her *empathic accuracy* (Ickes, 1997).

In long-term dating relationships, which are seen as relatively more secure by virtue of their endurance, higher empathic accuracy is correlated with more relationship satisfaction (Thomas & Fletcher, 2003). In other words, more satisfied longer-term couples can more accurately read each others' thoughts and feelings while discussing relationship problems, perhaps because they are experienced in doing so. Yet the opposite pattern is found for short-term dating relationships, where higher empathic accuracy is correlated with *less* relationship satisfaction (Thomas & Fletcher, 2003). In other words, less satisfied shorter-term couples are quite good at reading each others' internal states when discussing relationship problems. This may be because many relationships dissolve within the first few months, and less satisfied new couples may be especially vigilant to potential signs of threat. Other research directly manipulates levels of threat, finding that when couples are discussing problems that are *very threatening* to their relationship, the more empathically accurate perceivers are about their partner's thoughts and feelings, the more their feelings of closeness decline from the beginning to the end of the study (Ickes, Oriña, & Simpson, 2003). However, if they are discussing *less threatening* topics, greater empathic accuracy is associated with increased feelings of closeness

with their partner (Ickes, et al., 2003). Indeed, some partners may strategically become “mind-blind” (lose their theory of mind so to speak) as a relationship-enhancing strategy. People who feel insecure about the stability of their relationship are very poor at accurately reading their partner’s feelings and thoughts in high-threat situations (e.g. when their partners are asked to rate the attractiveness levels of attractive members of the opposite sex; Simpson, Ickes, & Blackstone, 1995). It is probably wise to have poor empathic accuracy skills when such skills would reveal their partner’s interest in attractive others. Yet, some people cannot seem to inhibit their empathic accuracy in the face of such threats, those with chronic anxious-ambivalent attachment styles (Simpson, Ickes, & Grich, 1999). Ultimately this is upsetting both to them (more contagion-based distress) and their relationships (less close, more likely to end; Simpson, et al., 1999).

Why have we included these complex results in the section on the “positive” psychology of empathy? This is because it is unclear whether they are truly negative. Being aware that your partner has been experiencing doubts or may be attracted to someone else could facilitate a conversation about it, which could ultimately strengthen the relationship. Or, it might selectively facilitate relationship dissolution in relationships that are unhealthy or otherwise problematic. The long-term implications of empathic accuracy are unclear, even if in certain contexts less (empathic accuracy) is more (for relationships). In any case, there is currently very little experimental research in the domain of empathy and close relationships (Batson, 2011). Given these mixed results, examining the effect of randomly assigned empathy interventions (versus control interventions) on relationship outcomes is needed. Such interventions should also consider the moderating role of threat, since some relationships may be destabilized by increased empathy.

Empathy in professional settings. There is a robust literature on the role of empathy in professional settings, and especially within caring-related professions such as teaching, medicine, and clinical psychology. Teachers, doctors, and therapists with high empathy may positively influence their students’ educational outcomes, and patients’ physical health and mental health. For example, studies find associations between empathy in instructors and higher student motivation and effort, using both correlational and longitudinal designs (Coffman, 1981; Waxman, 1983). Empathy in instructors is also positively correlated with actual achievement outcomes (Aspy & Roebuck, 1972; Chang, Berger, & Chang, 1981), a result that is consistent regardless of the *type of outcome* (i.e. objective outcomes such as multiple choice questions, versus more subjective outcomes such as essays). Results are also similar for objective (e.g. based on observer or student report) versus more subjective (e.g. based on self report) *measures* of empathy. However, there is a need for research that experimentally links enhanced teacher empathy with student outcomes. Interestingly, college students’ perceptions of the professor’s concern and consideration (i.e. empathy) is the *single largest predictor* of overall teacher evaluations (Keaveny & McGann, 1978). Perceived teacher empathy explains 54.1% of the variance, while perceived teacher competence explains only 6.9% of the variance. Perhaps that fact alone would be enough to convince educators to participate in empathy training sessions. Such results may also suggest that students actually need more empathy – and feel more insecurities – than teachers and professors typically anticipate.

Empathy in physicians (as rated by self-report or by observers) is related to a number of patient outcomes including higher patient satisfaction, better recall of medical information,

improved adherence to physician-recommended protocols (e.g. medication), and more positive health outcomes such as fewer symptoms and improved quality of life (Beck, Daughtridge, & Sloane, 2002; Derksen, Bensing, & Lagro-Janssen, 2013). There are similar associations between empathy in psychologists and therapists and patient mental health outcomes (Kurtz & Grummon, 1972; Truax et al., 1966). It is notable that empathic doctors also report making fewer medical errors, although this may be explained by a self-report bias (West et al., 2006).

Empathy, aggression, and prejudice. High empathy also seems to have an inhibiting effect on antisocial behaviors such as aggression, bullying, and various types of criminal behavior (Batson, et al., 2004; Jolliffe & Farrington, 2004; Miller & Eisenberg, 1988). However, the effect sizes found in meta-analyses are relatively small overall and depend on a number of factors such as the type of measurement of empathy and antisocial behavior (Jolliffe & Farrington, 2004; Miller & Eisenberg, 1988). For example, the effects are strongest in self-reported measures of trait empathy, which may reflect self-perceptions of empathy rather than truly altruistic motivations (Batson, Bolen, Cross, & Neuringer-Benefiel, 1986). It is possible that the desire “to look like a nice person” can make people self-report that they are both nice and also low in aggressiveness (Batson, et al., 2004) – a selective reporting bias rather than a true association.

In studies where empathy is manipulated, the results are inconsistent. For example, one study found that perspective-taking instructions had no effect on aggressive behavior, but this was possibly because participants received negative feedback from the target of aggression *before* the empathy manipulation (Eliasz, 1980). Another study found that perspective-taking instructions did cause a decrease of aggressive behavior, but only under conditions of low threat. After a provocation, participants who received the empathy manipulation responded with similar levels of aggression as those in the control group (Richardson, Hammock, Smith, Gardner, & Signo, 1994). Yet another study has found that perspective-taking instructions led to decreases in aggression-related brain activity after an insult. These decreases corresponded with decreases in self-reported hostility (Harmon-Jones, Vaughn-Scott, Mohr, Sigelman, & Harmon-Jones, 2004). Other related research has found that people scoring high in narcissism (a trait characterized by low empathy) are susceptible to increased aggression after they are threatened by insults or rejection (Bushman & Baumeister, 1998; Konrath, Bushman, & Campbell, 2006; Twenge & Campbell, 2003).

Taken together, there is some experimental evidence that empathy may inhibit aggression, but this literature needs further work and development. Yet, when moving beyond general assessments of aggression, there is consistent evidence that empathy interventions do seem to reduce certain specific kinds of aggression in which empathy is directly implicated (e.g. abuse, sexual harassment, and victim blaming; Aderman, Brehm, & Katz, 1974; Schewe, 2007; Schewe & O'Donohue, 1993). Moreover, there is some evidence that empathy can reduce prejudice against stigmatized people or members of out-groups. Participants who are induced to feel empathy for people from different ethnic backgrounds, disabled people, the elderly, AIDS patients, homeless people, drug dealers, and even murderers report more positive feelings for them (Batson, Chang, Orr, & Rowland, 2002; Batson, Polycarpou, et al., 1997; Clore & Jeffery, 1972; Dovidio et al., 2004; Finlay & Stephan, 2000; Galinsky & Moskowitz, 2000; Vescio, Sechrist, & Paolucci, 2003). Reductions in prejudice after such empathy inductions:

- i) exist regardless of whether or not targets are stereotypical group members (Vescio, et al., 2003),
- ii) increase the likelihood that participants will actually help a member of the stigmatized group (Batson, et al., 2002), and
- iii) can persist for weeks and months (Batson, Polycarpou, et al., 1997; Clore & Jeffery, 1972).

Inducing empathy for stigmatized groups can be a useful prejudice reduction tool because it is easy and inexpensive to administer. However, to date the majority of studies on this topic have examined the role of empathy in changing attitudes or feelings toward these groups. The effect of empathy on prejudice is more complicated when considering how empathy affects actual intergroup social interactions – as we will see in Part 2 (See chapter by Watt and Panksepp in this volume for further discussion of in-group/out-group effects on empathy).

Is empathy good for the self?

Excessively low empathy is a clear mental health risk factor, albeit with relatively broad implications. For example, one of the diagnostic criteria for Narcissistic Personality Disorder is a lack of empathy (APA, 2000). Similarly, although low empathy is not a directly stated diagnostic criterion for Antisocial Personality Disorder (APD), those with APD show a “lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another” (APA, 2000). This clearly implies low empathy among this population without perhaps making it more explicit. However, the Psychopathy Check List (Hare, 1999), which is the most commonly used measure of psychopathy, includes an item related to low empathy. In addition, studies find that among individuals with an antisocial personality, the cognitive factor of empathy is preserved while the affective component is impaired. Individuals with antisocial personality have similar performance on Theory of Mind tasks compared to healthy individuals (e.g., Richell et al., 2003), but show weaker emotional responses when confronted with someone in distress (Blair, 1999; House & Milligan, 1976).

People with autism spectrum disorders (ASD) are also thought to have lower empathy relative to normal controls. These populations indeed report low compassion in general and lower abilities in identifying the mental states of others (Bons et al., 2013; Frith, 2001; Mathersul, McDonald, & Rushby, 2013). ASD involve impairments in social functioning, in communication, and is associated with restricted repetitive and stereotyped patterns of behaviors, interests and activities. Individuals with ASD report lower levels of affective and cognitive empathy (e.g., Berthoz, et al., 2008; Frith, 1989) and have lower performance on Theory of Mind tasks (Hill & Frith, 2003). Several studies have found that individuals with ASD have difficulties in understanding others' intentions depicted in vignettes, in correctly identifying the mental states expressed by eye gazes, and in understanding false belief scenarios (Brent, Rios, Happe, & Charman, 2004; Hamilton, 2009; Mitchell, Robinson, Isaacs, & Nye, 1996). Moreover, neuroimaging studies have found anomalies in brain regions that are involved in Theory of Mind (Frith, 2001). For instance, when healthy participants and participants with ASD had to attribute mental states to visual animated triangles acting like humans (e.g., chasing), individuals with ASD showed less activation than healthy participants in the three brain regions involved in

Theory of Mind (medial prefrontal cortex, temporal parietal junction, and the temporal poles; Castelli, Frith, Happé, & Frith, 2002).

Within non-clinical populations, there are many studies demonstrating associations between empathy-related traits and behaviors and good mental and physical health (for reviews, see (Batson, 2011; Konrath, 2013; Konrath & Brown, 2012; Post, 2007). These studies cover *traits* such as empathy, compassion, altruism, narcissism (low empathy plus inflated self-esteem), and generativity (concern for future generations) and *behaviors* such as giving support to others, volunteering for non-profit organizations, and caring for animals. The trait-based studies tend to be correlational or longitudinal, but across both methods there are relatively consistent results. For example, highly empathic or compassionate people report better mental health (e.g. lower stress, anxiety, hopelessness, and depression), participate in fewer health risk behaviors (e.g. drinking or smoking), and have better physiological indicators of stress regulation (e.g. vagal tone; Adams, 2010; Au, Wong, Lai, & Chan, 2011; Diamond, Fagundes, & Butterworth, 2012; Ironson et al., 2002; Kalliopuska, 1992; Steffen & Masters, 2005) even when controlling for potential confounds (e.g. coping, social support: Au, et al., 2011), and even when considering a wide variety of populations (e.g. high school students, college students, community samples, people with chronic illnesses). Longitudinal studies confirm that having a more altruistic personality at one time point is associated with better mental and physical health outcomes later on (Dillon & Wink, 2007; Ironson, 2007; Konrath & Fuhrel-Forbis, 2011; Wink & Dillon, 2002). However, the role of covariates needs further clarification, with some studies suggesting that social class differences may be important (Dillon & Wink, 2007; Stellar, Manzo, Kraus, & Keltner, 2012) and others finding that the results are robust to a number of plausible confounds such as baseline health (Konrath & Fuhrel-Forbis, 2011; Wink & Dillon, 2002).

Our research examines change in empathy and related traits over time by using the method of *cross-temporal meta-analysis*, which is a meta-analysis that tracks trends in self-reported traits over time. We have found that scores on the empathic concern and perspective taking subscales of the Davis (1983) Interpersonal Reactivity Index have been declining over the past 30 years in the United States (Konrath, O'Brien, & Hsing, 2011). In addition, scores on the Narcissistic Personality Inventory, which assesses high self-focus in combination with low empathy, have been increasing across the same time period (Twenge, Konrath, Foster, Campbell, & Bushman, 2008). Given these changes, the relationship between empathy and health may become more important in the future if measures of empathy and related traits continue to show parallel trends.

When reviewing the altruism-health literature it is important to consider the specific definition of empathy that some scholars use, which may not represent true other-orientedness. Personal distress is a more self-oriented reaction to others' suffering. It can be assessed at the *trait* level, with sample items such as “*When I see someone who badly needs help in an emergency, I go to pieces*” (Davis, 1983), or as an immediate *situational* response to others in distress, by asking participants the extent to which they feel emotions like *alarmed*, *distressed*, *disturbed*, and *upset*, in response to others' distress (Batson, Fultz, & Schoenrade, 1987). When assessed this way, personal distress and empathic concern are two nearly orthogonal factors (Batson, et al., 1987; Davis, 1983). Although only calloused people could observe extreme suffering without having any distress response, people with unmitigated personal distress responses may be more motivated to help others in order to relieve their own distress, rather than

to relieve the other's distress (Batson, et al., 1987; Davis, 1983). As such, they are likely to seek other opportunities to relieve their distress, such as escaping the situation instead of helping, when possible (Batson, 2011). Another way to think of this is that in order to be truly empathic, people will indeed suffer with those who are suffering (and thus feel some distress on behalf of them), but we must also have "intact affective regulation abilities such that the suffering of the other party does not flood us, and we are thus able to maintain our own affective equilibrium and largely positive state while we are motivated to reduce the suffering of the other party" (p. 21; Watt, 2007). Personal distress often includes unmitigated contagion with the suffering person, along with over-identification and poor personal boundaries. Thus, it is not surprising that within the context of mental health, personal distress is found to be associated with poor functioning (O'Connor, Berry, Weiss, & Gilbert, 2002).

To date, very few studies have examined how situational empathizing affects the empathizers themselves. This is an important direction for future research because it can help unravel issues of causality in this literature. In our lab we have been studying the direct physiological consequences of empathizing for those who are asked to empathize versus remain objective in response to others' suffering (Konrath et al., 2012). We elaborate on some of these issues in Part 2.

There are actually similar results when examining how empathy-related *behaviors* are associated with psychological and physical health. For example, it is difficult to randomly assign people to regularly volunteer for non-profit organizations, although in recent years some scholars have done just that (e.g. Experience Corps; Fried et al., 2004; Hong & Morrow-Howell, 2010). Yet there is consistent evidence that people who regularly volunteer for non-profit organizations have better psychological and physical health, even when considering a variety of potential confounds (Konrath, 2013; Konrath & Brown, 2012). Importantly, a recent study found that in order to receive a health benefit of volunteering, people had to be motivated by care for others. Those who were motivated by potential ways they could personally benefit from volunteering (e.g. learning something new; feeling good) did not experience a later health benefit (Konrath, Fuhrel-Forbis, Lou, & Brown, 2012). Although this study did not assess empathy directly, it does imply that empathically-motivated giving is likely to be better for one's health than personally-motivated giving.

When it comes to the empathy-related behavior of giving social support to others (e.g. time, money, errands, emotional support), it is possible to randomly assign people to give versus receive support, and thus causal inferences can be stronger within this part of the literature. Yet the majority of studies still rely on correlational and longitudinal methods (Konrath & Brown, 2012). Several correlational studies find that giving social support to others is associated with better mental and physical health (Brown, Consedine, & Magai, 2005; De Jong Giefveld & Dykstra, 2008; Dunn, Aknin, & Norton, 2008; Ironson, et al., 2002; N. Krause & Shaw, 2000; Schwartz, Keyl, Marcum, & Bode, 2009; Schwartz, Meisenhelder, Ma, & Reed, 2003). These results are confirmed in longitudinal studies (Brown, Brown, House, & Smith, 2008; S. Brown, Nesse, Vinokur, & Smith, 2003; Gleason, Iida, Bolger, & Shrout, 2003; Ironson, 2007; McClellan, Stanwyck, & Anson, 1993; Piferi & Lawler, 2006; Schwartz & Sendor, 1999; Vaananen, Buunk, Kivimaki, Pentti, & Vahtera, 2005). Experimental and quasi-experimental studies find that people who are randomly assigned to such diverse behaviors as caring for animals or plants, giving money to others, random acts of kindness, or giving massages to infants, all experience increased psychological well-being and better physiological outcomes

such as lower stress hormones (Aknin et al., 2013; Brown, Konrath, Seng, & Smith, 2011; Field, Hernandez-Reif, Quintino, Schanberg, & Kuhn, 1998; Langer & Rodin, 1976; Mugford & M'Comisky, 1975; Smith, Loving, Crockett, & Campbell, 2009; Tkach, 2005). However, inconsistent results have been reported in the literature: sometimes benefits only apply to certain groups of people, sometimes null relationships exist, and sometimes giving support can be associated with poor mental and physical health, especially when giving too much support or receiving too little in return (Buunk, Doosje, Jans, & Hopstaken, 1993; Fujiwara, 2009; Liang, Krause, & Bennett, 2001; Lu, 1997; Lu & Argyle, 1992; Schwartz, et al., 2009; C. Schwartz, et al., 2003; Strazdins & Broom, 2007).

Taken together, we can tentatively conclude that at least in some circumstances empathetic traits and behaviors are associated with good mental and physical health. However, there are a number of remaining questions: How can these results be explained? Why is empathy sometimes beneficial, yet other times costly for the self? Is there an optimal level of empathy, and if so, can too much empathy be more costly than beneficial?

Part 2: The Negative Psychology of Empathy

These questions naturally bring us to the second part of this chapter, delving into a topic that has received some attention in recent times (Batson, et al., 2004; Bloom, 2013; Oakley, Knafo, & Madhavan, 2011; Prinz, 2011). Can empathy at times be harmful? We now review research that suggests that empathy may have a 'dark' or at least 'costly' side and may be maladaptive in some specific contexts.

Can empathy be bad for the self?

As reviewed in Part 1, *low* empathy is a feature of some psychological disorders. However, some disorders may actually be associated with *excessive* empathy. One example is the case of the Williams Syndrome, which is a genetic developmental disorder associated with mental retardation and characterized by distinctive facial features (elfin). In terms of interpersonal behaviors, Williams Syndrome individuals are described as hypersociable, overly friendly, and affectionate (Jones et al., 2000). They also show unreserved approach behaviors towards strangers compared to healthy individuals (Gosch & Pankau, 1994), and greater evaluation of trustworthiness in faces (Bellugi, Lichtenberger, Mills, Galaburda, & Korenberg, 1999). Paradoxically, preliminary findings suggest that despite their hypersociability, these individuals are often socially-isolated and report having fewer friends than individuals with mental retardation due to nonspecific causes (Dykens & Rosner, 1999). Williams Syndrome individuals are also described as empathetic (Riby, Bruce, & Jawaid, 2012). However, evidence-based studies suggest that their empathic profile is complex. It has been hypothesized that individuals with Williams Syndrome might show a dissociation between cognitive and affective components. That is, their emotional responses to someone else's feelings (such as affective resonance and concern for suffering) on the one hand and their abilities to understand others' mental states on the other hand may not be well correlated (Riby, et al., 2012).

Several studies suggest that individuals with Williams Syndrome have greater emotional responses to other people's negative feelings than individuals with other developmental

disorders. For example, children with Williams Syndrome show greater empathic concern for an experimenter who pretended to hurt her knee compared to children with another developmental disorder (Prader-Willi Syndrome; Tager-Flusberg & Sullivan, 2000). Furthermore, Williams Syndrome children are more inclined to mimic facial expressions than matched control children with other developmental disorders (Fidler, Hepburn, Most, Philofsky, & Rogers, 2007), consistent with the distinction between contagion and theory of mind. Parents also report that their Williams Syndrome children experience more empathic emotional responses to others' distress compared to other children (Dykens & Rosner, 1999; Klein-Tasman & Mervis, 2003). Yet when examining physiological indices of emotional arousal, individuals with Williams Syndrome actually show *lower* skin conductance amplitude in response to emotional faces compared to age-, IQ- and language-matched controls who present learning or intellectual disabilities (Plesa Skwerer et al., 2009). However, the findings should be taken with caution as the authors have calculated the physiological responses without differentiating the emotional facial expressions that were accurately and inaccurately identified.

In terms of mentalizing or perspective taking (i.e., identifying others' mental states) the data are not consistent (Kennedy & Adolphs, 2012). While some studies find that Williams Syndrome children can recognize emotional facial expressions as well as mental-age matched controls (Gagliardi et al., 2003; Porter, Colheart, & Langdon, 2007), others have found deficits in the ability to recognize facial and vocal emotional expressions compared to matched controls, which might explain the previously noted lack of physiologic arousal (Lacroix, Guidetti, Roge, & Reilly, 2009; Plesa-Skwerer, Faja, Schofield, Verbalis, & Tager-Flusberg, 2006; Porter, et al., 2007). Taken together, these studies suggest that it is not only empathy deficits that signal clinical problems within individuals; excessive empathy (specifically, emotional empathy) can also be indicative of certain psychological disorders. In Williams Syndrome, the data support a dissociation between the affective and cognitive components of empathy, such that Williams Syndrome is characterized by increased emotional empathy, yet lower abilities to identify others' emotional expressions. This thus suggests that Williams Syndrome is characterized by a cognitive empathy deficit and thus more related to problems in theory of mind. If future studies support this dissociation between the two components of empathy, this may shed light on why individuals with Williams Syndrome are generally socially isolated. They might respond too much to others' feelings relative to their ability to actually understand these feelings.

Moving beyond the clinical domain to general populations, an extreme level of empathy may be dangerous if it motivates us to care for strangers – before establishing their safety or trustworthiness – at a potentially keen risk to our own personal safety and survival. It is likely that empathically-motivated and emotionally naïve 'rescuing' has prematurely shortened many lives in human history. And of course extending care to others leaves fewer resources (time, money, energy) for the self. Most genetic selection theories assume that organisms prioritize "selfishness" in order to increase evolutionary fitness by surviving and reproducing (Dawkins, 1976). However, this is a very utilitarian point of view that may not accurately reflect the human experience of and motivation to care and empathize (Brown, Brown, & Penner, 2011). It also clearly does not reflect the survival value provided by intimate, socially bonded groups, and the fact that our preference for such groups appears to have been heavily selected in hominid lines (Panksepp, 1998; Watt, 2007). Moreover, surviving just long enough to reproduce would not necessarily increase evolutionary fitness – for maximal fitness parents must effectively care for

their children and grandchildren so that they in turn will survive and reproduce (Hawkes, O'Connell, Jones, Alvarez, & Charnov, 1998; Lahdenperä, Lummaa, Helle, Tremblay, & Russell, 2004; Liu & Konrath, 2013).

Moving beyond extreme situations of empathy such as altruistic rescuing, it may still be possible for normal levels of empathy to be problematic at times. Caring and giving can sometimes be stressful, difficult, and draining, and concern for others can sometimes overtake people's efforts at self-care, through caretaker fatigue and caretaker burden. Professionals who work in human service occupations can suffer from mental and physical health problems associated with the strain of giving as a full-time occupation (Figley, 1995). These problems are common in medical professionals, psychologists, social workers, lawyers, and corrections professionals, among others, in which regular exposure to highly stressful and traumatic incidents – either directly or indirectly – is part of the job description. Consistent with these notions, “*compassion fatigue*” is defined as the experience of “stress resulting from helping or wanting to help a traumatized or suffering person” (Figley, 1995, p. 7). These feelings of stress are normal and experienced by almost everyone within helping professions at some point in their careers (Mathieu, 2007). Compassion fatigue refers to the immediate feelings of stress that occur in such situations, however, these feelings can be chronically present among helping professionals because of the nature of their jobs. Indeed, between 42-70% of social workers experience ongoing high levels of personal and emotional distress as a result of their work (Adams, Boscarino, & Figley, 2006; Bennett, Plint, & Clifford, 2005; Bride, 2007; Pooler, 2008; Tehrani, 2010). “*Vicarious trauma*” occurs after repeated exposures to others' traumas, which causes a change in the helper's view of themselves and the world. It is “a transformation of the helper's inner experience, resulting from empathic engagement with clients' trauma material” (Saakvitne & Pearlman, 1996, p. 40). As such, it affects many different aspects of helpers – their emotions, their behaviors, their relationships, and their professional accomplishments. The term “*burnout*” is often used interchangeably with the above two terms, but we understand it to reference a longer-term result of chronic experiences of compassion fatigue that have shifted into vicarious traumatization. Often these experiences occur in combination with heavy caseloads, overwork and caregiver burden. The three commonly used dimensions to define and describe burnout are feelings of exhaustion in combination with a sense of cynicism and a feeling of ineffectiveness in one's work (Maslach, Jackson, & Leiter, 1996).

There are many risk factors that predict increased compassion fatigue, vicarious trauma, and burnout. For example, a number of individual differences seem to matter. People have a higher risk of compassion fatigue (or a related outcome) if they tend to be very self-critical (Osofsky, 2011), if they cannot emotionally distance when appropriate (Krause, 2009), and if they have conflicting feelings about their job role (Holt & Blevins, 2011). Younger and less experienced professionals (Baird & Jenkins, 2003; Hawkins, 2001), those without specialized training in trauma exposure (Sprang, Clark, & Whitt-Woosley, 2007), and those who have experienced prior abuse or trauma (Nelson-Gardell & Harris, 2003) are also more susceptible to compassion fatigue. Good relationships with coworkers (Armstrong & Griffin, 2004; Choi, 2011; Fielding & Fielding, 1987) and high social support (Conrad & Kellar-Guenther, 2006; B. Thomas, 2012) buffers the stresses of caring professions, as do flexible and supportive institutional environments and policies (Brady & Growette-Bostaph, 2012; Brough & Frame, 2004; Choi, 2011; Gershon, Barocas, Canton, Li, & Vlahov, 2009; Violanti & Aron, 1995) and smaller caseloads (Noblet, Rodwell, & Allisey, 2009; Udipi, Veach, Kao, & LeRoy, 2008).

Yet “compassion” fatigue may be a misnomer, since studies have found that higher feelings of empathy and compassion actually buffer people in caring professions from such negative psychological states (Burtson & Stichler, 2010; Dyrbye et al., 2010; Gleichgerrcht & Decety, 2013; Shanafelt et al., 2005). Indeed, some scholars have suggested that the term should be replaced by “*empathic distress fatigue*,” since “burnout in caregivers and empathic [or personal] distress are characterized by the experience of negative emotions, which lead to a self-oriented response with the desire to alleviate one’s own distress and both have negative effects on health” (Klimecki & Singer, 2011, p. 285). What is currently missing in this literature is experimental studies that examine the effect of empathy training on the later well-being and health of people in caring professions. With empathy training programs for people in caring professions becoming more common in recent years (Barkai & Fine, 1983; Herbek & Yammarino, 1990; Riess, Bailey, Dunn, & Phillips, 2012), this evidence is likely close at hand.

Personal distress involves feelings of being worried, perturbed, or upset, *for oneself*, while empathic concern involves feelings of compassion, tenderness, or warmth, combined with distressed feelings *for the suffering other* (Batson, Early, & Salvarani, 1997; Batson, et al., 1987). These terms are regularly used in order to measure subjective reports of personal distress and empathic concern in response to others’ suffering. Based on the valence of these terms and on evidence presented on compassion fatigue and burnout, one may hypothesize that individuals who experience more personal distress (i.e., unrestrained contagion mechanisms and poor boundaries), might also report greater physiological arousal and/or an enhanced stress response compared to individuals who experience more empathic concern or feelings of compassion.

Greater arousal or increased stress activates the central nervous system, measured by skin conductance (Critchley, Elliott, Mathias, & Dolan, 2000; Lackner et al., 2010) and heart rate and blood pressure (Lackner, et al., 2010). The stress hormone cortisol is also released during acute stressful events, especially those that are uncontrollable and that lead to negative social evaluation (Dickerson & Kemeny, 2004). Therefore, one may hypothesize that personal distress feelings might be related to greater central nervous system activation and a greater release of stress hormones compared to more modulated empathic concern reactions.

So far, few studies have examined this research question, but it has important applied implications. One study found that when mothers observed their child performing a difficult task, changes in the children’s cortisol levels were associated with changes in their observing mothers’ cortisol levels (Sethre-Hofstad, Stansbury, & Rice, 2002). This was especially true for more sensitive/attuned mothers. Another study found that when experimenters observed participants giving a stressful speech (the classic Trier Social Stress Task), changes in their cortisol levels were associated with changes in the participants’ cortisol levels (Buchanan, Bagley, Stansfield, & Preston, 2012). This was especially true for experimenters who scored higher in dispositional empathy. Another study found that the more empathically accurate perceivers were about targets’ feelings of distress, the greater their CNS activation as indexed by skin conductance and cardiovascular activity (Levenson & Ruef, 1992).

Taken together, these studies indicate that observing another person in distress may affect one’s own physiological reactivity, and especially in the presence of higher (dispositional or situational) empathic concern. This would suggest higher capacities for, or alternatively lower thresholds for, contagion type/affective resonance responses. These studies thus indicate that empathic concern is associated with an emotional resonance with others’ distress. Yet resonance means that highly empathic people actually had lower stress responses if the distressed other had

low stress responses, and only had higher stress responses if the speech-giver had high stress responses. This is different than saying that empathizing itself activates a stress response. The design of these studies does not allow us to determine what would happen in a more controlled setting, that is, if the target of distress remained constant.

However, another study that did just that found that empathic concern is correlated with the release of cortisol when witnessing someone in distress (Barraza & Zak, 2009). This study assessed the endocrine responses of participants before and after they watched an evocative video depicting a father talking to his 2 year old child who had cancer. The researchers also measured subjective reports of state empathic concern and personal distress in response to the video. When controlling for feelings of personal distress, higher feelings of empathic concern were associated with a *rise* in cortisol after viewing the video. Moreover, the opposite pattern was found for personal distress: when controlling for empathic concern, higher feelings of personal distress were related to a *decline* in cortisol after viewing the video. Yet this study is still correlational, and the effects were not found at the raw correlational level – only after controlling for either high personal distress or empathic concern feelings. Thus, it is difficult to know how to interpret the results. An experimental research design can control for other confounding factors that might be associated with natural variations in empathic feelings. Ideally, participants would be randomly assigned to empathize versus remain objective in response to observing a target in distress, and physiological assessments would be taken before and after the observation.

In our lab, we are examining this very research question. The empathy protocol that we use is taken from widely used and validated empathy inductions (Batson, 2011; Batson, et al., 1988; Batson, Sager, et al., 1997). Participants in our studies are exposed to a distressed target (e.g. a radio program about Katie Banks, who is supposedly another student who has recently lost her parents in a car accident). Using standard instructions, participants are either asked to “*try to imagine how the person being interviewed feels about what has happened and how it has affected his or her life, from his or her own perspective*” or to “*try to remain objective about the person being interviewed and try not to get caught up in any emotions.*” We hypothesize that empathizing (versus remaining ‘objective’ and more detached) in response to a distressed other may actually help to attenuate stress responses.

Some background research supports this hypothesis. One study found that participants who were randomly assigned to give social support to a partner experiencing stress within a laboratory paradigm experienced declines in cortisol levels during the experiment (Smith, et al., 2009). Although ‘giving support’ is not exactly the same as ‘empathizing’, this study does suggest that focusing on others’ needs may help to attenuate stress responses. Another recent study examined the cortisol responses of participants who completed the standard Trier Social Stress Task (job interview speech) compared to those who also gave a job interview speech, but were asked to focus on how they could help others if they got the job (Mayer et al., 2011). The researchers found that although participants in the compassionate condition reported similar levels of subjective anxiety during the task, they showed attenuated cortisol responses compared to those completing the standard task. Moreover, other studies have found moderate stress-buffering effects of compassionate traits or training programs (Cosley, McCoy, Saslow, & Epel, 2010; Kok et al., 2013; Pace et al., 2009).

Clearly, more research is needed in this domain before we can determine the role of empathy in causing better or worse psychological health, stress responses, and ultimately,

physical health outcomes. For now, we cautiously include this topic in Part 2 until more conclusive research is available.

Can empathy be bad for others?

When held up to scrutiny, the evidence that empathy may be bad for the self looks weak. But the ‘dark’ side of empathy may lie in the interpersonal domain.

Empathizing with undesirable targets. Imagine that you are walking down the street and you suddenly see a person being beaten up by another person. It is likely that if you feel empathy for anyone, it will be for the person who was beaten up. Instinctively, it is easy to believe that there are no situations that would make people empathize with aggressors or understand their actions. Yet several studies suggest that some people are surprisingly willing to empathize with certain undesirable targets (e.g., rapists, unfair or immoral people). For instance, one paper found that males report higher empathy for rape perpetrators compared to females (Smith & Frieze, 2003). In two studies, participants completed a questionnaire assessing empathy for victims and perpetrators of rape. Results showed that men reported lower empathy for victims, and higher empathy for perpetrators, compared to females. However, because items were written to be gender neutral, authors could not evaluate if the gender of the target might influence the level of participants’ empathy. A recent study thus went in more depth and examined the association between empathy, type of target (i.e. victim versus perpetrator), participants’ previous life experience (i.e. sexually perpetration or victimization), and the gender of targets and participants (Osman, 2011). Participants completed an adapted version of the questionnaire from Smith and Frieze (2003), which assessed how much emotional empathy they might feel (emotional sharing with the victim) for a female versus male victim of a female versus male rapist. They also reported how much they took the perspective of the rapist (e.g. understanding of how powerful the rapist might feel). Participants also reported whether they had been victims or perpetrators of sexual aggression in the past.

Of interest to the current discussion is the degree of empathy that participants felt for perpetrators specifically. When the victim was male, participants felt more empathy for female rather than male perpetrators, but only among participants who had never perpetrated sexual aggression. However, males with perpetration experience (sexual offenders) experienced more empathy for male rapists compared to male non-offenders and female offenders. This study thus suggests that it is possible, under some circumstances, to feel empathy for undesirable targets. More specifically, this study showed that some factors either related to the *empathizer* (e.g. sharing similarities with perpetrators because of prior similar sexual offending experience), or the *perpetrator* (e.g. gender of perpetrator) might moderate empathic responses for rapists.

Although examining a less serious behavior, a well-known study suggests that it is possible to have empathy for people who are deliberately unfair (Singer et al., 2006). The researchers examined empathy for a target’s pain after the target had been fair versus unfair on an economic game. In the Ultimatum Game (UG), participants have to accept or reject monetary offers from other participants. One player, the proposer, proposes a certain amount of money to the responder who can either accept or reject the proposal. If the responder accepts, the amount is divided according to the proposer’s proposal. If the responder rejects, both receive nothing. Fair offers approach 50% of what the proposer is given. In this study, all participants were

responders, but the fairness of the offers by the proposers was varied by the researchers. Some participants received fair offers from proposers and others received unfair offers. Results indicated that there were gender differences in empathic responses to proposers making unfair offers. Among males, there was lower activity in the brain areas associated with empathic concern in response to unfair players' painful experiences, compared to fair players, suggesting a clear attenuation of empathic response. There was even some activation of reward areas in males' brains when viewing the pain of their unfair partners, suggesting 'schadenfreude' (the sense that someone is getting their 'just desserts' and does not deserve empathy for a painful outcome). However, females showed similar empathic-related neural activity in response to both fair and unfair players. This suggests that while males are influenced by the fairness of their partners, and may be less likely to empathize with undesirable (i.e. unfair) partners, females might be more likely than males to empathize with unfair others who are in pain. In other words, females may be genuinely more forgiving of unfair players while males take transgressions against principles of fairness more seriously.

Another study examined the effect of manipulating empathy levels on cooperation with unfair others (Batson & Ahmad, 2001). Participants were randomly assigned to empathize (versus remain objective) with a partner who they learned would not cooperate with them in a prisoner's dilemma game (see page 2 for a description of the game). The results revealed that participants who imagined their partner's feelings were more likely to cooperate with their partner, even when they knew that their partner would not cooperate with them (i.e. would defect). This study revealed that not only is it possible to empathize with undesirable others, feeling empathy for them might lead to increased prosocial responses directed toward these undesirable targets. Although prosocial behavior is typically seen as desirable (hence, this study was discussed in Part 1), the desirability of prosocial behavior directed toward known cheaters is more debatable.

Why does empathizing with unfair targets increase cooperation levels? There is some evidence that it changes people's perception of the relative unfairness of offers, especially in the presence of high serotonin levels (Crockett, Clark, Hauser, & Robbins, 2010). Serotonin is a hormone that indirectly promotes prosocial behaviors and seems to inhibit aggressive behaviors (Crockett, 2009; Krakowski, 2003). Serotonin is critically involved in affect regulation (Selvaraj et al., 2012). People with better affect regulation (due to higher serotonin levels) might be more prosocial while people with more impaired affect regulation might be more likely to retaliate for unfair play. In their study, Crockett and colleagues (2010) used the same game that was used by Singer et al. (2006): the Ultimatum Game. In high empathy scorers only (based on a median split of trait empathy), the administration of a serotonin reuptake inhibitor (relative to a placebo or norepinephrine reuptake inhibitor) caused participants to judge more unfair offers as more acceptable, and thus, to be more likely to accept them. Taken together, these studies suggest that empathy is not associated with adaptive behavior only. Instead, they suggest that perhaps empathy should also be perceived as a social risk factor: greater empathy for undesirable people might make empathic people see unfair actions as more acceptable, which could make empathic people more vulnerable to exploitation and less able to set limits on unfair players or even antisocial individuals. This may be one circumstance in which empathizing may be bad for the self.

Empathy (in terms of perspective taking) for undesirable persons might also have negative consequences for the empathizer's own moral behaviors. Research has also examined

how taking the perspective of unethical or unfair partners in economics games influences participants' judgment of their partners' unethical behaviors and also how it influences their own behaviors (Gino & Galinsky, 2012). Participants who imagined the perspective of their unfair partners rated the behaviors as less immoral, shameful, and embarrassing compared to control participants. Furthermore, they themselves were also more likely to engage in unethical or unfair acts. These results may initially appear to contradict the above studies, which found that empathy for unfair actors was associated with increased prosocial behavior. However, in Gino & Galinsky's studies the object of participants' empathy and the recipient of the later unethical action were different people. Either way, empathizing with undesirable targets is problematic (although it bears mention here that empathizing in this context means perspective taking). On the one hand, it can make people more likely to cooperate with untrustworthy others, and on the other hand, it can make people internalize the undesirable behaviors of those untrustworthy others and recapitulate those actions on some other unfortunate person(s). Overall, empathy – again defined here as perspective taking in relationship to an antisocial player – might have negative consequences at cognitive and behavioral levels when one empathizes with someone who is unethical or immoral.

Other research supports the conclusion that empathy directed towards certain undesirable targets can be morally problematic (Happ, Melzer, & Steffgen, 2011, 2013). In these studies, researchers manipulate perspective taking levels, and then have participants play either a good (e.g. Superman) or bad (e.g. Joker) character in a violent videogame. Participants who are assigned to take the perspective of the 'bad' character (e.g., by reading a fake Wikipedia article that depicted Joker as having had a violent childhood and an aggressive father) exhibit less prosocial behaviors (e.g. lower donations to a charity after the task), perceive neutral facial expressions as more hostile, are more likely to endorse violent behaviors as justifiable, and report more aggressive behavioral intentions (using scenarios) compared to participants who are assigned to take the perspective of a 'good' character (e.g., by reading a fake Wikipedia article that described Superman as coming from a loving family). These results are in line with the other results described above that contradict the assumption that being empathic always increases altruistic behavior, and is always a preferred and positive response. Rather, these two studies suggest that empathizing with (i.e. adopting the perspective of) 'bad,' antisocial and aggressive characters can increase one's own aggressive and antisocial tendencies.

In conclusion, research suggests that under specific circumstances, it is clearly possible to take the perspective of or have empathy for unfair people or even sexual offenders and that having empathy for these undesirable people might have negative consequences for the self and others. However, it bears mentioning that the majority of this research operationally defines empathy in the more cognitive way, as perspective taking, and we noted earlier, even people with antisocial personalities have intact cognitive aspects of empathy (i.e. Theory of Mind; Richell et al., 2003).

Empathy can be biased. Imagine that you are walking down the street and you suddenly see someone being beaten up by someone else. Which victim would you be more likely to feel empathy for – someone who was part of your own group or someone who clearly was not? What if the victim was a woman rather than a man? An attractive woman rather than an unattractive one? What about a child or infant compared to an adult? What about a puppy rather than a person?

As reviewed in Part 1, empathy instructions or training can help to reduce prejudice toward stigmatized others, yet, these instructions would not be needed if we already naturally empathized toward these groups. Instead, people have a tendency to feel more empathy more quickly for people who they see as similar to themselves (i.e. in-group members). For example, one study asked participants to observe a target who was randomly assigned to either have similar or different traits and values from the participant. The researchers then measured participants' physiological reactivity while they observed their partner getting a shock. Participants had higher reactivity for similar others (Krebs, 1975). Other experimental research has found that participants report more empathic feelings and direct more helping behaviors toward targets who are more similar to them (Batson, Turk, Shaw, & Klein, 1995). This concurs with the meta-analytic finding that targets who are more similar to participants receive more prosocial behavior, on average ($z=.15$, Eisenberg & Miller, 1987). Moreover, several studies find that activity in empathy-related brain regions is attenuated for out-group members experiencing pain, relative to in-group members (Mathur, Harada, Lipke, & Chiao, 2010; Xu, Zuo, Wang, & Han, 2009). Finally, emotionally close others also tend to receive more empathy than more emotionally distant people (Beeney, Franklin Jr, Levy, & Adams Jr, 2011; Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Norscia & Palagi, 2011). In other words, similarity, familiarity, and social attachment also modulate empathic feelings (Watt, 2007).

Other recipient characteristics also seem to influence the likelihood of receiving empathic responses from others. Although similarity to self does seem to matter in terms of predicting empathic responses, an even stronger influence is the extent to which targets are cute or baby-like. One series of studies directly pitted similarity and "nurturance" against each other in terms of the likelihood of each evoking empathy (Batson, Lishner, Cook, & Sawyer, 2005). Participants were introduced to Kayla, who had a broken leg that required surgery and intensive rehabilitation. By random assignment, Kayla was either a 20 year old student (similar to participants), a 3 year old child, a 5 year old dog, or a 4 month old puppy. The results indicated that participants felt the least empathy for the most similar target (the student) and the most empathy for the cutest / most vulnerable ones (i.e. the child and the dogs). This suggests that some modulating variables for empathy inductions 'trump' others and thus becomes further evidence that empathy is fundamentally tied to the mammalian prototype of maternal nurturance and caretaking for relatively helpless infants, as suggested originally in (Panksepp, 1998), and developed further in Watt, (2005; 2007) and Preston, (2013).

This can also play out along gendered lines. For example, a meta-analysis found that females (traditionally seen as the "weaker" sex) are more likely than males to be recipients of help (Eagly & Crowley, 1986), although it is unclear whether this is specifically driven by increased empathy. In addition, the attractiveness of potential recipients seems to influence whether they will receive empathy. People with higher trait empathy are more likely to spontaneously and unconsciously mimic others' motor actions and facial expressions (Chartrand & Bargh, 1999; Sonnby-Borgström, Jönsson, & Svensson, 2003; Sonnby-Borgström, 2002), whereas lower empathy people tend to show spontaneous *counter*-empathic responses (e.g. smile in response to angry faces). However, recent research has found that empathic individuals are only more likely to mimic targets if they are attractive, but not if they are unattractive (Müller, Leeuwen, Baaren, Bekkering, & Dijksterhuis, 2013). Taken together, there is a tendency to empathize with weaker, more vulnerable, yet also more attractive recipients. It is no wonder that the cultural archetype of the "damsel in distress" is so evocative.

Researchers have also found that participants who learn about single named individuals experience more emotional arousal than after learning about unnamed individuals or groups of people. This is called the “identifiable victim effect” (Kogut & Ritov, 2005), and it underscores the fact that empathy is in a real sense ‘personal’ and enhanced by making suffering parties appear to be real and identifiable people. However, it is unclear whether the emotional arousal that is experienced is empathic concern (i.e. feelings of compassion, tenderness, warmth, and feelings of distress *for the victims*) as one might assume. Research finds that participants feel *equal* amounts of compassionate emotions for both types of recipients. However, they experience increased feelings of personal distress (i.e. feelings of being upset, worried, disturbed, and troubled) after learning about the plight of single named individuals (Kogut & Ritov, 2005). However, researchers do not tend to distinguish between feelings of distress for the self and feeling distress for the victims, the latter of which is clearly empathic (Batson, Early, et al., 1997). Future studies could help to clarify the specific role of empathic emotions in the identifiable victim effect.

Empathy and moral reasoning. The research reviewed above indicates that empathy can at times be ‘biased’ – favoring vulnerable, cute, attractive, similar, or close others, consistent with the ‘gating’ model of empathy proposed by Watt (2007). But can it negatively affect our moral judgments in certain circumstances? In the past decades, there has been much scholarly interest on the effect of emotions on moral judgments. For instance, researchers have found that presenting disgusting smells or tastes results in harsher judgments of moral dilemmas (Inbar, Pizarro, & Bloom, 2012), consistent with unpleasant sensory stimuli clearly biasing affective activation in a negative direction. In addition, more feelings of anger can lead participants to say it is acceptable to kill one person to test a vaccine in order to save millions of people (Choe & Min, 2011). These examples show that there are obviously emotional components to moral decisions, particularly in relationship to moral dilemmas.

Other research has suggested that empathy may also influence moral judgments. For instance, psychopaths and people with antisocial personalities, who are characterized by lower emotional responses (Pham, Philippot, & Rime, 2000) and lower levels of empathic concern (Mullins-Nelson, Salekin, & Leistico, 2006), show less severe judgments of moral transgressions such as taking money from a wallet found on the ground (Bartels & Pizarro, 2011; Blair, 1995). Thus, lower empathy clearly leads to less concern about harming others, and thus to less severe judgments (or personal distress) when harm actually occurs. Although it is true that other emotional responses may also predict moral judgments (e.g. disapproval – Prinz, 2011), empathy may still play an important role in moral decisions when there are direct victims of transgressions. For instance, empathy is unlikely to predict moral judgments when there are victimless moral transgressions or when there are no salient victims (Prinz, 2011). But feeling empathic concern for victims of a transgression may help prevent harm to these people. For example, one might readily consider it inappropriate to steal money from the found wallet because one feels empathy for the owner of the wallet.

However, research has revealed inconsistencies in the association between empathy and moral judgments involving victims. Some studies have indeed shown correlations between empathy and moral judgments that involved transgressions with victims (e.g. stealing; Kalliopuska, 1983), while others have found no association (Lee & Prentice, 1988). These inconsistencies might result from the fact that empathy may affect only certain moral dilemmas. More specifically, empathy may play a particularly salient role in limiting *utilitarian moral*

reasoning, or choosing to harm one individual in order to save many individuals (Greene, Nystrom, Engell, Darley, & Cohen, 2004). Imagine that a trolley containing five people is heading for a broken track which will make it derail, killing all individuals aboard. The only way to save these five people is to kill a stranger by pushing him on the rails or by modifying the trajectory of the trolley so that it drives over a stranger lying on the rails (adapted from Thomson, 1986). The decision is difficult because one must decide whether to harm and kill one person in order to save five, either personally (i.e. by pushing the stranger), or impersonally (i.e. by pulling a lever to redirect the trolley; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Thomson, 1986). Although it is unclear whether responses to such hypothetical dilemmas correlate with real-world moral behaviors, it is still important to understand factors that influence people's moral reasoning – since milder and more realistic versions of ethical dilemmas are common.

Feeling empathy for the stranger who would be killed in order to save the others might make people less likely to harm this person, which would thus prevent saving more people. One study has examined how people who make utilitarian moral decisions are perceived by others in terms of their empathy levels (Uhlmann, Zhu, & Tannenbaum, 2013). Targets who choose to throw an injured man overboard in order to save a boat full of people from sinking are viewed as less empathic by raters than those who decide to not throw the injured man (thus causing the whole boat to sink, and all the people to die). Therefore, making 'utilitarian' moral decisions is perceived as an intrinsically low empathy response.

In another study, researchers assessed the relationship between trait empathic concern and responses to utilitarian moral dilemmas (Gleichgerricht & Young, 2013). Importantly, the authors distinguished between two kinds of dilemmas: more *personal* dilemmas (i.e. harming someone directly, such as pushing a stranger onto the rails in the trolley scenario) versus more *impersonal* dilemmas (i.e. harming someone in an indirect way, such as modifying the trolley's trajectory so that it ran over a stranger lying on the rails). More empathic concern was associated with less 'utilitarian' moral decisions in personal dilemmas only. In other words, high empathy people might not believe that one person should be sacrificed to promote the general good. Thus, this is a case where high empathy may be good for specific individuals at the expense of others. This inhibitory influence of empathy on personal 'utilitarian' moral decisions was replicated in another study using a different measure of trait empathy (Choe & Min, 2011). Yet another study that used virtual reality to increase the dramatic realism of these scenarios found that participants who responded with more autonomic arousal (perhaps an index of empathic arousal) were less likely to pull the switch that would cause the single individual to die, and the others to be saved (Navarrete, 2012). Taken together, higher empathic responses may result in less 'utilitarian' moral judgments (i.e., save as many people as possible), but especially when empathic people might be personally involved in causing someone's death (i.e., directly harming or killing one person).

The influence of empathic concern on moral decisions has also been supported among clinical populations. For instance, patients who have frontotemporal dementia (FTD), which is associated with deficits in empathic concern, are unable to rate the seriousness of moral transgressions (Lough et al., 2006), consistent with evidence for orbital-frontal involvement in FTD (Rosen et al., 2002). Furthermore, relative to patients with other dementing illnesses (e.g. Alzheimer's disease) and to healthy controls, patients with a frontotemporal dementia make more 'utilitarian' decisions in personal moral dilemmas (Mendez & Shapira, 2009). Other research finds that patients with lesions in the ventromedial prefrontal cortex, which is also

involved in empathic responses (Shamay-Tsoory, Tomer, Berger, & Aharon-Peretz, 2003), make more ‘utilitarian’ moral decisions than neurologically normal subjects (Koenigs et al., 2007; Moretto, Ladavas, Mattioli, & di Pellegrino, 2010).

Taken together, there is consistent evidence that inhibition of more ‘utilitarian’ personal moral decisions is at least in part driven by capacities for empathic concern. When one tends to generally feel empathic concern for people who might undergo intense suffering, one prefers not to personally cause the death of a single individual in order to save more people from death. This thus suggests that being empathic might make it less likely that people will serve the common interest by saving as many people as possible in these moral dilemma scenarios. While this may appear maladaptive, it underscores that empathy is a proximal and ‘short-range’ pro-social mechanism concerned with immediate suffering that is directly in front of someone, as opposed to hypothetical suffering that might happen ‘down the road’ in the context of a particular contingency (see discussion of this in chapter by Watt and Panksepp in this volume). Therefore, more empathic individuals might disagree with the assumption that “the ends justify the means.” They might also not believe that one person can be or should be sacrificed in order to promote the general good. Future studies should investigate whether responses to such dilemmas correspond with real-world prosocial behavior.

Other studies also suggest that the mandates of empathy sometimes contravene what we might conceptualize as ‘the common good.’ There are many situations when one’s empathy for a loved one might potentially conflict with one’s larger social responsibility. For example, “a father may resist contributing to public TV, not to buy himself a new shirt, but because he feels for his daughter, who wants new shoes” (Batson, et al., 2004, p 378). Or an aunt may be empathetically motivated to preferentially hire her less qualified nephew over a more qualified job candidate, and thus negatively impact her company’s bottom line. In addition, many occupations could be conceptualized as destructive to the environment or to notions of larger social benefit, but the motives for keeping those jobs may be in part empathic (e.g. to provide for one’s family). Indeed, two papers find that when people are assigned to empathize with specific targets, they preferentially allocate resources to this target at the expense of the larger group (Batson et al., 1999; Batson et al., 1995). In this regard, empathy can be viewed as potentially threatening to larger notions such as ‘the common good’ as much as frank egotism. And yet these studies also underscore the intrinsically ‘short-range’ and proximal focus and social attachment ‘base’ of empathy – that we will readily sacrifice a larger and more abstract social good in order to preserve our ‘home base.’ Appreciation of such intrinsic trade-offs may make the ‘costs’ or ‘downsides’ of empathy in these contexts appear less obviously maladaptive. Indeed from the perspective of what has been selected evolutionarily (see discussion of this in final section), preservation of the family, one’s small group, and the immediate social ‘home base’ has been clearly prioritized.

Clearly, there are intrinsic trade-offs in terms of our potential personal allegiances versus larger social needs, and yet empathy can also motivate a variety of larger pro-environmental attitudes and behaviors with clear implications for the long-term common good (Allen & Ferrand, 1999; Preylo & Arikawa, 2008; Sevillano, Aragonés, & Schultz, 2007; Shelton & Rogers, 1981; Taylor & Signal, 2005; Walker, Chapman, & Bricker, 2003). Moreover, low empathy traits such as narcissistic entitlement are associated with exploitative approaches to natural resources (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004). Given this, it is possible that empathy may sometimes promote and other times oppose what one may construe as

“the common good,” depending upon the target of empathy and other social contingencies. If individuals empathize with targets that represent the common good (e.g. animals, nature) then empathy might help to preserve it. But to the extent that they empathize with other more intimate conspecifics, they may allocate their limited resources toward these targets at the expense of the common good.

Research suggests that at times empathy can apparently contravene another basic moral principle: concepts of fairness or justice. For example, studies have found that participants who are induced to feel empathy for certain individuals (e.g. a terminally ill child) are more likely to unfairly allocate resources to this individual (e.g. move her off a waiting list and into immediate treatment, which means that others on the waiting list do not get the treatment they need; Batson, Klein, Highberger, & Shaw, 1995). This occurs even though participants readily admit that their actions are unfair. This demonstrates that at times, empathic feelings can motivate unfair partiality, and thus at times lead to behaviors that might clearly violate concepts of fairness and equal allocation of resources. This again underscores the proximal, short range and intimate/conspecific activation locus of empathy.

Aggression and prejudice. It is possible that empathy inhibits some types of aggression (see Part 1), but may accentuate others. High empathy may mitigate aggression in response to personal threats, but at the same time, it might accentuate aggression in response to threats to loved ones. This is a topic that has received virtually no research attention. Yet recent work on empathically motivated anger and punishment is an intriguing beginning (Haas, de Keijser, & Bruinsma, 2012; Vitaglione & Barnett, 2003). Moreover, there is a strong theoretical reason to predict that empathy might increase this type of protective aggression. Studies in non-human mammals have found that oxytocin, a bonding hormone, causes an increase in defensive maternal aggression (Campbell, 2008). One recent study found that breastfeeding human mothers exhibited higher aggression after provocation compared to bottle-feeding mothers and never-pregnant women (Hahn-Holbrook, Holt-Lunstad, Holbrook, Coyne, & Lawson, 2011). The specific role of empathy is unknown in this study, but future research can clarify whether people induced to feel empathy for others would act aggressively on their behalf in order to protect them from threat. This set of findings again confirms and is consistent with theoretical articulations of empathy as emerging from the mammalian affective prototype of maternal care and nurturance (Panksepp, 1998; Preston, 2013), and also consistent with empathy models coming from an affective neuroscience background (such as Watt, 2005, 2007). These models predict that empathy drives intensely protective behavior in relationship to relatively helpless infants and children, and that such protective behavior would be powerfully selected. Indeed, any species where infants are *both* relatively helpless and at the same time not powerful solicitors of protective responses from adult caretakers would likely quickly go extinct.

With respect to prejudice, when people are specifically instructed to empathize with out-group members, attitudes toward out-group members become more positive (see Part 1), yet empathy may not have a uniformly positive response on intergroup relations. Until recently, research on this topic has examined the effect of empathy outside of the context of actual intergroup social interactions. In contrast to abstract group rating tasks that do not involve expectations of social contact, intergroup interactions can evoke salient evaluative concerns, which are worries about how social interaction partners evaluate the self (Vorauer, Hunter, Main, & Roy, 2000; Vorauer, Main, & O'Connell, 1998). Of particular concern to many Caucasian

people is the concern that other-race social partners may see them as ‘racist’ (Vorauer, et al., 2000; Vorauer, et al., 1998). Therefore, it is important to examine the role of empathy in contexts whether there is anticipated or actual social contact and the potential for evaluation.

Research on this topic finds that efforts to empathize can have an ironic effect. When Caucasians try to take the perspective of other-race interaction partners, what they “see” through the other’s eyes is not always positive. Indeed several studies have shown that efforts to empathize (typically operationalized as perspective taking) may make Caucasians preoccupied with how others evaluate them and their group members (Lau, Falk, & Konrath, 2013; Vorauer & Sasaki, 2009, 2012). This makes them less likely to self-disclose (Lau, et al., 2013; Vorauer, Martens, & Sasaki, 2009), and even more so if they value being low in prejudice. In other words, being low in prejudice makes participants ironically less socially sensitive when they are asked to empathize with out-group targets, perhaps because their relatively progressive attitudes make them feel more complacent during these interactions (Vorauer, et al., 2009). Moreover, minority group social interaction partners report being less satisfied with social interactions after their Caucasian interaction partners are asked to empathize with them (Vorauer, et al., 2009). Taken together, it would be naïve to assume that empathy is always an inhibitor of aggression or always beneficial for intergroup relations. A deeper understanding of triggers of empathic aggression and problematic intergroup interactions is needed for both theoretical and practical reasons, and recent research suggests that harsh in-group out-group distinctions – potent variables in empathy induction and empathy inhibition – were selected to promote group cohesion (see extended discussion of this in chapter by Watt and Panksepp in this volume).

Part 3: Reconciling the Positive and Negative Aspects of Empathy– Even ‘Great Things’ Have a Cost?

From this review we can still conclude that the majority of research on empathy finds desirable correlates and outcomes. However, any theory of the origins of empathy needs to explain both the good and the bad (see Table 1 for a summary). We believe that the positives and negatives of empathy can best be understood within an evolutionary framework in which empathy evolved to enhance survival and reproduction – the central mechanism of all genetic selection. Many scholars see empathy as specifically originating in the parent-infant dyad, which then generalizes more broadly to other in-group members, then even broader still (Batson, et al., 2005; De Waal, 2008; McDougall, 1908; Panksepp, 1998; Preston, 2013; Sober & Wilson, 1998; Swain et al., 2012). “If mammalian parents were not intensely interested in the welfare of their young—so interested as to put up with endless hassles, exhaustion, and even risks to their personal safety—these species would quickly die out” (Batson, et al., 2005, p. 20).

Although the ultimate foundation of empathy and altruism extended to strangers may be parental caregiving, the proximal, or day-to-day mechanism is likely the enhancement of social stability and the promotion of deep emotional bonds, which are typically stronger for one’s own offspring and kin, but can be evoked by nearly anyone under the right circumstances. This is an old idea: “Tender emotion and the protective impulse are, no doubt, evoked more readily and intensely by one’s own offspring... but the distress of any child will evoke this response to a very intense degree in those in whom the instinct is strong... In a similar direct fashion the distress of any adult (towards whom we harbor no hostile sentiment) evokes the emotion” (McDougall, 1908, p. 72–74). These feelings of connection motivate us to suppress our own self-interest to

promote the well-being of others, and are facilitated by a number of neural and hormonal mechanisms that underlie both empathy and non-kin empathy and prosocial behavior – called the “caregiving system” (Brown, Brown, & Preston, 2012; Preston, 2013), and also the system for maternal nurturance/care (Panksepp, 1998). For example, there is evidence that certain brain areas (e.g. the anterior insula) and various peptide hormones (e.g. oxytocin, opioids, and prolactin) are implicated in both parenting and empathically-driven prosocial responses (Swain, et al., 2012; For a more detailed summary of neurological perspectives on empathy, see chapter by Watt and Panksepp in this volume).

Explaining the positives of empathy.

We reviewed evidence that empathy motivates more sensitive parenting, and also more sensitive and effective caring within the helping professions. Beyond this, empathy increases the likelihood that individuals will help those who are in need, and decreases the likelihood of certain types of aggressive responses. It helps people to see others, including those who are not part of their group, in a more positive light. Each of these findings could stem from the ‘parental instinct’ and emotional systems originally selected for maternal care being generalized to any needy or vulnerable target within reach, as argued by a number of theorists (McDougall, 1908; Panksepp, 1998; Preston, 2013; Swain, et al., 2012). When specifically considering the parental context, it is difficult to come up with any way in which increased empathy might be harmful to one’s own offspring, and easy to imagine how low empathy can decrease the probability of the offspring’s survival. If empathically driven aggression exists, it likely emerges from the obvious need for parents to protect their offspring from predators and would be highly selected. The more empathic these parents are, the more likely they should be to defend their child. Similar reasoning could apply to most of the positives associated with empathy.

What about the potential that empathy can help to promote optimal mental and physical health outcomes? More experimental evidence is needed to verify the causal role of empathy in creating such benefits, yet there are theoretical reasons to predict such outcomes in many circumstances, based on the caregiving system model. Parental behavior involves both approaching distressed offspring while simultaneously regulating one’s own personal distress responses (Swain, et al., 2012). Clearly the caretaker cannot be flooded and immobilized by their own distress, but if a parent is not distressed by a significant injury to a child that would actually predict a relative *absence* of empathy, not its presence. Indeed intimately tied to effective parenting responses are a cascade of neurophysiological signals that help dampen stress responses (S. Brown, et al., 2012). For example, oxytocin is a hormone that is best known for its role in reproductive behaviors. It is released during childbirth, breastfeeding, sexual activity, and maternal caregiving behaviors (Carter, 1992, 1998). It has been shown to simultaneously increase prosocial behaviors and inhibit stress responses such as cardiovascular reactivity and cortisol surges (Bartz et al., 2010; Cardoso, Ellenbogen, Orlando, Bacon, & Joerber, 2012; Domes et al., 2007; Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005; Kubzansky, Mendes, Appleton, Block, & Adler, 2012; Uvnäs-Moberg, 1998; Zak, Kurzban, & Matzner, 2004; Zak, Stanton, & Ahmadi, 2007). Oxytocin also promotes positive physical health outcomes (e.g. inhibiting inflammation, while promoting wound healing; Clodi et al., 2008; Gouin et al., 2010). Taken together, oxytocin is one potential neurophysiological mechanism of empathic responses,

and a potential contributor to how empathy might have salubrious effects on general health, although this has been minimally studied (Barraza et al., 2013).

Explaining the ‘negatives’ of empathy. Perhaps one overall perspective on the apparent negatives of empathy is simply that there is no ‘free lunch’ so to speak, and that selection effects upon behavioral mechanisms always reflect a prioritizing of certain needs over others – a prioritizing that may be highly protective overall but may have downsides and adaptive costs in some specific contexts. We reviewed evidence that empathy can negatively affect relationship satisfaction in high threat contexts, can make people act in accordance with undesirable targets of empathy, can be biased and suffer from partiality, can negatively affect some types of moral reasoning, and may at times lead to compassion fatigue. In terms of it being associated with poorer relationship outcomes in higher-threat relationships, it might be a good thing for empathy to function as a double-edged sword. Being able to accurately infer what one’s partner is thinking can serve to maintain relationships that are positive, and end relationships that are more negative. This may facilitate caregiving behaviors from relatively stable and happy caregivers, by encouraging the less stable and less happy among them to find greener pastures.

How do we potentially reconcile findings around empathizing with ‘bad’ targets (antisocial actors)? People tend to naturally empathize with “moral” people. This is likely an evolved mechanism designed to protect us from exploitation and to protect others from copycat bad behaviors. But there are times that we may identify with ‘bad’ antisocial parties – and those times can be problematic, both in terms of making it more likely that we will foolishly cooperate with untrustworthy or dangerous others, but also that we may become more like them than we ultimately might want to. Our capacity to empathize does not seem to have strict limits or absolute boundaries, which is desirable in terms of widening our circles of compassion to include more and more people, but possibly problematic in terms of the potential practical effects of empathizing with undesirable others. Imagine for a moment an extreme case of a Jewish person empathizing with Hitler’s sense of an aggrieved and devalued Germany in the 1930s. This would be hazardous, to say the least, and might inhibit a healthy sense of self protection and mistrust of Hitler’s aims. This chapter cannot fully resolve the tension between the two poles – that we are able to empathize freely with anyone, but that it may not be advisable in all circumstances – but it just points out that these issues need to be addressed within evolutionary/biologically based models of empathy (see chapter by Watt and Panksepp in this volume).

Evolutionary models of empathy do illuminate empathy’s tendency to be biased, partial, and morally problematic at times. Infants are needy, cute, and easily distressed: they are masters at ‘pushing our empathy buttons.’ But so can any needy person (and any manipulative person who knows how to ‘push empathy buttons’). And so can any cute, infant-like person or animal. And by definition, members of our in-group are more similar to ourselves than out-group members. But that does not mean that it is impossible to empathize with less appealing others, or people on the other side of the world who might initially seem so different from us. Empathy may have evolved because more attuned mothers had infants who were more likely to survive and reproduce, but clearly its pro-survival comforts can readily be applied to anyone. We also need to be more aware of the variables modulating empathy if we want to know where barriers to empathy may lie.

Parental responses to infants are necessarily biased and partial. Most parents would never sacrifice their own child to save five other people, as in the classic ‘utilitarian’ moral dilemma.

And parents devote so much time and energy into their children that is clearly at the expense of many other needy children. It is likely that if parents of a sick child were allowed to choose whether their child should be pushed higher on a waiting list, they would not feel too conflicted about the other children who would be pushed lower on the list as a result. Successful parenting requires a level of dedication and commitment that has made some theorists aptly compare healthy parental behaviors to obsessive-compulsive disorder symptoms (Swain, Lorberbaum, Kose, & Strathearn, 2007). Committed parental care was likely selected by a dangerous early evolutionary environment in which extremely sensitive parents had offspring with greater odds of survival – and evidence suggests also that this appeared well prior to the emergence of primate and our own hominid lines, clearly being a shared feature of our mammalian heritage (Panksepp, 1998). So, if empathy indeed evolved from parental caregiving behaviors, many of its negative attributes are perhaps less surprising.

The capacity for empathy also clearly contributes to the risk of compassion fatigue and burnout. Evidence is still needed to better understand the specific and causal role of empathy, but it is possible that in cases where parents give more than their resources allow, this could be dangerous. If a parent has only one piece of bread to eat, many would instinctively give the bigger half to his or her child. There is a reason why airlines have to remind us to “put on your own air mask first.” Within the evolutionary context, giving the child the larger portion in a scarce environment is giving the child a chance to survive and then later reproduce, even if one decreases one’s own chance of survival, yet with young children or infants, the death of a parent poses grave risks to the survival of any offspring. This suggests caution about uncritically embracing notions of ‘selfish genes’ (Dawkins, 1976), since powerful emotional bonds to offspring may motivate us to sacrifice ourselves to attempt to preserve loved and valued others. But as the air mask example suggests, it is possible for both parent and child to die if parents ignore their own fundamental needs. Thus, ideally parenting optimizes the resources between the parent and child, with a tendency to give a little more to the child if resources are scarce. To the extent that compassion fatigue and burnout are intrinsic vulnerabilities of empathy, the risk for this emerges in more extreme contexts, particularly where empathic responses yield little improvement in suffering. More research is clearly needed to understand the boundaries and limits of optimal empathy for one’s own well-being as well as empathy's costs.

Concluding remarks.

To our knowledge, this is one of the most comprehensive reviews to date on the potential liabilities associated with empathy (and we also refer readers to the excellent reviews of Batson, 2011; Batson, et al., 2004). Overall, we would situate this review within an evolutionary/biological framework that may help to reconcile some apparently contradictory results. Empathy is nearly always a desirable attribute in relationship to our loved ones and other social interaction partners, but it comes with a few ‘thorns’ that need to be reconciled with its otherwise highly adaptive nature. Roses have thorns because thorns were protective and perpetuated their survival, and the adaptive costs and downsides of empathy are likely explained in a similar way. An awareness of the limits of empathy can help us to better regulate it and ourselves to mitigate its costs and enhance its benefits.

Table 1. Summary of the positive and negative correlates of empathy

	Positive	Negative
INTERPERSONAL		
Prosocial behavior	Evidence that empathy inductions increase altruistic motivation to help strangers and cooperate, even under duress.	Evidence that empathizing with undesirable targets makes people act in accordance with them, which at times can reduce prosocial behavior.
Close relationships	High empathy is associated with more sensitive parenting, and more relationship satisfaction in romantic relationships. Experimental evidence needed.*	In high-threat contexts, empathy is associated with less relationship satisfaction. Experimental evidence needed.*
Professional contexts	High teacher, doctor, and therapist empathy is associated with better outcomes for students and patients, respectively. Experimental evidence needed.*	Need more research on potential negative consequences of teacher, doctor, and therapist empathy for student and patient outcomes.
Aggression	Some evidence that empathy associated with less aggressive traits and behaviors, such as aggression in response to personal threats or aggression directed toward vulnerable targets.	The possibility that empathy might be associated with increases in other types of aggression, such as aggression in response to threats to loved ones, has not adequately been explored in the literature.
Prejudice	Empathy inductions improve attitudes, feelings, and prosocial behaviors toward stigmatized groups.	People are naturally more likely to empathize with in-group members and close others. Empathy inductions increase evaluative concerns during actual intergroup social interactions, thereby reducing self-disclosure and increasing the awkwardness of the interactions.
Moral reasoning	Weak or non-existent evidence that empathy can improve moral reasoning, although that depends upon the definition of moral. For example is it moral to kill one person to save more people (i.e. to be utilitarian)? Also, prosocial behavior is morally desirable.	It is possible to empathize and identify with immoral others, which may impact moral reasoning. High empathy people make less utilitarian moral judgments (e.g. are more likely to save a single individual at the expense of a group of individuals). Empathy inductions for intimates and other conspecifics also lead to unfair preferential treatment of specific individuals at the expense of others.
INTRAPERSONAL		
Psychological disorders	Low empathy is a feature of some psychological disorders (e.g. Narcissistic Personality Inventory, Antisocial Personality Disorder, Autism Spectrum Disorders). This indicates that high empathy may be protective from such disorders.	Excessive empathic concern and unregulated emotional contagion is a feature of some psychological disorders (e.g. Williams Syndrome).
Psychological well-being	Higher psychological well-being among people with higher empathy and related traits and behaviors. Additional evidence needed.*	Weak evidence that empathizing is associated with poor psychological well-being. Experimental evidence needed.*
Physical health	At times improved physiological and physical indicators of health for people with higher empathy and related traits and behaviors. Experimental evidence needed.*	Empathic people experience physiological resonance with others' experiences, which can be bad if exposed to others' stresses. However, experimental research is needed.*

*Indicates that experimental evidence is rare. Most studies are correlational so far.

References

- Adams, A. (2010). *The relationship among illness representations, risk representations, empathy, and preventive health behaviors*. Marywood University.
- Adams, R. E., Boscarino, J. A., & Figley, C. R. (2006). Compassion fatigue and psychological distress among social workers: A validation study. *American Journal of Orthopsychiatry*, 76(1), 103-108.
- Aderman, D., Brehm, S. S., & Katz, L. B. (1974). Empathic observation of an innocent victim: The just world revisited.
- Aknin, L., Barrington-Leigh, C. P., Dunn, E. W., Helliwell, J. F., Biswas-Diener, R., Kemeza, I., et al. (2013). Prosocial Spending and Well-Being: Cross-Cultural Evidence for a Psychological Universal. *Journal of Personality and Social Psychology*, 104(4), 635-652.
- Allen, J. B., & Ferrand, J. L. (1999). Environmental Locus of Control, Sympathy, and Proenvironmental Behavior A Test of Geller's Actively Caring Hypothesis. *Environment and behavior*, 31(3), 338-353.
- APA. (2000). *Diagnostic and statistical manual of mental disorders*. 4th edition, TR; Washington, DC.
- Armstrong, G. S., & Griffin, M. L. (2004). Does the job matter? Comparing correlates of stress among treatment and correctional staff in prisons. *Journal of Criminal Justice*, 32(6), 577-592.
- Aspy, D. N., & Roebuck, F. N. (1972). An investigation of the relationship between student levels of cognitive functioning and the teacher's classroom behavior. *The Journal of Educational Research*, 365-368.
- Au, A. M. L., Wong, A. S. K., Lai, M. K., & Chan, C. C. H. (2011). Empathy, coping, social support, and mental health in local and migrant adolescents in Beijing. *International Journal on Disability and Human Development*, 10(3), 173-178.
- Baird, S., & Jenkins, S. R. (2003). Vicarious traumatization, secondary traumatic stress, and burnout in sexual assault and domestic violence agency staff. *Violence and Victims*, 18(1), 71-86.
- Barkai, J., & Fine, V. (1983). Empathy training for lawyers and students. *Southwestern University Law Review*, 13, 505-529.
- Barraza, J. A., Grewal, N. S., Ropacki, S., Perez, P., Gonzalez, A., & Zak, P. J. (2013). Effects of a 10-day oxytocin trial in older adults on health and well-being. *Experimental and clinical psychopharmacology*, 21(2), 85.
- Barraza, J. A., & Zak, P. J. (2009). Empathy toward strangers triggers oxytocin release and subsequent generosity. *Ann N Y Acad Sci*, 1167, 182-189.
- Bartels, D. M., & Pizarro, D. A. (2011). The mismeasure of morals: antisocial personality traits predict utilitarian responses to moral dilemmas. *Cognition*, 121(1), 154-161.
- Bartz, J., Zaki, J., Bolger, N., Hollander, E., Ludwig, N. N., Kolevzon, A., et al. (2010). Oxytocin selectively improves empathic accuracy. *Psychological Science*, 21(10), 1426-1428.
- Batson, C. D. (1990). Self-report ratings of empathic emotion. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 356-360). New York: Cambridge University Press.
- Batson, C. D. (2011). *Altruism in humans*: Oxford University Press.

- Batson, C. D., & Ahmad, N. (2001). Empathy-induced altruism in a prisoner's dilemma II: what if the target of empathy has defected? *European Journal of Social Psychology*, 31(1), 25-36.
- Batson, C. D., Ahmad, N., & Stocks, E. (2004). Benefits and liabilities of empathy-induced altruism. *The social psychology of good and evil*, 359-385.
- Batson, C. D., Ahmad, N., Yin, J., Bedell, S. J., Johnson, J. W., & Templin, C. M. (1999). Two threats to the common good: Self-interested egoism and empathy-induced altruism. *Personality and Social Psychology Bulletin*, 25(1), 3-16.
- Batson, C. D., Batson, J. G., Todd, R. M., Brummett, B. H., Shaw, L. L., & Aldeguer, C. M. (1995). Empathy and the collective good: Caring for one of the others in a social dilemma. *Journal of Personality and Social Psychology*, 68(4), 619.
- Batson, C. D., Bolen, M. H., Cross, J. A., & Neuringer-Benefiel, H. E. (1986). Where is the Altruism in the Altruistic Personality? *Journal of Personality and Social Psychology*, 50(1), 212.
- Batson, C. D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, Attitudes, and Action: Can Feeling for a Member of a Stigmatized Group Motivate One to Help the Group? *Personality and Social Psychology Bulletin*, 28(12), 1656-1666.
- Batson, C. D., Dyck, J. L., Brandt, J. R., Batson, J. G., Powell, A. L., McMaster, M. R., et al. (1988). Five studies testing two new egoistic alternatives to the empathy-altruism hypothesis. *Journal of Personality and Social Psychology*, 55(1), 52.
- Batson, C. D., Early, S., & Salvarani, G. (1997). Perspective taking: Imagining how another feels versus imagining how you would feel. *Personality and Social Psychology Bulletin*, 23(7), 751-758.
- Batson, C. D., Fultz, J., & Schoenrade, P. A. (1987). Distress and empathy: Two qualitatively distinct vicarious emotions with different motivational consequences. *Journal of Personality*, 55(1), 19-39.
- Batson, C. D., Klein, T. R., Highberger, L., & Shaw, L. L. (1995). Immorality from empathy-induced altruism: When compassion and justice conflict. *Journal of Personality and Social Psychology*, 68(6), 1042.
- Batson, C. D., Lishner, D. A., Cook, J., & Sawyer, S. (2005). Similarity and nurturance: Two possible sources of empathy for strangers. *Basic and Applied Social Psychology*, 27(1), 15-25.
- Batson, C. D., & Moran, T. (1999). Empathy-induced altruism in a prisoner's dilemma. *European Journal of Social Psychology*, 29(7), 909-924.
- Batson, C. D., Polycarpou, M. P., Harmon-Jones, E., Imhoff, H. J., Mitchener, E. C., Bednar, L. L., et al. (1997). Empathy and attitudes: Can feeling for a member of a stigmatized group improve feelings toward the group? *Journal of Personality and Social Psychology*, 72(1), 105.
- Batson, C. D., Sager, K., Garst, E., Kang, M., Rubchinsky, K., & Dawson, K. (1997). Is empathy-induced helping due to self-other merging? *Journal of Personality and Social Psychology*, 73, 495-509.
- Batson, C. D., Turk, C. L., Shaw, L. L., & Klein, T. R. (1995). Information function of empathic emotion: Learning that we value the other's welfare. *Journal of Personality and Social Psychology*, 68(2), 300.

- Batson, C. D., & Weeks, J. L. (1996). Mood effects of unsuccessful helping: Another test of the empathy-altruism hypothesis. *Personality and Social Psychology Bulletin*, 22(2), 148-157.
- Beck, R. S., Daughtridge, R., & Sloane, P. D. (2002). Physician-patient communication in the primary care office: a systematic review. *The Journal of the American Board of Family Practice*, 15(1), 25-38.
- Beeney, J. E., Franklin Jr, R. G., Levy, K. N., & Adams Jr, R. B. (2011). I feel your pain: emotional closeness modulates neural responses to empathically experienced rejection. *Social Neuroscience*, 6(4), 369-376.
- Bellugi, U., Lichtenberger, L., Mills, D., Galaburda, A., & Korenberg, J. R. (1999). Bridging cognition, the brain and molecular genetics: evidence from Williams syndrome. *Trends Neurosci*, 22(5), 197-207.
- Bennett, S., Plint, A., & Clifford, T. (2005). Burnout, psychological morbidity, job satisfaction, and stress: a survey of Canadian hospital based child protection professionals. *Archives of disease in childhood*, 90(11), 1112-1116.
- Berthoz, S., Wessa, M., Kedia, G., Wicker, B., & Grezes, J. (2008). Cross-cultural validation of the empathy quotient in a French-speaking sample. *Canadian Journal of Psychiatry*, 53(7), 469-477.
- Blair, R. J. (1995). A cognitive developmental approach to mortality: investigating the psychopath. *Cognition*, 57(1), 1-29.
- Blair, R. J. R. (1999). Responsiveness to distress cues in the child with psychopathic tendencies. *Personality and Individual Differences*, 27(1), 135-145.
- Bloom, P. (2013, May 20). The baby in the well: The case against empathy. *The New Yorker*
- Bons, D., van den Broek, E., Scheepers, F., Herpers, P., Rommelse, N., & Buitelaar, J. K. (2013). Motor, Emotional, and Cognitive Empathy in Children and Adolescents with Autism Spectrum Disorder and Conduct Disorder. *Journal of abnormal child psychology*, 1-19.
- Borke, H. (1971). Interpersonal Perception of Young Children: Egocentrism or Empathy? *Developmental Psychology*, 5(2), 263-269.
- Brady, P., & Growette-Bostaph, L. (2012). *Direct or Indirect, It's Still Trauma!* Examining the prevalence of compassion fatigue, burnout and self-care practices among Internet crimes against children task force members and forensic interviewers. Paper presented at the International Family Violence & Child Victimization Conference.
- Brent, E., Rios, P., Happe, F., & Charman, T. (2004). Performance of children with autism spectrum disorder on advanced theory of mind tasks. *Autism*, 8(3), 283-299.
- Bride, B. E. (2007). Prevalence of secondary traumatic stress among social workers. *Social Work*, 52(1), 63-70.
- Brough, P., & Frame, R. (2004). Predicting police job satisfaction and turnover intentions: The role of social support and police organisational variables. *New Zealand Journal of Psychology*, 33(1), 8-18.
- Brown, S., Brown, R., & Preston, S. (2012). The human caregiving system: a neuroscience model of compassionate motivation and behavior. *Moving beyond self interest*, 75-88.
- Brown, S., Brown, R. M., House, J. S., & Smith, D. M. (2008). Coping With Spousal Loss: Potential Buffering Effects of Self-Reported Helping Behavior. *Personality and Social Psychology Bulletin*, 34(6), 849-861.

- Brown, S., Konrath, S., Seng, J., & Smith, D. (2011). Measuring Oxytocin and Progesterone (Compassion Hormones) in a Laboratory vs Ecological Setting and Results from Recent Studies. *The Neuroscience of Compassion Conference, Stony Brook University Medical Center*(Stony Brook, NY).
- Brown, S., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: results from a prospective study of mortality. *Psychological Science, 14*(4), 320-327.
- Brown, S. L., Brown, R. M., & Penner, L. A. (2011). *Moving beyond self-interest: Perspectives from evolutionary biology, neuroscience, and the social sciences*: Oxford University Press.
- Brown, W. M., Consedine, N. S., & Magai, C. (2005). Altruism Relates to Health in an Ethnically Diverse Sample of Older Adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 60*(3), P143-P152.
- Bryant, B. K. (1982). An index of empathy for children and adolescents. *Child Development, 4*13-425.
- Buchanan, T. W., Bagley, S. L., Stansfield, R. B., & Preston, S. D. (2012). The empathic, physiological resonance of stress. *Social Neuroscience, 7*(2), 191-201.
- Burtson, P. L., & Stichler, J. F. (2010). Nursing work environment and nurse caring: relationship among motivational factors. *Journal of Advanced Nursing, 66*(8), 1819-1831.
- Bushman, B. J., & Baumeister, R. F. (1998). Threatened Egotism, Narcissism, Self-Esteem, and Direct and Displaced Aggression: Does Self-Love or Self-Hate Lead to Violence? *Journal of Personality and Social Psychology, 75*(1), 219-229.
- Buunk, B. P., Doosje, B. J., Jans, L. G. J. M., & Hopstaken, L. E. M. (1993). Perceived Reciprocity, Social Support, and Stress at Work: The Role of Exchange and Communal Orientation. *Journal of Personality and Social Psychology, 65*(4), 801-811.
- Campbell, A. (2008). Attachment, aggression and affiliation: the role of oxytocin in female social behavior. *Biological psychology, 77*(1), 1-10.
- Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. J. (2004). Psychological Entitlement: Interpersonal Consequences and Validation of a Self-Report Measure. *Journal of Personality Assessment, 83*(1), 29-45.
- Cardoso, C., Ellenbogen, M. A., Orlando, M. A., Bacon, S. L., & Joobar, R. (2012). Intranasal oxytocin attenuates the cortisol response to physical stress: A dose–response study. *Psychoneuroendocrinology*.
- Carter, C. S. (1992). Oxytocin and sexual behavior. *Neuroscience & Biobehavioral Reviews, 16*(2), 131-144.
- Carter, C. S. (1998). Neuroendocrine perspectives on social attachment and love. *Psychoneuroendocrinology, 23*, 779-818.
- Castelli, F., Frith, C., Happe, F., & Frith, U. (2002). Autism, Asperger syndrome and brain mechanisms for the attribution of mental states to animated shapes. *Brain, 125*, 1839-1849.
- Chang, A. F., Berger, S. E., & Chang, B. (1981). The relationship of student self-esteem and teacher empathy to classroom learning. *Psychology: A Journal of Human Behavior*.
- Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception–behavior link and social interaction. *Journal of Personality and Social Psychology, 76*(6), 893.

- Choe, S., & Min, K. H. (2011). Who makes utilitarian judgments? The influences of emotions on utilitarian judgments. *Judgment and Decision Making*, 6(7), 580-592.
- Choe, S. Y., & Min, K.-H. (2011). How makes utilitarian judgments? The influence of emotions on utilitarian judgments. *Judgment and Decision Making*, 6(7), 580-592.
- Choi, G. Y. (2011). Organizational Impacts on the Secondary Traumatic Stress of Social Workers Assisting Family Violence or Sexual Assault Survivors. *Administration in Social Work*, 35(3), 225-242.
- Cialdini, R. B., Brown, S. L., Lewis, B. P., Luce, C., & Neuberg, S. L. (1997). Reinterpreting the Empathy-Altruism Relationship: When One Into One Equals Oneness. *Journal of Personality and Social Psychology*, 73(3), 481-494.
- Clodi, M., Vila, G., Geyeregger, R., Riedl, M., Stulnig, T. M., Struck, J., et al. (2008). Oxytocin alleviates the neuroendocrine and cytokine response to bacterial endotoxin in healthy men. *American Journal of Physiology-Endocrinology And Metabolism*, 295(3), E686-E691.
- Clore, G. L., & Jeffery, K. M. (1972). Emotional role playing, attitude change, and attraction toward a disabled person. *Journal of Personality and Social Psychology*, 23(1), 105.
- Coffman, S. L. (1981). Empathy as a relevant instructor variable in the experiential classroom. *Group & Organization Management*, 6(1), 114-120.
- Cohen, T. R., & Insko, C. A. (2008). War and peace: Possible approaches to reducing intergroup conflict. *Perspectives on Psychological Science*, 3(2), 87-93.
- Conrad, D., & Kellar-Guenther, Y. (2006). Compassion fatigue, burnout, and compassion satisfaction among Colorado child protection workers. *Child abuse & neglect*, 30(10), 1071-1080.
- Cosley, B. J., McCoy, S. K., Saslow, L. R., & Epel, E. S. (2010). Is compassion for others stress buffering? Consequences of compassion and social support for physiological reactivity to stress. *Journal of Experimental Social Psychology*, 46(5), 816-823.
- Critchley, H. D., Elliott, R., Mathias, C. J., & Dolan, R. J. (2000). Neural activity relating to generation and representation of galvanic skin conductance responses: a functional magnetic resonance imaging study. *J Neurosci*, 20(10751455), 3033-3040.
- Crocker, J., & Canevello, A. (2008). Creating and undermining social support in communal relationships: The role of compassionate and self-image goals. *Journal of Personality and Social Psychology*, 95(3), 555-575.
- Crockett, M. J. (2009). The neurochemistry of fairness: clarifying the link between serotonin and prosocial behavior. *Ann N Y Acad Sci*, 1167, 76-86.
- Crockett, M. J., Clark, L., Hauser, M. D., & Robbins, T. W. (2010). Serotonin selectively influences moral judgment and behavior through effects on harm aversion. *Proc Natl Acad Sci U S A*, 107(40), 17433-17438.
- Davis, M. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113-126.
- Dawkins, R. (1976). *The selfish gene*: Oxford University Press
- De Jong Giefveld, J., & Dykstra, P. (2008). Virtue is its own reward? Support-giving in the family and loneliness in middle and old age. *Ageing & Society*, 28(02), 271-287.
- De Waal, F. B. (2008). Putting the altruism back into altruism: the evolution of empathy. *Annu. Rev. Psychol.*, 59, 279-300.

- Decety, J., & Lamm, C. (2006). Human empathy through the lens of social neuroscience. *The Scientific World Journal*, 6, 1146-1163.
- Derksen, F., Bensing, J., & Lagro-Janssen, A. (2013). Effectiveness of empathy in general practice: a systematic review. *British Journal of General Practice*, 63(606), e76-e84.
- Deutsch, F., & Madle, R. A. (2009). Empathy: Historic and current conceptualizations, measurement, and a cognitive theoretical perspective. *Human development*, 18(4), 267-287.
- Diamond, L. M., Fagundes, C. P., & Butterworth, M. R. (2012). Attachment Style, Vagal Tone, and Empathy During Mother–Adolescent Interactions. *Journal of Research on Adolescence*, 22(1), 165-184.
- Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: a theoretical integration and synthesis of laboratory research. *Psychol Bull*, 130(3), 355-391.
- Dillon, M., & Wink, P. (2007). *In the course of a lifetime: Tracing religious belief, practice, and change* Berkeley and Los Angeles, California: University of California Press.
- Domes, G., Heinrichs, M., Glascher, J., Buchel, C., Braus, D. F., & Herpertz, S. C. (2007). Oxytocin attenuates amygdala responses to emotional faces regardless of valence. *Biological Psychiatry*, 62(10), 1187-1190.
- Dovidio, J. F., ten Vergert, M., Stewart, T. L., Gaertner, S. L., Johnson, J. D., Esses, V. M., et al. (2004). Perspective and Prejudice: Antecedents and Mediating Mechanisms. *Personality and Social Psychology Bulletin*, 30(12), 1537-1549.
- Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). Spending Money on Others Promotes Happiness. *Science*, 319(5870), 1687-1688.
- Dykens, E. M., & Rosner, B. A. (1999). Refining behavioral phenotypes: personality-motivation in Williams and Prader-Willi syndromes. *Am J Ment Retard*, 104(2), 158-169.
- Dyrbye, L. N., Massie, F. S., Eacker, A., Harper, W., Power, D., Durning, S. J., et al. (2010). Relationship Between Burnout and Professional Conduct and Attitudes Among US Medical Students. *JAMA: The Journal of the American Medical Association*, 304(11), 1173-1180.
- Eagly, A. H., & Crowley, M. (1986). Gender and helping behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, 100(3), 283.
- Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin*, 101(1), 91.
- Eliasz, H. (1980). The effect of empathy, reactivity, and anxiety on interpersonal aggression intensity. *Polish Psychological Bulletin*.
- Feeney, B. C., & Collins, N. L. (2001). Predictors of caregiving in adult intimate relationships: An attachment theoretical perspective. *Journal of Personality and Social Psychology*, 80(6), 972-994.
- Feshbach, N. (1990). Parental empathy and child adjustment/maladjustment. *Empathy and its development*, 271-291.
- Feshbach, N., & Roe, K. (1968). Empathy in six-and seven-year-olds. *Child Development*, 133-145.
- Fidler, D. J., Hepburn, S. L., Most, D. E., Philofsky, A., & Rogers, S. J. (2007). Emotional responsivity in young children with Williams syndrome. *Am J Ment Retard*, 112(3), 194-206.

- Field, T. M., Hernandez-Reif, M., Quintino, O., Schanberg, S., & Kuhn, C. (1998). Elder Retired Volunteers Benefit From Giving Massage Therapy to Infants. *Journal of Applied Gerontology, 17*(2), 229-239.
- Fielding, N., & Fielding, J. (1987). A study of resignation during British police training. *Journal of Police Science & Administration.*
- Figley, C. (1995). *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized*. Philadelphia, PA: Brunner / Mazel, Inc.
- Fincham, F. D., Paleari, F., & Regalia, C. (2002). Forgiveness in marriage: The role of relationship quality, attributions, and empathy. *Personal Relationships, 9*(1), 27-37.
- Finlay, K. A., & Stephan, W. G. (2000). Improving Intergroup Relations: The Effects of Empathy on Racial Attitudes1. *Journal of Applied Social Psychology, 30*(8), 1720-1737.
- Franzoi, S. L., Davis, M. H., & Young, R. D. (1985). The effects of private self-consciousness and perspective taking on satisfaction in close relationships. *Journal of Personality and Social Psychology, 48*(6), 1584.
- Fried, L., Carlson, M., Freedman, M., Frick, K., Glass, T., Hill, J., et al. (2004). A social model for health promotion for an aging population: Initial evidence on the experience corps model. *Journal of Urban Health, 81*(1), 64-78.
- Frith, U. (1989). *Autism: Explaining the enigma*. Oxford, England: Basil Blackwell.
- Frith, U. (2001). Mind blindness and the brain in autism. *Neuron, 32*(6), 969-979.
- Fujiwara, T. (2009). Is Altruistic Behavior Associated with Major Depression Onset? *PLoS ONE, 4*(2), e4557.
- Gagliardi, C., Frigerio, E., Burt, D. M., Cazzaniga, I., Perrett, D. I., & Borgatti, R. (2003). Facial expression recognition in Williams syndrome. *Neuropsychologia, 41*(6), 733-738.
- Galinsky, A. D., Maddux, W. W., Gilin, D., & White, J. B. (2008). Why It Pays to Get Inside the Head of Your Opponent The Differential Effects of Perspective Taking and Empathy in Negotiations. *Psychological Science, 19*(4), 378-384.
- Galinsky, A. D., & Moskowitz, G. B. (2000). Perspective-taking: decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology, 78*(4), 708.
- Gershon, R. R. M., Barocas, B., Canton, A. N., Li, X., & Vlahov, D. (2009). Mental, physical, and behavioral outcomes associated with perceived work stress in police officers. *Criminal Justice and Behavior, 36*(3), 275-289.
- Gino, F., & Galinsky, A. D. (2012). Vicarious Dishonesty: When Psychological Closeness Creates Distance from One's Moral Compass. *Organizational Behavior and Human Decision Processes, 119*, 15-26.
- Gleason, M. E. J., Iida, M., Bolger, N., & Shrout, P. E. (2003). Daily Supportive Equity in Close Relationships. *Personality and Social Psychology Bulletin, 29*(8), 1036-1045.
- Gleichgerrcht, E., & Decety, J. (2013). Empathy in Clinical Practice: How Individual Dispositions, Gender, and Experience Moderate Empathic Concern, Burnout, and Emotional Distress in Physicians. *PLoS ONE, 8*(4), e61526.
- Gleichgerrcht, E., & Young, L. (2013). Low Levels of Empathic Concern Predict Utilitarian Moral Judgment. *PLoS ONE, 8*(4), e60418.
- Gosch, A., & Pankau, R. (1994). Social-emotional and behavioral adjustment in children with Williams-Beuren syndrome. *Am J Med Genet, 53*(4), 335-339.

- Gouin, J. P., Carter, C. S., Pournajafi-Nazarloo, H., Glaser, R., Malarkey, W. B., Loving, T. J., et al. (2010). Marital behavior, oxytocin, vasopressin, and wound healing. *Psychoneuroendocrinology*, *35*(7), 1082-1090.
- Greene, J., Nystrom, L. E., Engell, A. D., Darley, J. M., & Cohen, J. D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron*, *44*(2), 389-400.
- Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*, *293*(5537), 2105-2108.
- Haas, N. E., de Keijser, J. W., & Bruinsma, G. J. (2012). Public support for vigilantism: an experimental study. *Journal of Experimental Criminology*, *8*(4), 387-413.
- Hahn-Holbrook, J., Holt-Lunstad, J., Holbrook, C., Coyne, S. M., & Lawson, E. T. (2011). Maternal Defense Breast Feeding Increases Aggression by Reducing Stress. *Psychological Science*, *22*(10), 1288-1295.
- Hamilton, A. F. D. (2009). Research review: Goals, intentions and mental states: challenges for theories of autism. *Journal of Child Psychology and Psychiatry*, *50*(8), 881-892.
- Happ, C., Melzer, A., & Steffgen, G. (2011). *Bringing Empathy into Play: On the Effects of Empathy in Violent and Nonviolent Video Games*. Paper presented at the ICEC 2011.
- Happ, C., Melzer, A., & Steffgen, G. (2013). Superman vs. BAD Man? The Effects of Empathy and Game Character in Violent Video Games. *Cyberpsychol Behav Soc Netw*.
- Hare, R. D. (1999). *The Hare Psychopathy Checklist-Revised: PLC-R*: MHS, Multi-Health Systems.
- Harmon-Jones, E., Vaughn-Scott, K., Mohr, S., Sigelman, J., & Harmon-Jones, C. (2004). The effect of manipulated sympathy and anger on left and right frontal cortical activity. *Emotion*, *4*(1), 95.
- Hawkes, K., O'Connell, J. F., Jones, N. B., Alvarez, H., & Charnov, E. L. (1998). Grandmothering, menopause, and the evolution of human life histories. *Proceedings of the National Academy of Sciences*, *95*(3), 1336-1339.
- Hawkins, H. C. (2001). Police officer burnout: a partial replication of Maslach's burnout inventory. *Police Quarterly*, *4*(3), 343-360.
- Herbek, T. A., & Yammarino, F. J. (1990). Empathy training for hospital staff nurses. *Group & Organization Management*, *15*(3), 279-295.
- Hill, E. L., & Frith, U. (2003). Understanding autism: insights from mind and brain. *Philos Trans R Soc Lond B Biol Sci*, *358*(1430), 281-289.
- Hoffman, M. L. (1984). Interaction of affect and cognition in empathy. *Emotions, cognition, and behavior*, 103-131.
- Holt, T. J., & Blevins, K. R. (2011). Examining Job Stress and Satisfaction Among Digital Forensic Examiners. *Journal of Contemporary Criminal Justice*, *27*(2), 230-250.
- Hong, S. I., & Morrow-Howell, N. (2010). Health outcomes of Experience Corps®: A high-commitment volunteer program. *Social Science & Medicine*, *71*(2), 414-420.
- House, T.H., & Milligan, W.L. . (1976). Autonomic responses to modeled distress in prison psychopaths. *Journal of Personality and Social Psychology*, *34*, 556-560.
- Ickes, W. (1997). *Empathic Accuracy*. New York: The Guilford Press.
- Ickes, W., Oriña, M. M., & Simpson, J. A. (2003). When accuracy hurts, and when it helps: a test of the empathic accuracy model in marital interactions.

- Inbar, Y., Pizarro, D. A., & Bloom, P. (2012). Disgusting smells cause decreased liking of gay men. *Emotion, 12*(1), 23-27.
- Ironson, G. (2007). Altruism and Health in HIV. In S. Post (Ed.), *Altruism and Health* (pp. 70-81). New York, NY: Oxford University Press.
- Ironson, G., Solomon, G., Balbin, E., O'Cleirigh, C., George, A., Kumar, M., et al. (2002). The ironson-woods spirituality/religiousness index is associated with long survival, health behaviors, less distress, and low cortisol in people with HIV/AIDS. *Annals of Behavioral Medicine, 24*(1), 34-48.
- Jolliffe, D., & Farrington, D. P. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and Violent Behavior, 9*(5), 441-476.
- Jones, W., Bellugi, U., Lai, Z., Chiles, M., Reilly, J., Lincoln, A., et al. (2000). II. Hypersociability in Williams Syndrome. *J Cogn Neurosci, 12 Suppl 1*, 30-46.
- Kalliopuska, M. (1983). Relationship between moral judgment and empathy. *Psychological Reports, 53*, 575-578.
- Kalliopuska, M. (1992). Attitudes towards health, health behaviour, and personality factors among school students very high on empathy. *Psychological Reports, 70*(3), 1119-1122.
- Keaveny, T. J., & McGann, A. F. (1978). Behavioral dimensions associated with students' global ratings of college professors. *Research in Higher Education, 9*(4), 333-345.
- Kennedy, D. P., & Adolphs, R. (2012). The social brain in psychiatric and neurological disorders. *Trends Cogn Sci, 16*(11), 559-572.
- Klein-Tasman, B. P., & Mervis, C. B. (2003). Distinctive personality characteristics of 8-, 9-, and 10-year-olds with Williams syndrome. *Dev Neuropsychol, 23*(1-2), 269-290.
- Klimecki, O., & Singer, T. (2011). Empathic distress fatigue rather than compassion fatigue? Integrating findings from empathy research in psychology and social neuroscience. *Pathological altruism, 368-383*.
- Koenigs, M., Young, L., Adolphs, R., Tranel, D., Cushman, F., Hauser, M., et al. (2007). Damage to the prefrontal cortex increases utilitarian moral judgements. *Nature, 446*(7138), 908-911.
- Kogut, T., & Ritov, I. (2005). The "identified victim" effect: An identified group, or just a single individual? *Journal of Behavioral Decision Making, 18*(3), 157-167.
- Kok, B. E., Coffey, K. A., Cohn, M. A., Catalino, L. I., Vacharkulksemsuk, T., Algoe, S. B., et al. (2013). How Positive Emotions Build Physical Health Perceived Positive Social Connections Account for the Upward Spiral Between Positive Emotions and Vagal Tone. *Psychological Science*.
- Konrath, S. (2013). The power of philanthropy and volunteering. In F. H. a. C. C. (Eds.) (Ed.): Wiley Press.
- Konrath, S., & Brown, S. L. (2012). The effects of giving on givers. In N. Roberts & M. Newman (Eds.), *Handbook of Health and Social Relationships: American Psychological Association*.
- Konrath, S., Bushman, B., & Campbell, W. K. (2006). Attenuating the link between threatened egotism and aggression. *Psychol Sci, 17*(11), 995-1001.
- Konrath, S., & Fuhrel-Forbis, A. (2011). Self-rated caring traits are associated with lower mortality in older adults. *unpublished data*.

- Konrath, S., Fuhrel-Forbis, A., Liu, M., O'Brien, E., Wondra, J., & Chopik, W. (2012). *Empathizing causes declines in blood glucose: Ego depletion or stress regulation?* Paper presented at the Association for Psychological Science, Chicago.
- Konrath, S., Fuhrel-Forbis, A., Lou, A., & Brown, S. L. (2012). Motives for Volunteering Are Associated with Mortality Risk in Older Adults. *Health Psychology, 31*(1), 87-96.
- Konrath, S., O'Brien, E., & Hsing, C. (2011). Changes in dispositional empathy in American college students over time: a meta-analysis. *Personality and Social Psychology Review, 15*(2), 180-198.
- Kosfeld, M., Heinrichs, M., Zak, P. J., Fischbacher, U., & Fehr, E. (2005). Oxytocin increases trust in humans. *Nature, 435*(7042), 673-676.
- Krakowski, M. (2003). Violence and serotonin: influence of impulse control, affect regulation, and social functioning. *J Neuropsychiatry Clin Neurosci, 15*(3), 294-305.
- Krause, M. (2009). Identifying and managing stress in child pornography and child exploitation investigators. *Journal of Police and Criminal Psychology, 24*(1), 22-29.
- Krause, N., & Shaw, B. A. (2000). Giving Social Support to Others, Socioeconomic Status, and Changes in Self-Esteem in Late Life. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 55*(6), S323-S333.
- Krebs, D. (1975). Empathy and altruism. *Journal of Personality and Social Psychology, 32*(6), 1134.
- Kubzansky, L. D., Mendes, W. B., Appleton, A. A., Block, J., & Adler, G. K. (2012). A heartfelt response: Oxytocin effects on response to social stress in men and women. *Biological psychology, 90*(1), 1-9.
- Kurtz, R. R., & Grummon, D. L. (1972). Different approaches to the measurement of therapist empathy and their relationship to therapy outcomes. *Journal of consulting and clinical psychology, 39*(1), 106.
- Lackner, H. K., Goswami, N., Hingofner-Szalkay, H., Papousek, I., Scharfetter, H., Furlan, R., et al. (2010). Effects of Stimuli on Cardiovascular Reactivity Occurring at Regular Intervals During Mental Stress. *Journal of Psychophysiology, 24*(1), 48-60.
- Lacroix, A., Guidetti, M., Roge, B., & Reilly, J. (2009). Recognition of emotional and nonemotional facial expressions: a comparison between Williams syndrome and autism. *Res Dev Disabil, 30*(5), 976-985.
- Lahdenperä, M., Lummaa, V., Helle, S., Tremblay, M., & Russell, A. F. (2004). Fitness benefits of prolonged post-reproductive lifespan in women. *Nature, 428*(6979), 178-181.
- Langer, E. J., & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. *Journal of Personality and Social Psychology, 34*(2), 191-198.
- Lau, B., Falk, E., & Konrath, S. (2013). The effects of empathy and race-salience in intergroup interactions. *Paper in progress*.
- Lee, M., & Prentice, N. M. (1988). Interrelations of empathy, cognition, and moral reasoning with dimensions of juvenile delinquency. *J Abnorm Child Psychol, 16*(2), 127-139.
- Levenson, R. W., & Ruef, A. M. (1992). Empathy: a physiological substrate. *Journal of Personality and Social Psychology, 63*(2), 234.
- Liang, J., Krause, N. M., & Bennett, J. M. (2001). Social Exchange and Well-Being: Is Giving Better Than Receiving? *Psychology and Aging, 16*(3), 511-523.

- Liu, M., & Konrath, S. (2013). Empty nest but not empty heart: Giving support to adult children lowers mortality risk in older adults. *Under review*.
- Lough, S., Kipps, C. M., Treise, C., Watson, P., Blair, J. R., & Hodges, J. R. (2006). Social reasoning, emotion and empathy in frontotemporal dementia. *Neuropsychologia*, 44(6), 950-958.
- Lu, L. (1997). Social support, reciprocity, and well-being. *Journal of Social Psychology*, 137(5), 618-628.
- Lu, L., & Argyle, M. (1992). Receiving and giving support: Effects on relationships and well-being *Counselling Psychology Quarterly*, 5(2), 123-133.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). Maslach burnout inventory manual . Mountain View, CA. *CPP Inc*.
- Mathersul, D., McDonald, S., & Rushby, J. A. (2013). Understanding advanced theory of mind and empathy in high-functioning adults with autism spectrum disorder. *Journal of Clinical and Experimental Neuropsychology*(ahead-of-print), 1-14.
- Mathieu, F. (2007). Running on Empty: Compassion Fatigue in Health Professionals. *Rehab & Community Care Medicine*, 1-7.
- Mathur, V. A., Harada, T., Lipke, T., & Chiao, J. Y. (2010). Neural basis of extraordinary empathy and altruistic motivation. *NeuroImage*, 51(4), 1468-1475.
- Mayer, S., Erickson, T., Briggs, H., Crocker, J., Liberzon, I., & Abelson, J. (2011). Compassionate goal orientation interacts with resilience to modulate cortisol response to the Trier Social Stress Test. *International Society of Psychoneuroendocrinology*.
- McClellan, W., Stanwyck, D., & Anson, C. (1993). Social support and subsequent mortality among patients with end-stage renal disease. *Journal of the American Society of Nephrology*, 4(4), 1028-1034.
- McDougall, W. (1908). *An introduction to social psychology*. London: Methuen.
- Mendez, M. F., & Shapira, J. S. (2009). Altered emotional morality in frontotemporal dementia. *Cogn Neuropsychiatry*, 14(3), 165-179.
- Miller, P. A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behavior. *Psychological Bulletin*, 103(3), 324.
- Mitchell, P., Robinson, E. J., Isaacs, J. E., & Nye, R. M. (1996). Contamination in reasoning about false belief: an instance of realist bias in adults but not children. *Cognition*, 59(1), 1-21.
- Moretto, G., Ladavas, E., Mattioli, F., & di Pellegrino, G. (2010). A psychophysiological investigation of moral judgment after ventromedial prefrontal damage. *J Cogn Neurosci*, 22(8), 1888-1899.
- Moses, A. (2012). Child Parent Relationship Therapy for Parents of Children with Disruptive Behavior. *Unpublished dissertation, Western Michigan University*.
- Mugford, R. A., & M'Comisky, J. G. (1975). Some recent work on the psychotherapeutic value of cage birds with old people. *Pet animals and society*, 54-65.
- Müller, B. C., Leeuwen, M. L., Baaren, R. B., Bekkering, H., & Dijksterhuis, A. (2013). Empathy is a beautiful thing: Empathy predicts imitation only for attractive others. *Scandinavian Journal of Psychology*.
- Mullins-Nelson, J. L., Salekin, R. T., & Leistico, A. R. (2006). Psychopathy, empathy, and perspective taking ability in a community sample: Implication for the successful psychopathy concept. *International Journal of Forensic Mental Health*, 5, 133-149.

- Navarrete, C. D., McDonald, M. M., Mott, M. L., & Asher, B. (2012). Virtual morality: Emotion and action in a simulated three-dimensional "trolley problem". *Emotion, 12*(2), 364.
- Nelson-Gardell, D., & Harris, D. (2003). Childhood abuse history, secondary traumatic stress, and child welfare workers. *Child Welfare: Journal of Policy, Practice, and Program.*
- Noblet, A., Rodwell, J., & Allisey, A. (2009). Job stress in the law enforcement sector: comparing the linear, non-linear and interaction effects of working conditions. *Stress and Health, 25*(1), 111-120.
- Norscia, I., & Palagi, E. (2011). Yawn contagion and empathy in Homo sapiens. *PLoS ONE, 6*(12), e28472.
- O'Connor, L. E., Berry, J. W., Weiss, J., & Gilbert, P. (2002). Guilt, fear, submission, and empathy in depression. *Journal of Affective Disorders, 71*(1-3), 19-27.
- Oakley, B., Knafo, A., & Madhavan, G. (2011). *Pathological altruism*: Oxford University Press.
- Osman, S. L. (2011). Predicting rape empathy based on victim, perpetrator, and participant gender, and history of sexual aggression. *Sex Roles, 64*, 506-515.
- Osofsky, J. D. (2011). Vicarious Traumatization and the Need for Self-Care in Working with Traumatized Young Children. In J. D. Osofsky (Ed.), *Clinical Work with Traumatized Young Children* (pp. 336-348). New York, NY: The Guilford Press.
- Pace, T. W., Negi, L. T., Adame, D. D., Cole, S. P., Sivilli, T. I., Brown, T. D., et al. (2009). Effect of compassion meditation on neuroendocrine, innate immune and behavioral responses to psychosocial stress. *Psychoneuroendocrinology, 34*(1), 87-98.
- Paleari, F. G., Regalia, C., & Fincham, F. (2005). Marital quality, forgiveness, empathy, and rumination: A longitudinal analysis. *Personality and Social Psychology Bulletin, 31*(3), 368-378.
- Panksepp, J. (1998). *Affective neuroscience: The foundations of human and animal emotions*: Oxford University Press.
- Penner, L. A., Cline, R. J., Albrecht, T. L., Harper, F. W., Peterson, A. M., Taub, J. M., et al. (2008). Parents' empathic responses and pain and distress in pediatric patients. *Basic and Applied Social Psychology, 30*(2), 102-113.
- Pham, T. H., Philippot, P., & Rime, B. (2000). Subjective and autonomic responses to emotion induction in psychopaths. *Encephale, 26*(1), 45-51.
- Piferi, R. L., & Lawler, K. A. (2006). Social support and ambulatory blood pressure: An examination of both receiving and giving. *International Journal of Psychophysiology, 62*(2), 328-336.
- Plesa-Skwerer, D., Faja, S., Schofield, C., Verbalis, A., & Tager-Flusberg, H. (2006). Perceiving facial and vocal expressions of emotion in individuals with Williams syndrome. *Am J Ment Retard, 111*(1), 15-26.
- Plesa Skwerer, D., Borum, L., Verbalis, A., Schofield, C., Crawford, N., Ciciolla, L., et al. (2009). Autonomic responses to dynamic displays of facial expressions in adolescents and adults with Williams syndrome. *Soc Cogn Affect Neurosci, 4*(1), 93-100.
- Pooler, D. K. (2008). Social workers and distress: Implications for sustaining a healthy workforce. *Journal of Workplace Behavioral Health, 23*(4), 445-466.
- Porter, M. A., Coltheart, M., & Langdon, R. (2007). The neuropsychological basis of hypersociability in Williams and Down syndrome. *Neuropsychologia, 45*(12), 2839-2849.

- Post, S. G. (2007). *Altruism and health: Perspectives from empirical research*: Oxford University Press.
- Preston, S. D. (2013). The Origins of Altruism in Offspring Care. *Psychological Bulletin*, in press.
- Preylo, B. D., & Arikawa, H. (2008). Comparison of vegetarians and non-vegetarians on pet attitude and empathy. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*, 21(4), 387-395.
- Prinz, J. J. (2011). Against empathy. *The Southern Journal of Philosophy*, 49(s1), 214-233.
- Prinz, J. J. (2011). Is empathy necessary for morality *Perspectives on Empathy*: Goldie, P. Coplan, A.
- Riby, D., Bruce, V., & Jawaid, A. (2012). Everyone's friend? The case of Williams Syndrome. In B. Oakley, A. Knafo, G. Madhavan & D. S. Wilson (Eds.), *Pathological Altruism*. New York: Oxford University Press.
- Richell, R. A., Mitchell, D. G., Newman, C., Leonard, A., Baron-Cohen, S., & Blair, R. J. (2003). Theory of mind and psychopathy: can psychopathic individuals read the 'language of the eyes'? *Neuropsychologia*, 41(5), 523-526.
- Richardson, D. R., Hammock, G. S., Smith, S. M., Gardner, W., & Signo, M. (1994). Empathy as a cognitive inhibitor of interpersonal aggression. *Aggressive Behavior*, 20(4), 275-289.
- Riess, H., Bailey, R. W., Dunn, E. J., & Phillips, M. (2012). Empathy training for resident physicians: a randomized controlled trial of a neuroscience-informed curriculum. *Journal of general internal medicine*, 27(10), 1280-1286.
- Rosen, H. J., Gorno-Tempini, M. L., Goldman, W., Perry, R., Schuff, N., Weiner, M., et al. (2002). Patterns of brain atrophy in frontotemporal dementia and semantic dementia. *Neurology*, 58(2), 198-208.
- Rosenstein, P. (1995). Parental levels of empathy as related to risk assessment in child protective services. *Child abuse & neglect*, 19(11), 1349-1360.
- Rumble, A. C., Van Lange, P. A., & Parks, C. D. (2010). The benefits of empathy: When empathy may sustain cooperation in social dilemmas. *European Journal of Social Psychology*, 40(5), 856-866.
- Saakvitne, K. W., & Pearlman, L. A. (1996). *Transforming the pain: A workbook on vicarious traumatization*. New York, NY: WW Norton & Co.
- Schewe, P. A. (2007). Interventions to prevent sexual violence. *Handbook of injury and violence prevention*, 223-240.
- Schewe, P. A., & O'Donohue, W. (1993). Sexual abuse prevention with high-risk males: The roles of victim empathy and rape myths. *Violence and Victims*, 8(4), 339-351.
- Schwartz, C., Keyl, P., Marcum, J., & Bode, R. (2009). Helping Others Shows Differential Benefits on Health and Well-being for Male and Female Teens. *Journal of Happiness Studies*, 10(4), 431-448.
- Schwartz, C., Meisenhelder, J. B., Ma, Y., & Reed, G. (2003). Altruistic Social Interest Behaviors Are Associated With Better Mental Health. *Psychosomatic Medicine*, 65(5), 778-785.
- Schwartz, C., & Sendor, R. M. (1999). Helping others helps oneself: response shift effects in peer support. *Social Science & Medicine*, 48(11), 1563-1575.
- Selvaraj, S., Faulkner, P., Mouchlianitis, E., Turkheimer, F., Rosso, L., Roiser, J. P., et al. (2012). P-800 - How do antidepressants work? A Positron Emission Tomography (PET)

- study of brain serotonin levels and affect regulation. *European Psychiatry*, 27, Supplement 1(0), 1.
- Sethre-Hofstad, L., Stansbury, K., & Rice, M. A. (2002). Attunement of maternal and child adrenocortical response to child challenge. *Psychoneuroendocrinology*, 27(6), 731-747.
- Sevillano, V., Aragonés, J. I., & Schultz, P. W. (2007). Perspective taking, environmental concern, and the moderating role of dispositional empathy. *Environment and behavior*, 39(5), 685-705.
- Shamay-Tsoory, S. G., Tomer, R., Berger, B. D., & Aharon-Peretz, J. (2003). Characterization of empathy deficits following prefrontal brain damage: the role of the right ventromedial prefrontal cortex. *Nature Neuroscience*, 15(3), 324-337.
- Shanafelt, T. D., West, C., Zhao, X., Novotny, P., Kolars, J., Habermann, T., et al. (2005). Relationship Between Increased Personal Well-Being and Enhanced Empathy Among Internal Medicine Residents. *Journal of General Internal Medicine*, 20(7), 559-564.
- Shelton, M. L., & Rogers, R. W. (1981). Fear-Arousing and Empathy-Arousing Appeals to Help: The Pathos of Persuasion. *Journal of Applied Social Psychology*, 11(4), 366-378.
- Sibicky, M. E., Schroeder, D. A., & Dovidio, J. F. (1995). Empathy and Helping: Considering the Consequences of Intervention. *Basic and Applied Social Psychology*, 16(4), 435-453.
- Simpson, J. A., Ickes, W., & Blackstone, T. (1995). When the head protects the heart: Empathic accuracy in dating relationships. *Journal of Personality and Social Psychology*, 69, 629-629.
- Simpson, J. A., Ickes, W., & Grich, J. (1999). When accuracy hurts: Reactions of anxious-ambivalent dating partners to a relationship-threatening situation. *Journal of Personality and Social Psychology*, 76(5), 754-769.
- Singer, T., Seymour, B., O'Doherty, J. P., Stephan, K. E., Dolan, R. J., & Frith, C. D. (2006). Empathic neural responses are modulated by the perceived fairness of others. *Nature*, 439(7075), 466-469.
- Smith, A. M., Loving, T. J., Crockett, E. E., & Campbell, L. (2009). What's Closeness Got to Do with It? Men's and Women's Cortisol Responses When Providing and Receiving Support. *Psychosomatic Medicine*, 71(8), 843-851.
- Smith, C. A., & Frieze, I. H. (2003). Examining Rape Empathy From the Perspective of the Victim and the Assailant. *Journal of Applied Social Psychology*, 33(3), 476-479.
- Sober, E., & Wilson, D. S. (1998). *Unto others: The evolution and psychology of unselfish behavior*: Harvard University Press.
- Sonnby-Borgström, M., Jönsson, P., & Svensson, O. (2003). Emotional empathy as related to mimicry reactions at different levels of information processing. *Journal of Nonverbal Behavior*, 27(1), 3-23.
- Sonnby-Borgström, M. (2002). Automatic mimicry reactions as related to differences in emotional empathy. *Scandinavian Journal of Psychology*, 43(5), 433-443.
- Sprang, G., Clark, J. J., & Whitt-Woosley, A. (2007). Compassion fatigue, compassion satisfaction, and burnout: Factors impacting a professional's quality of life. *Journal of Loss and Trauma*, 12(3), 259-280.
- Steffen, P., & Masters, K. (2005). Does compassion mediate the intrinsic religion-health relationship? *Annals of Behavioral Medicine*, 30(3), 217-224.
- Stellar, J. E., Manzo, V. M., Kraus, M. W., & Keltner, D. (2012). Class and compassion: Socioeconomic factors predict responses to suffering. *Emotion*, 12(3), 449.

- Strazdins, L., & Broom, D. H. (2007). The Mental Health Costs and Benefits of Giving Social Support. *International Journal of Stress Management*, 14(4), 370-385.
- Swain, J. E., Konrath, S., Brown, S. L., Finegood, E. D., Akce, L. B., Dayton, C. J., et al. (2012). Parenting and beyond: Common neurocircuits underlying parental and altruistic caregiving. *Parenting*, 12(2-3), 115-123.
- Swain, J. E., Lorberbaum, J. P., Kose, S., & Strathearn, L. (2007). Brain basis of early parent–infant interactions: psychology, physiology, and in vivo functional neuroimaging studies. *Journal of Child Psychology and Psychiatry*, 48(3-4), 262-287.
- Tager-Flusberg, H., & Sullivan, K. (2000). A componential view of theory of mind: evidence from Williams syndrome. *Cognition*, 76(1), 59-90.
- Taylor, N., & Signal, T. (2005). Empathy and attitudes to animals. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*, 18(1), 18-27.
- Tehrani, N. (2010). Compassion fatigue: experiences in occupational health, human resources, counselling and police. *Occupational Medicine*, 60(2), 133-138.
- Thomas, B. (2012). Predictors of vicarious trauma and secondary traumatic stress among correctional officers. *Philadelphia College of Osteopathic Medicine, Unpublished dissertation*, Department of Psychology.
- Thomas, G., & Fletcher, G. (2003). Mind-reading accuracy in intimate relationships: assessing the roles of the relationship, the target, and the judge. *Journal of Personality and Social Psychology*, 85(6), 1079.
- Thomson, J. J. (1986). *Rights, Restitution, and Risk: Essays*. Cambridge, MA: Harvard University Press.
- Tkach, C. (2005). *Unlocking the treasury of human kindness : enduring improvements in mood, happiness, and self-evaluations*. Unpublished doctoral dissertation: University of California, Riverside.
- Truax, C. B., Wargo, D. G., Frank, J. D., Imber, S. D., Battle, C. C., Hoehn-Saric, R., et al. (1966). Therapist empathy, genuineness, and warmth and patient therapeutic outcome. *Journal of Consulting Psychology; Journal of Consulting Psychology*, 30(5), 395.
- Twenge, J., & Campbell, W. K. (2003). “Isn’t It Fun to Get the Respect That We’re Going to Deserve?” Narcissism, Social Rejection, and Aggression. *Personality and Social Psychology Bulletin*, 29(2), 261-272.
- Twenge, J., Konrath, S., Foster, J., Campbell, W. K., & Bushman, B. (2008). Egos inflating over time: a cross-temporal meta-analysis of the Narcissistic Personality Inventory. *Journal of Personality*, 76(4), 875-902; discussion 903-828.
- Udipi, S., Veach, P. M. C., Kao, J., & LeRoy, B. S. (2008). The psychic costs of empathic engagement: personal and demographic predictors of genetic counselor compassion fatigue. *Journal of genetic counseling*, 17(5), 459-471.
- Uhlmann, E. L., Zhu, L. L., & Tannenbaum, D. (2013). When it takes a bad person to do the right thing. *Cognition*, 126(2), 326-334.
- Uvnäs-Moberg, K. (1998). Oxytocin may mediate the benefits of positive social interaction and emotions. *Psychoneuroendocrinology*, 23(8), 819-835.
- Vaananen, A., Buunk, B. P., Kivimaki, M., Pentti, J., & Vahtera, J. (2005). When it is better to give than to receive: Long-term health effects of perceived reciprocity in support exchange. *Journal of Personality and Social Psychology*, 89(2), 176.

- Vescio, T. K., Sechrist, G. B., & Paolucci, M. P. (2003). Perspective taking and prejudice reduction: the mediational role of empathy arousal and situational attributions. *European Journal of Social Psychology, 33*(4), 455-472.
- Violanti, J. M., & Aron, F. (1995). Police stressors: Variations in perception among police personnel. *Journal of Criminal Justice, 23*(3), 287-294.
- Vitaglione, G. D., & Barnett, M. A. (2003). Assessing a new dimension of empathy: Empathic anger as a predictor of helping and punishing desires. *Motivation and Emotion, 27*(4), 301-325.
- Vorauer, J. D., Hunter, A., Main, K. J., & Roy, S. A. (2000). Meta-stereotype activation: evidence from indirect measures for specific evaluative concerns experienced by members of dominant groups in intergroup interaction. *Journal of Personality and Social Psychology, 78*(4), 690.
- Vorauer, J. D., Main, K. J., & O'Connell, G. B. (1998). How do individuals expect to be viewed by members of lower status groups? Content and implications of meta-stereotypes. *Journal of Personality and Social Psychology, 75*(4), 917.
- Vorauer, J. D., Martens, V., & Sasaki, S. J. (2009). When trying to understand detracts from trying to behave: effects of perspective taking in intergroup interaction. *Journal of Personality and Social Psychology, 96*(4), 811.
- Vorauer, J. D., & Sasaki, S. J. (2009). Helpful only in the abstract? Ironic effects of empathy in intergroup interaction. *Psychological Science, 20*(2), 191-197.
- Vorauer, J. D., & Sasaki, S. J. (2012). The pitfalls of empathy as a default intergroup interaction strategy: Distinct effects of trying to empathize with a lower status outgroup member who does versus does not express distress. *Journal of Experimental Social Psychology, 48*(2), 519-524.
- Walker, G. J., Chapman, R., & Bricker, K. (2003). Thinking like a park: the effects of sense of place, perspective-taking, and empathy on pro-environmental intentions. *Journal of Park and Recreation Administration, 21*(4), 71-86.
- Watt, D. (2005). Social bonds and the nature of empathy. *Journal of Consciousness Studies, 12*(8-10), 8-10.
- Watt, D. (2007). Toward a neuroscience of empathy: Integrating affective and cognitive perspectives. *Neuropsychoanalysis: An Interdisciplinary Journal for Psychoanalysis and the Neurosciences, 9*(2), 119-140.
- Waxman, H. C. (1983). Effect of teachers' empathy on students' motivation. *Psychological Reports, 53*(2), 489-490.
- West, C. P., Huschka, M. M., Novotny, P. J., Sloan, J. A., Kolars, J. C., Habermann, T. M., et al. (2006). Association of perceived medical errors with resident distress and empathy. *JAMA: The Journal of the American Medical Association, 296*(9), 1071-1078.
- Wink, P., & Dillon, M. (2002). Spiritual Development Across the Adult Life Course: Findings from a Longitudinal Study. *Journal of Adult Development, 9*(1), 79-94.
- Xu, X., Zuo, X., Wang, X., & Han, S. (2009). Do you feel my pain? Racial group membership modulates empathic neural responses. *The Journal of Neuroscience, 29*(26), 8525-8529.
- Zak, P. J., Kurzban, R., & Matzner, W. T. (2004). The neurobiology of trust. *Annals of the New York Academy of Sciences, 1032*(1), 224-227.
- Zak, P. J., Stanton, A. A., & Ahmadi, S. (2007). Oxytocin increases generosity in humans. *PLoS ONE, 2*(11), e1128.