

Michael E. McCullough<sup>1</sup>, Lindsey M. Root<sup>1</sup>, Benjamin A. Tabak<sup>1</sup>, & Charlotte Witvliet<sup>2</sup>

<sup>1</sup> University of Miami; <sup>2</sup> Hope College

### Forgiveness

Human nature—as understood through the lenses of evolutionary biology, moral philosophy, and theology—contains the capacity for evil and for good, for harming and for helping, for offending or retaliating and for forgiving or reconciling. Most people can recall a time within the previous year when they strongly desired vengeance against someone who harmed them. Such revenge desire has an appetitive feeling, which when satisfied, yields contentment (Crombag, Rassin, & Horselenberg, 2003; de Quervain et al., 2004), although this short-term contentment may be offset by its longer-term tendency to create physiological arousal and subjective distress (Witvliet, Ludwig, & VanderLaan, 2001). Nevertheless, revenge occurs across species (Aureli, Cozzolino, Cordischi, & Scucchi, 1992; Dugatkin, 1988), and people in virtually every culture have used revenge to control aggression (Daly & Wilson, 1988) and to prompt cooperation among unrelated individuals (Axelrod, 1984; Boyd & Richerson, 1992)—evidence hinting that the desire for revenge is the result of adaptive design (Schmitt & Pilcher, 2004).

Rather than becoming locked in interminable cycles of revenge and counter-revenge, however, people often seek to overcome social conflict and aggression in more positive ways. Peacemaking is an active process—not simply an absence of aggression (Fry, 2006). Humans and other social animals often work actively to restore positive, cooperative relationships with some of the individuals in their social networks following aggression and conflict (Aureli & Waal, 2000). One of the tools for doing so is forgiveness. Indeed, in light of evidence that the capacity to forgive may arise by natural selection (Hruschka & Henrich, 2006; Nowak &

Sigmund, 1993), we hypothesize that the capacity to forgive is every bit as intrinsic to human nature as our penchant for revenge.

Scientific theory and research on forgiveness have burgeoned in the last decade. This chapter addresses scientific developments on this topic since the chapter we wrote for the previous edition of this handbook (McCullough & Witvliet, 2000).

### Measuring Forgiveness

Forgiveness involves overcoming one's relationship-destructive responses toward a transgressor with relationship-appropriate prosocial responses. In the years since our earlier review, self-report scales for measuring forgiveness for specific offenses and individual differences in the disposition to forgive have remained popular (e.g., McCullough et al., 1998; Rye et al., 2001; e.g., Subkoviak, Enright, Wu, & Gassin, 1995). A revision to the TRIM has added a benevolence scale to account for prosocial motivation in addition to the previous scales assessing levels of revenge and avoidance (McCullough, Root, & Cohen, in press). Newer scales include the Heartland Forgiveness Scale (Thompson et al., 2005), the Tendency to Forgive Scale (Brown, 2003) and a marital functioning scale (Gordon & Baucom, 2003). In addition to a single measurement period, forgiveness of a specific transgression can be measured as a time-bound construct. This work uses multilevel modeling to describe the natural longitudinal trajectory of people's responses to a transgressor over time (McCullough, Fincham, & Tsang, 2003).

Measurement also has expanded to include implicit and behavioral indices. For example Karremans, Van Lange, and Holland (2005) examined word stem tasks, pronoun choices, and charitable donations as correlates of forgiveness. Other approaches include the prisoner's dilemma and similar games (Axelrod, 1984), as well as asking participants to anonymously provide feedback about an offender and to report their willingness to do the offender a favor after

a laboratory offense (Zechmeister, Garcia, Romero, & Vas, 2004). Investigation into the neural correlates of retaliation (de Quervain et al., 2004; Singer et al., 2006) also has begun.

### Antecedents of Forgiveness

Researchers have made much progress in identifying variables that facilitate forgiveness. One way to organize these variables is to consider three basic psychological conditions that we theorize to play some role in motivating forgiveness: *careworthiness*, *expected value*, and *safety*. Transgressors are “careworthy” when the victim perceives that the transgressor is an appropriate target for moral concern. Transgressors have expected value when a victim anticipates that the relationship will have future utility. Transgressors seem safe when they seem unwilling or unable to harm their victims again. Personality correlates of forgiveness also may influence forgiveness via their ability to influence perceived careworthiness, expected value, and safety.

#### *Careworthiness*

Forgiveness is likely built upon some of the same scaffolding used to generate care for others. For example, people more readily forgive people to whom they feel close and for whom they feel empathy (McCullough et al., 1998; McCullough, Worthington, & Rachal, 1997; Zechmeister & Romero, 2002). Empathy promotes a desire to reduce other people’s suffering (Batson, Ahmad, Lishner, & Tsang, 2002) and likewise promotes forgiveness in relationships between co-workers, friends, and romantic partners, and even between perpetrators of crimes and their victims (Berry, Worthington, Wade, Witvliet, & Keifer, 2005; Eaton & Struthers, 2006). Likewise, empathy reduces the motivation to retaliate (Batson & Ahmad, 2001), perhaps by interfering with the brain’s usual tendency to perceive revenge-seeking as appetitive (Singer et al., 2006), and by interrupting the approach motivation that underlies efforts to retaliate (Harmon-Jones, Vaughn-Scott, Mohr, Sigelman, & Harmon-Jones, 2004).

#### *Expected Value*

When people have positive expectations for an upcoming social interaction, the brain signals that rewards are forthcoming (Knutson & Wimmer, 2006). The expectation of upcoming rewards, in turn, shapes how they treat their interaction partners. Relationships holding reward value (indexed by feelings of commitment) generate more motivation to forgive (Finkel, Rusbult, Kumashiro, & Hannon, 2002). The importance of expected value may explain why people tend to want some form of compensation prior to forgiving (Boehm, 1987; Bottom, Gibson, Daniels, & Murnighan, 2002): Compensation signals that a transgressor has the potential to be valuable to the victim in the future.

### *Safety*

People more readily forgive people whom they trust, and are less prone to forgive people who have harmed them deeply and are therefore more dangerous (Hoyt, Fincham, McCullough, Maio, & Davila, 2005; McCullough & Hoyt, 2002). Trust and safety are enhanced when transgressors seem unwilling to harm again, such as when they have repented or expressed remorse (Bottom, Gibson, Daniels, & Murnighan, 2002; Gold & Weiner, 2000). Transgressors' expressions of sympathy for a victim's suffering and a sincere desire to uphold a society's moral standards signal decreased risk of harming the victim again (Gold & Weiner, 2000; Nadler & Liviatan, 2006; Zechmeister, Garcia, Romero, & Vas, 2004). Displays like blushing, which apparently facilitate forgiveness after some transgressions (de Jong, Peters, & de Cremer, 2003), may serve a similar function by advertising an eagerness to distance oneself from one's previous transgressions. In a related vein, people more readily forgive transgressors whose behavior was unintentional, unavoidable, or committed without awareness of its potential negative consequences (Eaton & Struthers, 2006; Gordon, Burton, & Porter, 2004).

Another way to prompt the perception of safety is to create physical and emotional barriers preventing the transgressor from harming the victim, perhaps through intervening with

justice or barring reconciliation. In those cases in which reconciliation accompanies forgiveness, reconciliation rituals sometimes involve the surrender of weapons (Boehm, 1987).

### *Forgiveness and Personality*

Four personality predictors of forgiveness—Neuroticism, Agreeableness, Narcissism, and religiousness—merit extended treatment here. To explain how such personality-forgiveness associations arise, personality traits (for example, traits like Neuroticism and Agreeableness) can be conceptualized as filters that shape one's perceptions of the transgressor (McCullough & Hoyt, 2002)—particularly, perceptions of the transgressor's careworthiness, value, and safety.

For example, an explanation for the inverse relationship of Neuroticism and forgiveness (Brose, Rye, Lutz-Zois & Ross, 2005) is that Neuroticism makes transgressions feel more severe (McCullough & Hoyt, 2002). When people feel as though they have already endured a lot of pain, they may view forgiveness as compromising their safety or requiring psychological energy they don't have. Furthermore, because Neuroticism makes transgressions seem more painful, it also may limit perception that the relationship with the transgressor will have value in the future, which would make the prospect of a renewed relationship with the transgressor less motivating.

Agreeableness may make it easier for victims to experience empathy and trust for their transgressors, thereby making transgressors seem more careworthy and safer (and therefore, more forgivable). In addition, highly agreeable people might anticipate that a relationship with a transgressor possesses future value. Depue and Morrone-Strupinsky (2005) argued that Agreeableness (which they called "affiliation") arises from a neural architecture by which affiliative stimuli (e.g., neural representations of particular individuals) stimulate opioid release. By this reasoning, affiliative people may find it easier to forgive a transgressor because they are more likely to perceive that the relationship is likely to lead to future fulfillment. This also may help to explain why the "warmth" facet of Extraversion, which measures the ability to derive

pleasure from social interaction, has been linked with the propensity to forgive (Brose, Rye, Lutz-Zois, & Ross, 2005).

Narcissism is another personality variable that is negatively associated with forgiveness (Eaton, Struthers, & Santelli, 2006)—in particular, its entitlement facet (Exline, Baumeister, Bushman, Campbell, & Finkel, 2004). After a transgression, narcissistically entitled individuals require more punishment of the transgression and compensation prior to forgiving (Exline, Baumeister, Bushman, Campbell, & Finkel, 2004). Narcissists' unwillingness to forgive may be further exacerbated by the fact that they tend to denigrate the value and/or careworthiness of other people, and are more easily offended (McCullough, Emmons, Kilpatrick, & Mooney, 2003). These factors may conspire to cause narcissistically entitled people to perceive that forgiveness has many potential costs and few potential benefits.

Finally, self-reports of forgiveness have been consistently related to higher levels of religiousness (McCullough, Bono, & Root, 2005; Tsang, McCullough, & Hoyt, 2005). Recent research linked intrinsic religious motivation with lower scores on self-reported vengefulness (and extrinsic religious motivation was associated with higher levels), but also suggested that some aspects of traditional religiousness may be associated with behavioral retaliation (Greer, Berman, Varan, Bobrycki, & Watson, 2005).

Understandings of what forgiveness means and requires are profoundly shaped by people's core beliefs and values (Mahoney, Rye, & Pargament, 2005). On a broad scale, people who self-identify as religious—rather than “spiritual”—consistently score as having more forgiving personalities than those who self-identify as spiritual—rather than “religious” (DeShea, Tzou, Kang, & Matsuyuki, 2006, January). In comparing religions, Cohen, Malka, Rozin, and Cherfas (2006) found that protestant Christians and Jews differed in their understanding of and approaches to forgiveness, with Jews more likely to believe that some offenses are unforgivable,

and to endorse theological reasons for this belief. Future investigations on the religion-forgiveness issue should probably examine not only self-reports, but also behavioral measures, and might do well to consider whether forgiveness obtains its relations to forgiveness by influencing victims' perceptions of the transgressors careworthiness, expected value, and safety.

#### Associations of Forgiveness with Health and Well-Being

Forgiveness tends to be positively associated with psychological well-being, physical health, and desirable relationship outcomes (Worthington & Scherer, 2004). For example, people who tend to forgive others score lower on measures of anxiety, depression, and hostility (Brown, 2003; Thompson et al., 2005). People with a strong propensity to forgive (or a weak propensity to seek revenge when harmed by others) experience a reduced risk for nicotine dependence disorders, substance abuse disorders, depressive disorders, and several anxiety disorders (Kendler et al., 2003). Forgiveness also has been associated with better psychological well-being, operationalized as high positive emotion, low negative emotion, high satisfaction with life, and low self-reported physical health symptoms (Bono, McCullough, & Root, 2006).

Several recent studies have demonstrated that when people entertain forgiving imagery of a transgression they have suffered, or describe such a transgression, they experience less cardiovascular reactivity (e.g., blood pressure and heart rate) than when they ruminate or entertain grudge-related imagery or describe a transgression that they have not forgiven (Lawler et al., 2003; Witvliet, Ludwig, & Vander Laan, 2001).

Forgiveness might influence such outcomes via several mechanisms. Witvliet and McCullough (2005) have presented a theory of forgiveness and emotion that linked attention, motivation, subjective emotional experience, physiology, and behavior in a neuro-visceral integration model (Thayer & Lane, 2000). Insofar as forgiveness is a *cause* of mental or physical health, it is at least in part because genuine forgiveness inhibits inappropriate responses and

facilitates beneficial emotion regulation processes. Forgiveness provides an alternative to maladaptive psychological responses such as rumination and suppression, which appear to have negative consequences for mental and physical health (McCullough, Bono, & Root, in press; Witvliet & McCullough, 2005). Forgiveness also may function as an alternative to behaviors such as smoking and alcohol/drug use (Kendler et al., 2003) for coping with negative emotions and social experiences. Genuine forgiveness also facilitates beneficial emotion regulation processes, including the ability to process information that can promote compassion and the adoption of merciful thoughts, feelings, and behaviors that are associated with more positive and relaxed psychophysiological profiles (Witvliet et al., 2001).

Forgiveness also influences social support, a robust predictor of mental and physical health (House, Landis, & Umberson, 1988). Inasmuch as people who readily forgive their transgressors are better at maintaining positive relations with relationship partners (McCullough et al., 1998), they may be better at reaping the benefits of social support, experiencing relational closeness, commitment, willingness to accommodate, willingness to sacrifice, and cooperation following a transgression (Karremans & Van Lange, 2004; McCullough et al., 1998; Tsang, McCullough, & Fincham, 2006). By contrast, failures to forgive close relationship partners can lead to “psychological tension” associated with the ambivalence that comes from a failure to extend benevolent behavior to an important relationship partner (Karremans, Van Lange, Ouwerkerk, & Kluwer, 2003). This psychological tension may potentially reduce life satisfaction and state self-esteem, while increasing negative affect. In addition, activating the concept of forgiveness made people more focused on other people, more likely to engage in volunteering, and more likely to contribute to a charity—pro-relationship motivation that extends beyond the forgiver’s relationship with a specific offender (Karremans, Van Lange, & Holland, 2005).

The fact that forgiveness leads to increased relationship motivation has its drawbacks. For example, the tendency for forgiveness to lead to restored relationships may be one of the dynamics by which intimate partner violence is perpetuated (Gordon, Burton, & Porter, 2004). Nevertheless, the preponderance of data suggests that forgiveness maybe a wellspring of new, and renewed, motivation to affiliate with and care for other people, which may explain some of the links between forgiveness and health.

Careful work needs to be done to address potential confounding variables that might create the appearance of a substantive relationship between measures of forgiveness and measures of well-being. For example, high Neuroticism is a predictor of a low tendency to forgive others, as well as many psychiatric disorders and lower psychological well-being (Hetteema, Neale, Myers, Prescott, & Kendler, 2006). On the other hand, the association of forgiveness and well-being cannot be solely due to static personality processes (Bono, McCullough, & Root, 2006) because within-subjects research shows that on days when people are more forgiving than is typical for them, they also have better subjective well-being (measured in terms of low negative affect, high positive affect, high satisfaction with life, and low rates of self-reported physical health symptoms). Nevertheless, closer attention to third variables is sorely needed now that basic work has established that forgiveness is indeed associated with many indices of health and well-being.

### Interventions

Intervention research demonstrates the benefits of incorporating forgiveness into psychological treatment. Several theoretical models have guided intervention studies, including Enright et al.'s Process Model (Enright & Coyle, 1998), Worthington's (2001) REACH Model, and others (e.g., Gordon, Baucom, & Snyder, 2005; Rye et al., 2005).

Two recent meta-analytic reviews summarize the existing intervention studies. Baskin

and Enright (2004) categorized nine forgiveness interventions from six studies into three groups: (a) decision-based interventions, (b) group process interventions, and (c) individual process interventions. Effect sizes, which were computed for each intervention, revealed that the average person who participated in decision-based groups did not achieve more forgiveness than those who did not participate ( $d = -0.04$ ). The average person in a group process intervention did as well or better than 75% of the control group ( $d = 0.82$ ), whereas the average person in an individual process intervention did as well or better than 95% of the control group ( $d = 1.66$ ). In addition, those in the group process and individual interventions also improved on other mental health variables (e.g., anxiety, depression, self-esteem), with the same pattern of results ( $d$ s = 0.16, 0.59, and 1.42, respectively).

Wade, Worthington, and Meyer's (2005) meta-analysis incorporated 65 group intervention conditions from 27 studies. They contrasted forgiveness interventions (i.e. theoretically grounded forgiveness interventions and forgiveness-oriented comparison interventions), alternate treatment conditions (e.g., support groups, leadership interventions), and no-treatment conditions (e.g., wait-list control groups). An effect size (ES) was computed for each condition by estimating the amount of pre-post gain in forgiveness that participants experienced on average, expressed as standard change units. The theoretically grounded forgiveness interventions were the most effective in increasing forgiveness ( $ES = 0.56$ ), but were not statistically superior to forgiveness-oriented comparison interventions ( $ES = 0.43$ ). Alternative treatments ( $ES = 0.26$ ) were significantly less effective than theoretically grounded treatments, but not less effective than forgiveness-oriented comparison interventions. Additionally, any intervention was more effective than a no-treatment control group ( $ES = 0.10$ ). Wade et al. also found that empathizing with the offender, committing to forgive, and the use of strategies like relaxation and anger management were significantly related to outcome.

These studies show that forgiveness interventions promote forgiveness better than no-treatment conditions and interventions that are not expected to produce strong effects. However, they do not adequately explore the extent to which forgiveness interventions are more effective than established treatments that do not explicitly promote forgiveness: Many of the comparison groups used were attention-only controls, rather than alternative interventions. As Baskin and Enright (2004) commented, more rigorous standards are necessary before forgiveness interventions are able to meet criteria for empirically supported treatments. This should be a focus for future forgiveness intervention research (Root & McCullough, in press). Bono and McCullough (2006) also encouraged the explicit integration of cognitive factors (e.g., attributions, empathy, perspective taking, rumination) that appear to influence forgiveness, which would likely improve the effectiveness of such interventions.

A review of forgiveness interventions would be incomplete without describing interventions designed to address larger-scale social problems through forgiveness. Staub, Pearlman, Gubin, and Hagengiana (2005) documented that actors in the 1994 Rwandan genocide could be helped to forgive and to experience reductions in the symptoms of trauma by participating in psychoeducational groups. Forgiveness interventions have been effective in promoting forgiveness among victims of convicted criminals as well. Sherman et al. (2005) conducted several randomized trials to evaluate the efficacy of that face-to-face restorative justice meetings between convicted criminals and their victims. Victims who participate in restorative justice conferences with the offenders who have robbed, burglarized, or assaulted them are 23 times (!) more likely than are people who participate only in conventional justice proceedings to feel that they have received a sincere apology from their offenders, 4 times *less* likely to experience a lingering desire for revenge, and 2.6 times as likely to report that they have forgiven their offenders (although the effects of these conferences on forgiveness seem to be

more pronounced in some settings than in others). We applaud efforts like these to evaluate interventions that are designed to promote forgiveness as a partial solution to difficult social problems.

### Conclusion

Ten years ago, researchers could easily keep abreast of all of the major theoretical and empirical developments on forgiveness. That era is over. Forgiveness has become a legitimate topic for research in the social and life sciences. As a result, the knowledge base is growing admirably—and quickly. Attention is expanding beyond granting interpersonal forgiveness to other topics including (a) seeking forgiveness, (b) self-forgiveness, and (c) resolving anger toward God.

Our understanding of forgiveness gets clearer with each passing year. Forgiveness is associated with emotional stability, agreeableness, a focus on others, and religious commitment. Forgiveness is aided by apology, restitution, and sincere remorse, which may influence forgiveness by making transgressors seem worthy of care, valuable, and safe. Forgiveness can be encouraged through individual and group interventions, and it is associated with happiness, well-being, physiological indicators of resilience, and positive interpersonal outcomes.

Despite the positives, forgiveness is difficult—especially in cases of severe, potentially life-changing harms. Insofar as the world needs more forgiveness (and we think it does), one challenge for future research is to explore interventions and societal institutions that can help people safely and effectively extend their natural abilities to forgive into interpersonal and social predicaments in which revenge might be a more natural or preferred behavioral inclination. If researchers and policy reformers can develop interventions to help crime victims safely and voluntarily forgive (even violent) perpetrators, and to help Rwandan Tutsis and Hutus to forgive each other, then perhaps there is hope for the rest of us.



## References

- Aureli, F., Cozzolino, R., Cordischi, C., & Scucchi, S. (1992). Kin-oriented redirection among Japanese macaques: An expression of a revenge system? *Animal Behavior*, *44*, 283-291.
- Aureli, F., & de Waal, F. B. M. (2000). *Natural conflict resolution*. Berkeley, CA: University of California Press.
- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Baskin, T. W., & Enright, R. D. (2004). Intervention studies on forgiveness: A meta-analysis. *Journal of Counseling and Development*, *82*, 79-90.
- 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*, 25-36.
- Batson, C. D., Ahmad, N., Lishner, D. A., & Tsang, J. (2002). Empathy and altruism. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 485-498). New York: Oxford University Press.
- Berry, J. T., Worthington, E. L., Wade, N. G., Witvliet, C. v. O., & Keifer, R. (2005). Forgiveness, moral identity, and perceived justice in crime victims and their supporters. *Humboldt Journal of Social Relations*, *29*, 136-162.
- Boehm, C. (1987). *Blood revenge: The enactment and management of conflict in Montenegro and other tribal societies* (2nd ed.). Philadelphia: University of Pennsylvania Press.
- Bono, G., & McCullough, M. E. (2006). Positive responses to benefit and harm: Bringing forgiveness and gratitude into cognitive therapy. *Journal of Cognitive Psychotherapy*, *20*, 147-158.
- Bono, G., McCullough, M. E., & Root, L. M. (2006). *Forgiveness and well-being*. Coral Gables, FL: University of Miami.

- Bottom, W. P., Gibson, K., Daniels, S. E., & Murnighan, J. K. (2002). When talk is not cheap: Substantive penance and expressions of intent in rebuilding cooperation. *Organization Science, 13*, 497-513.
- Boyd, R., & Richerson, P. J. (1992). Punishment allows the evolution of cooperation (or anything else) in sizable groups. *Ethology and Sociobiology, 13*, 171-195.
- Brose, L. A., Rye, M. S., Lutz-Zois, C., & Ross, S. R. (2005). Forgiveness and personality traits. *Personality and Individual Differences, 39*, 35-46.
- Brown, R. P. (2003). Measuring individual differences in the tendency to forgive: Construct validity and links with depression. *Personality and Social Psychology Bulletin, 29*, 759-771.
- Cohen, A. B., Malka, A., Rozin, P., & Cherfas, L. (2006). Religion and unforgivable offenses. *Journal of Personality, 74*, 85-117.
- Crombag, H., Rassin, E., & Horselenberg, R. (2003). On vengeance. *Psychology, Crime and Law, 9*, 333-344.
- Daly, M., & Wilson, M. (1988). *Homicide*. New York: Aldine de Gruyter.
- de Jong, P. J., Peters, M. L., & de Cremer, D. (2003). Blushing may signify guilt: Revealing effects of blushing in ambiguous social situations. *Motivation and Emotion, 27*, 225-249.
- de Quervain, D. J.-F., Fischbacher, U., Treyer, V., Schellhammer, M., Schnyder, U., Buck, A., et al. (2004). The neural basis of altruistic punishment. *Science, 305*, 1254-1258.
- Depue, R. A., & Morrone-Strupinsky, J. V. (2005). A neurobehavioral model of affiliative bonding: Implications for conceptualizing a human trait of affiliation. *Behavioral and Brain Sciences, 28*, 313-350.
- DeShea, L., Tzou, J., Kang, S., & Matsuyuki, M. (2006, January). *Trait forgiveness II: Spiritual vs religious college students and the five-factor model of personality*. Paper presented at

the Annual Conference of the Society for Personality and Social Psychology, Palm Springs, CA.

- Dugatkin, L. A. (1988). Do guppies play Tit-for-Tat during predator inspection visits? *Behavioral Ecology and Sociobiology*, *25*, 395-399.
- Eaton, J., & Struthers, C. W. (2006). The reduction of psychological aggression across varied interpersonal contexts through repentance and forgiveness. *Aggressive Behavior*, *32*, 195-206.
- Eaton, J., Struthers, C. W., & Santelli, A. G. (2006). Dispositional and state forgiveness: The role of self-esteem, need for structure, and narcissism. *Personality and Individual Differences*, *41*, 371-380.
- Enright, R. D., & Coyle, C. T. (1998). Researching the process model of forgiveness within psychological interventions. In E. L. Worthington (Ed.), *Dimensions of forgiveness: Psychological Research and Theological Perspectives* (pp. 139-161). Philadelphia, PA: Templeton Foundation Press.
- Exline, J. J., Baumeister, R. F., Bushman, B. J., Campbell, W. K., & Finkel, E. J. (2004). Too proud to let go: Narcissistic entitlement as a barrier to forgiveness. *Journal of Personality and Social Psychology*, *87*, 894-912.
- Finkel, E. J., Rusbult, C. E., Kumashiro, M., & Hannon, P. A. (2002). Dealing with a betrayal in close relationships: Does commitment promote forgiveness? *Journal of Personality and Social Psychology*, *82*, 956-974.
- Fry, D. P. (2006). *The human potential for peace: An anthropological challenge to assumptions about war and violence*. New York: Oxford.
- Gold, G. J., & Weiner, B. (2000). Remorse, confession, group identity, and expectancies about repeating a transgression. *Basic and Applied Social Psychology*, *22*, 291-300.

- Gordon, K. C., & Baucom, D. H. (2003). Forgiveness and marriage: Preliminary support for a measure based on a model of recovery from a marital betrayal. *American Journal of Family Therapy, 31*, 179-199.
- Gordon, K. C., Baucom, D. H., & Snyder, D. K. (2005). Forgiveness in couples: Divorce, infidelity, and couples therapy. In E. L. Worthington (Ed.), *Handbook of Forgiveness* (pp. 423-439). New York: Routledge.
- Gordon, K. C., Burton, S., & Porter, L. (2004). Predicting the intentions of women in domestic violence shelters to return to partners: Does forgiveness play a role? *Journal of Family Psychology, 18*, 331-338.
- Greer, T., Berman, M., Varan, V., Bobrycki, L., & Watson, S. (2005). We are a religious people; we are a vengeful people. *Journal for the Scientific Study of Religion, 44*, 45-57.
- 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, 95*-101.
- Hettema, J. M., Neale, M. C., Myers, J. M., Prescott, C. A., & Kendler, K. S. (2006). A population-based twin study of the relationship between Neuroticism and internalizing disorders. *American Journal of Psychiatry, 163*, 857-864.
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science, 241*, 540-545.
- Hoyt, W. T., Fincham, F., McCullough, M. E., Maio, G., & Davila, J. (2005). Responses to interpersonal transgressions in families: Forgivingness, forgivability, and relationship-specific effects. *Journal of Personality and Social Psychology, 89*, 375-394.
- Hruschka, D. J., & Henrich, J. (2006). Friendship, cliquishness, and the emergence of cooperation. *Journal of Theoretical Biology, 239*, 1-15.

Karremans, J. C., & Van Lange, P. A. M. (2004). Back to caring after being hurt: The role of forgiveness. *European Journal of Social Psychology, 34*, 207-227.

Karremans, J. C., Van Lange, P. A. M., & Holland, R. W. (2005). Forgiveness and its associations with prosocial thinking, feeling, and doing beyond the relationship with the offender. *Personality and Social Psychology Bulletin, 31*, 1315-1326.

Karremans, J. C., Van Lange, P. A. M., Ouwerkerk, J. W., & Kluwer, E. S. (2003). When forgiving enhances psychological well-being: The role of interpersonal commitment. *Journal of Personality and Social Psychology, 84*, 1011-1026.

Kendler, K. S., Liu, X., Gardner, C. O., McCullough, M. E., Larson, D. B., & Prescott, C. A. (2003). Dimensions of religiosity and their relationship to lifetime psychiatric and substance use disorders. *American Journal of Psychiatry, 160*, 496-503.

Knutson, B., & Wimmer, G. E. (2006). Reward: Neural circuitry for social valuation. In E. Harmon-Jones & P. Winkielman (Eds.), *Fundamentals of social neuroscience*. New York: Guilford.

Lawler, K. A., Younger, J. W., Piferi, R. L., Billington, E., Jobe, R., Edmondson, K., et al. (2003). A change of heart: Cardiovascular correlates of forgiveness in response to interpersonal conflict. *Journal of Behavioral Medicine, 26*, 373-393.

Mahoney, A., Rye, M. S., & Pargament, K. I. (2005). When the sacred is violated: Desecration as a unique challenge to forgiveness. In E. L. Worthington (Ed.), *Handbook of forgiveness* (pp. 57-71). New York: Routledge.

McCullough, M. E., Bono, G., & Root, L. M. (in press). Rumination, emotion, and forgiveness: Three longitudinal studies. *Journal of Personality and Social Psychology*.

- McCullough, M. E., Bono, G. B., & Root, L. M. (2005). Religion and forgiveness. In R. Paloutzian & C. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 394-411). New York: Guilford.
- McCullough, M. E., Emmons, R. A., Kilpatrick, S. D., & Mooney, C. N. (2003). Narcissists as "victims": The role of narcissism in the perception of transgressions. *Personality and Social Psychology Bulletin*, *29*, 885-893.
- McCullough, M. E., Fincham, F. D., & Tsang, J. (2003). Forgiveness, forbearance, and time: The temporal unfolding of transgression-related interpersonal motivations. *Journal of Personality and Social Psychology*, *84*, 540-557.
- McCullough, M. E., & Hoyt, W. T. (2002). Transgression-related motivational dispositions: Personality substrates of forgiveness and their links to the Big Five. *Personality and Social Psychology Bulletin*, *28*, 1556-1573.
- McCullough, M. E., Rachal, K. C., Sandage, S. J., Worthington, E. L., Brown, S. W., & Hight, T. L. (1998). Interpersonal forgiving in close relationships. II: Theoretical elaboration and measurement. *Journal of Personality and Social Psychology*, *75*, 1586-1603.
- McCullough, M. E., Root, L. M., & Cohen, A. D. (in press). Writing about the personal benefits of a transgression facilitates forgiveness. *Journal of Consulting and Clinical Psychology*.
- McCullough, M. E., & Witvliet, C. v. O. (2000). The psychology of forgiveness. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology*. New York: Oxford.
- McCullough, M. E., Worthington, E. L., & Rachal, K. C. (1997). Interpersonal forgiving in close relationships. *Journal of Personality and Social Psychology*, *73*, 321-336.
- Nadler, A., & Liviatan, I. (2006). Intergroup reconciliation: Effects of adversary's expressions of empathy, responsibility, and recipients' trust. *Personality and Social Psychology Bulletin*, *32*, 459-470.

- Nowak, M., & Sigmund, K. (1993). A strategy of win-stay, lose-shift that outperforms tit-for-tat in the Prisoner's Dilemma Game. *Nature*, *364*, 56-58.
- Root, L. M., & McCullough, M. E. (in press). Low cost interventions for promoting forgiveness. In L. L'Abate, D. D. Embry & M. S. Baggett (Eds.), *Handbook of low-cost interventions to promote physical and mental health*. New York: Springer-Verlag.
- Rye, M. S., Loiacono, D. M., Folck, C. D., Olszewski, B. T., Heim, T. A., & Madia, B. P. (2001). Evaluation of the psychometric properties of two forgiveness scales. *Current Psychology*, *20*, 260-277.
- Rye, M. S., Pargament, K. I., Pan, W., Yingling, D. W., Shogren, K. A., & Ito, M. (2005). Can group interventions facilitate forgiveness of an ex-spouse?: A randomized clinical trial. *Journal of Consulting & Clinical Psychology*, *73*, 880-892.
- Schmitt, D. P., & Pilcher, J. J. (2004). Evaluating evidence of psychological adaptation: How do we know one when we see one? *Psychological Science*, *15*, 643-649.
- Sherman, L. W., Strang, H., Angel, C., Woods, D., Barnes, G. C., Bennett, S., et al. (2005). Effects of face-to-face restorative justice on victims of crime in four randomized, controlled trials. *Journal of Experimental Criminology*, *1*, 367-395.
- 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*, 466-469.
- Staub, E., Pearlman, L. A., Gubin, A., & Hagengimana, A. (2005). Healing, reconciliation, forgiving, and the prevention of violence after genocide or mass killing: An intervention and its experimental evaluation in Rwanda. *Journal of Social and Clinical Psychology*, *24*, 297-334.

- Subkoviak, M. J., Enright, R. D., Wu, C., & Gassin, E. A. (1995). Measuring interpersonal forgiveness in late adolescence and middle adulthood. *Journal of Adolescence, 18*, 641-655.
- Thayer, J. F., & Lane, R. D. (2000). A model of neurovisceral integration in emotion regulation and dysregulation. *Journal of Affective Disorders, 61*, 201-216.
- Thompson, L. Y., Snyder, C. R., Hoffman, L., Michael, S. T., Rasmussen, H. N., Billings, L. S., et al. (2005). Dispositional forgiveness of self, others, and situations. *Journal of Personality, 73*, 313-359.
- Tsang, J., McCullough, M. E., & Fincham, F. (2006). The longitudinal association between forgiveness and relationship closeness and commitment. *Journal of Social and Clinical Psychology, 25*, 448-472.
- Tsang, J., McCullough, M. E., & Hoyt, W. T. (2005). Psychometric and rationalization accounts for the religion-forgiveness discrepancy. *Journal of Social Issues, 785-805*.
- Wade, N. G., Worthington, E. L., & Meyer, J. E. (2005). But do they work? A meta-analysis of group interventions to promote forgiveness. In E. L. Worthington (Ed.), *Handbook of forgiveness* (pp. 423-439). New York: Routledge.
- Witvliet, C. v. O., Ludwig, T. E., & Vander Laan, K. L. (2001). Granting forgiveness or harboring grudges: Implications for emotion, physiology, and health. *Psychological Science, 12*, 117-123.
- Witvliet, C. v. O., & McCullough, M. E. (2005). Forgiveness and health: A review and theoretical exploration of emotion pathways. In S. G. Post (Ed.), *Altruism and health: Is it good to be good?* New York: Oxford.
- Worthington, E. L. (2001). *Five steps to forgiveness: The art and science of forgiving*. New York: Crown.

Worthington, E. L., & Scherer, M. (2004). Forgiveness as an emotion-focused coping strategy that can reduce health risks and promote health resilience: Theory, review, and hypotheses. *Psychology and Health, 19*, 385-405.

Zechmeister, J. S., Garcia, S., Romero, C., & Vas, S. N. (2004). Don't apologize unless you mean it: A laboratory investigation of forgiveness and retaliation. *Journal of Social and Clinical Psychology, 23*, 532-564.

Zechmeister, J. S., & Romero, C. (2002). Victim and offender accounts of interpersonal conflict: Autobiographical narratives of forgiveness and unforgiveness. *Journal of Personality and Social Psychology, 84*, 675-686.