Feeling loved and comforted, that others will provide support when needed and that the world is a safe place, has been shown to be an important foundation in people’s prosocial behavior. These feelings of safety and security facilitate helping by reducing personal concerns or woes that weigh people down and focus their attention inward, and by making people feel they have the skills and resources they need to help others. These feelings, or sense, of security are largely grounded in developing loving and caring relationships with close others. Examining security from a relationship perspective therefore provides important insights into how relationship processes shape security and how this in turn shapes helping and prosocial behavior more generally. Attachment theory, a widely studied theory of relationships and human bonding, has already been shown in the literature to provide a useful framework to understand the genesis and interpersonal dynamics that shape the association between security and prosocial behavior. In the current chapter we review the theory and research dedicated to this association.

Attachment, according to Bowlby (1982), is a behavioral system whose set goal is “felt security”—a state encompassing a sense of physical and emotional safety. A behavioral system is a species-universal, innate neural program that organizes an organism’s behavior in ways that serve an important survival or reproductive function (Belsky, 1999). The primary function of the attachment system is to promote survival by motivating people to regain or maintain proximity to caregivers who can provide protection and relief and thus help them (re)gain a sense of security. The attachment system is especially important when people are threatened or stressed; it is then that the system is activated, guiding one’s behavior toward fulfillment of the system’s goal (Bowlby, 1982; Mikulincer & Shaver, 2007b). While crucial during stress, the attachment system is known to affect behavior in non-threatening situations as well (Mikulincer & Shaver, 2007b), via the mental representations or internal working models that people develop through their interactions with their primary caregivers—termed attachment figures (Bowlby, 1982).

Interactions with sensitive and responsive attachment figures tend to result in the development of positive mental models or representations regarding one’s worthiness of love and support, and others’ trustworthiness and likelihood of providing help and support. Over time, these models contribute to the development of a person’s attachment style. Attachment style—a trait-like construct associated with specific emotions, cognitions, and behaviors—can be secure or insecure in nature.
Attachment security is positively associated with various beneficial outcomes and—especially relevant to the current chapter—prosocial behavior and attitudes.

In this chapter, we briefly review the attachment literature, discuss attachment styles with an emphasis on attachment security and its enhancement via priming, and expand on the association of security with prosociality. We then discuss underlying mechanisms of attachment security and its association with prosociality, and conclude with the broader impact and implications of work in attachment on the area of prosocial behavior.

**Attachment Theory and Research**

Beginning in infancy, people rely on close relationship partners, or attachment figures, to cope with life stressors and threats. Attachment figures—who in childhood are one’s primary caregivers—provide guidance, protection, comfort, and support (Bowlby, 1982). Over time, interactions with these figures are consolidated into mental representations termed *internalized working models* (e.g., Bretherton & Munholland, 1999). These models represent the self (as worthy of being loved) and others (as likely to provide help, and in general the world as a safe place). The models or mental representations are associated in long-term memory with particular emotions, motives, goals, and behaviors that collectively form a person’s attachment style (e.g., Gillath et al., 2006; Mikulincer & Shaver, 2007a).

The formation of attachment style is thought to rely on learning processes such as conditioning (Mikulincer & Shaver, 2007a). As such, interactions with attachment figures that provide safety and support in times of need reinforce associations in long-term memory between turning to these figures for support and having one’s insecurity and distress reduced and sense of security restored. Eventually, merely calling a supportive attachment figure to mind becomes a source of solace and acts as a mental resource against life stressors and strains (Canterberry & Gillath, 2012; Mikulincer & Shaver, 2004). Whereas repeated encounters with sensitive and responsive attachment figures are likely to result in the formation of a secure attachment style (see De Wolff & van IJzendoorn, 1997, for a meta-analysis), interactions with inconsistent, insensitive, and unresponsive attachment figures are likely to result in the development of an insecure attachment style (Mikulincer & Shaver, 2007b). As a result of these experiences with attachment figures, people with an insecure attachment style develop negative representations of their relationships, relationship partners, and in some cases themselves.

Attachment insecurity can be further parsed into two dimensions: attachment anxiety and avoidant attachment (Brennan, Clark, & Shaver, 1998). Attachment anxiety reflects the degree to which a person worries about potential rejection or a partner’s lack of availability in times of need. It is also thought to reflect the tendency to be clingy and hyper-vigilant to threat. People high on anxiety tend to adopt hyper-activating strategies, which involve a chronic activation of the attachment system, a heightened sense of distress and threat, and a tendency to present oneself as vulnerable and in constant need of help. Attachment anxiety is thought to result from interactions with a caregiver who is inconsistent or intrusive in the care he or she provides to the person in need (for a review, see Mikulincer & Shaver, 2007b).

Attachment avoidance is thought to reflect a person’s distrust in relationship partners and the tendency to maintain behavioral independence and emotional distance from relationship partners. People high on avoidance tend to adopt deactivating strategies, involving an increased threshold in relation to threat and distress, and constant attempts to downplay the importance of potential threats and the need for closeness or help—a behavioral pattern termed by Bowlby (1982) *compulsive self-reliance*. Attachment avoidance is thought to result from childhood experiences with cold, rejecting caregivers who encouraged the child to cope on his or her own when dealing with distress.
Levels of anxiety and avoidance can be easily assessed using self-report measures, which commonly provide an independent score on each attachment dimension (e.g., Brennan et al., 1998; Fraley & Waller, 1998). People who score low on both anxiety and avoidance are said to be secure or to have a secure attachment style. Although throughout this chapter we refer to people as secure, anxious, or avoidant, we use these terms not to denote discrete categories or types of people but rather to portray people’s relative positioning along the primary attachment dimensions of anxiety and avoidance.

Hundreds of studies to date have shown that secure attachment predicts relationship satisfaction and well-being, is associated with more adaptive forms of coping with stress and regulating affect, and provides a form of resilience that reduces the likelihood of developing psychological disorders (Cassidy & Shaver, 2008; Obegi & Berant, 2010; Wallin, 2007). Furthermore, and important for the current chapter, attachment security has also been found to be associated with acts of prosociality (for reviews, see Canterberry & Gillath, 2012; Mikulincer & Shaver, 2007a).

**Attachment and Prosociality: The Interplay Between the Attachment and Caregiving Behavioral Systems**

The concepts of prosociality, altruism, and empathy have often been studied within an attachment theory framework via the interplay between the attachment system and a related behavioral system—the caregiving system. The caregiving system is activated when another individual is suffering or in need of comfort and security (Canterberry & Gillath, 2012; Gillath et al., 2005). Thus, the caregiving system is a complementary behavioral system to the attachment system in that it motivates individuals to offer assistance, comfort, and support in response to the cues generated by another person’s attachment system (Canterberry & Gillath, 2012; Karantzas & Simpson, 2015).

While the caregiving system is functionally different from the attachment system, the two behavioral systems have been proposed by Bowlby (1982) to work together in shaping people’s behavior in close relationships (e.g., George & Solomon, 1999; Mikulincer & Shaver, 2009). We (Canterberry & Gillath, 2012; Gillath et al., 2005) and others (e.g., B.C. Feeney & Collins, 2001) have argued that while there is a natural tendency to provide care to dependent or needy others, the interplay between the two systems can result in caregiving tendencies being suppressed or overridden by attachment insecurity (Kunce & Shaver, 1994). Thus, a person’s attachment style (i.e., secure or insecure) is thought to influence the interplay between these two behavioral systems, as well as the outcomes of this interplay. We briefly outline this interplay below.

When encountering threats, people are likely to experience an activation of their attachment system. As a result, they tend to focus on their own distress and anxiety and turn to others for support and comfort. However, noticing that another person also faces danger or is distressed activates the caregiving system as well. Then, one of two possible reactions may occur. On the one hand, the person may ignore the distress of another and continue to focus on his or her worries; alternatively, the person may shift his or her focus away from his or her own anxieties and concerns to address the distress of the other through the provision of care and support.

But what determines whether the interplay between the two systems will result in a reaction of self-focused concern (an act of non-prosociality) or an other-oriented one (provision of help/care—an act of prosociality)? One factor relates to whether a person has available the necessary mental resources to attend compassionately to other people who are in need of help (Mikulincer & Shaver, 2004). Our work, and that of others, suggests that attachment style may be associated with the mental resources available to individuals when faced with such caregiving dilemmas. In particular, secure individuals are thought to possess various mental resources (e.g., attention and energy) as well as the flexibility to direct these resources toward the functioning of other behavioral systems such as the caregiving system. Secure people are also thought to be able
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to regulate their own emotions while providing care, which could otherwise generate personal distress, cognitive and emotional strain, and depletion of mental resources (e.g., Batson, Fultz, & Schoenrade, 1987; Finkel & Campbell, 2001; Fredrickson, 2001).

Thus, this sense of security allows a person to perceive others not only as a source of security and support but as people who might themselves be in need of help in times of distress and suffering. Furthermore, this sense of security allows people to focus on the needs of others and engage in the act of helping by temporarily forgoing their own needs. Finally, mental representations associated with attachment security are thought to provide a model for helping behavior that secure individuals can implement. That is, remembering how one was assisted in the past, or how a caregiver behaved in the past, can provide guidelines and knowledge to deal with a situation when help is needed.

In contrast to securely attached individuals, insecure individuals may fail to notice people in need or may lack the mental resources necessary to provide sensitive and effective care to others. Without these resources, insecure individuals may choose to ignore others in need or become so overwhelmed that they may be unable to provide help. Even when they notice others in need and possess some resources to provide support (e.g., time, money, energy), insecure people appear to lack the mental models or experience on which to base their provision of help (Mikulincer & Shaver, 2004). Insecure individuals lack not only the sense of security to buffer the negative feelings evoked by the threatening situation but also the knowledge and expertise about how to respond.

Thus, the degree of sensitive and responsive care that an individual experiences in childhood and adulthood not only influences the development of one’s attachment style but also shapes one’s caregiving style (Kunce & Shaver, 1994). Experiencing responsive and sensitive parenting promotes a secure attachment style and provides good models of how to provide effective caregiving, while experiencing inept and inconsistent parenting promotes an insecure attachment style and retards the development of models regarding effective caregiving (N. L. Collins & Feeney, 2000; Kunce & Shaver, 1994).

Readers may notice the similarity between our description of securely and insecurely attached people’s helping and the five-stage helping model suggested by Latane and Darley (1970). As part of their model, Latane and Darley propose that helping behavior involves a sequence of attentional, cognitive, and attitudinal responses that shape the extent to which help is provided. First, it is proposed that a person must perceive or notice an event in which another individual needs help. Second, the person must interpret the extent to which the situation is an emergency, with a greater sense of emergency resulting in a greater motivation to act. Third, the person must accept responsibility for the situation and thus feel a sense of duty/obligation to assist. Fourth, the person needs to reflect on his or her sense of self-efficacy to help—an individual with low self-efficacy may feel he or she is unable to adequately render support compared to an individual high on self-efficacy. Fifth, the person weighs the rewards and costs associated with engaging in the act of helping.

Combining Latane and Darley’s (1970) model with attachment theory, one could assume that the history that shaped their insecure attachment left insecurely attached people with little to no experience of help provision and caring. As a result, insecurely attached people may lack the attentional capacity to perceive a need for help or have a low sense of self-efficacy when it comes to helping. For instance, an insecurely attached person may have an internal dialogue in the spirit of: “I don’t know what ‘good caregiving is’ so I don’t feel confident that I can effectively be a good caregiver to others.” This example illustrates how the association between attachment and prosocial behavior in the form of caregiving can be explained via more general models focusing on broader forms of prosocial behavior, such as the one espoused by Latane and Darley (see more about this similarity in Canterberry & Gillath, 2012).
Evidence for the Link Between Attachment, Caregiving, and Prosocial Behavior. The association between attachment style and caregiving has been demonstrated across different contexts of prosocial behavior and relationship contexts. For example, secure individuals have been found to endorse more prosocial values such as benevolence and universalism, spend more time volunteering, engage in more volunteering activities, exhibit higher generosity, and report altruistic reasons for volunteering as compared to people scoring high on attachment avoidance or anxiety (e.g., Gillath et al., 2005). Moreover, our research on attachment, caregiving, and volunteerism has replicated these associations across the United States, the Netherlands, and Israel. These findings suggest that, cross-culturally, attachment security is an important resource when it comes to people’s tendencies to engage in prosocial behavior (we discuss this further below when we talk about priming security). Whereas both secure and insecure individuals may feel the urge to alleviate suffering by providing help, insecurely attached people are likely to feel overwhelmed or ill-equipped to do so—in other words, not having the resources to help others—which reduces the chances of help provision.

Similar findings regarding attachment and prosociality have been found in other contexts. For instance, high school students high on attachment anxiety or avoidance were perceived by peers as less supportive than their secure classmates and were less likely than secure students to engage in reciprocally supportive relationships (Priel, Mitrany, & Shahar, 1998). Within the context of family caregiving, our work and that of others has found that attachment anxiety and avoidance are negatively associated with adult children’s current care of older parents (Carpenter, 2001; Crispi, Schiaffino, & Berman, 1997; Karantzas, 2012; Karantzas, Evans, & Foddy, 2010). Relatedly, lower scores on the anxiety and avoidance dimensions (secure attachment) were also found to predict adult children’s future care plans for older relatives, suggesting that secure adults are care-oriented even before care is explicitly called for (Sörensen, Webster, & Roggman, 2002; see also Karantzas, 2012; Karantzas et al., 2010).

As attachment security has repeatedly been associated with numerous positive caregiving-related outcomes, orienting people toward a secure attachment style or enhancing their sense of security is likely to result in more caregiving and helping behavior and less caregiving-related strain. Thus, fostering attachment security and effective functioning of the caregiving system can significantly enhance people’s prosocial tendencies and behaviors. Next, we review the literature on the enhancement of attachment security and its effects on outcomes related to caregiving and prosociality more broadly.

Enhancing the Sense of Attachment Security: Security Priming

Although attachment style is thought to be relatively stable and trait-like in nature (Fraley, Vicary, Brumbaugh, & Roisman, 2011), people are thought to develop multiple mental representations as a function of the various interactions and relationships over their life span (N. L. Collins & Read, 1994; Overall, Fletcher, & Friesen, 2003). Therefore, people may hold a particular attachment mental representation about a parent (e.g., an insecure attachment representation) that may be different from the attachment mental representations they hold about a romantic partner (e.g., a secure attachment representation). Research by our own team and by others suggests that each of these different attachment representations or working models can be temporarily activated and become more cognitively accessible (Baldwin, Keelan, Fehr, Enns, & Koh–Rangarajoo, 1996; Gillath, Hart, Noflde, & Stockdale, 2009). This means that people can be made to feel more or less secure, at least for a short period of time; by invoking memories or thoughts of significant others with whom one associates either a secure or an insecure attachment representation (see Gillath, Selcuk, & Shaver, 2008, for a review on long-term priming effects).

When a person’s sense of security is activated or enhanced by invoking secure attachment representations, a number of related cognitive and affective processes take place. First, the internalized
schema of the positive, supportive interactions with a caregiver is activated and serves as a source of comfort—a safe haven. Recalling supportive interactions with caregivers allows people to recall how they felt when they were helped, and, in turn, the affective response that is invoked is thought to enhance positive emotions and to relax a person when threatened or stressed. Importantly, this affective response is likely to reduce the activation of the attachment system. Second, past interactions with caregivers provide a model for people regarding how to deal with their own stress and the distress of others during stressful situations. Third, activating a sense of security enhances the mental resources and capacities of individuals, allowing them to shift the focus of attention from themselves and their own issues to the needs and welfare of others (Gillath et al., 2008; Mikulincer & Shaver, 2004).

That is, beyond the affective changes (putting people into a relaxed and positive affective state), and examples or models of how to behave, security can provide an energetic boost, which goes beyond bringing people back to baseline (i.e., not feeling insecure anymore). From a motivational perspective, reaching baseline usually means less motivation to act. The fact that people are more motivated to act (help others) when primed with security suggests that security actually provides them with additional resources or energy they can spend on these acts (see also below regarding our work on attachment and glucose). In other words, security, beyond relaxation, provides both the map (scheme) and the fuel (mental energy) for acting prosocially.

Enhancing a person’s sense of attachment security can be achieved in a variety of ways—these include engaging in a supportive relationship with a romantic partner or friend, attending therapy, or being exposed to various experimental manipulations designed to prime security (e.g., Gillath et al., 2008; Mikulincer & Shaver, 2007a). In our studies, we have used various subliminal (implicit; i.e., a cue that is inaccessible to the conscious mind but still affects behavior and emotions, such as an image presented for 20 milliseconds) and supraliminal (i.e., an explicit or conscious cue, such as an image presented for 500 milliseconds) security priming methods, such as the presentation of pictures implying attachment-figure availability (e.g., a Picasso drawing of a mother cradling an infant in her arms, a couple holding hands and gazing into each other’s eyes); the presentation of the names of security-providing attachment figures, or of words associated with a sense of security (e.g., “love,” “hug,” “comfort”); and guided imagery concerning either the availability and supportiveness of attachment figures or security-enhancing interactions (e.g., describing a time when one received comfort and support from a loved one; Mikulincer & Shaver, 2007a).

The idea behind these priming manipulations is that stimuli associated with a sense of security enter the semantic network and create a process of “spreading activation” (A. M. Collins & Loftus, 1975; Förster & Liberman, 2007) that touches on affective as well as semantic “nodes,” thereby creating a sense of security similar to that which might be evoked by an actual supportive attachment figure. Indeed, our work shows that security primes temporarily activate mental representations of attachment figures and the support and comfort they provide, which in turn increases (even insecure) people’s sense of attachment security, shaping their behaviors and cognitions in a fashion that is similar to that of secure individuals (e.g., Gillath, Sesko, Shaver, & Chun, 2010; Gillath & Shaver, 2007).

Across a number of studies, we have compared the effects of security primes with those of other types of primes to further ascertain the unique and beneficial qualities of enhancing people’s sense of security. Specifically, security primes have been compared to emotionally positive but attachment-unrelated stimuli (e.g., pictures of a large amount of money, the names of close others who do not serve attachment needs) and self-esteem-related stimuli (e.g., words that describe positive events related to one’s sense of self and not to attachment; e.g., Gillath et al., 2009).

Our studies and those of others (e.g., Carnelley & Rowe, 2010) have consistently found beneficial effects (e.g., increased helping behavior, lower aggression, greater well-being, fewer mental health symptoms) of attachment-related stimuli that are above and beyond the effects of other
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non-attachment-related but positive stimuli. We have also demonstrated that the beneficial effects of security primes persist even under threatening conditions (e.g., when coping with negative affect or when threatened)—effects that were not found when using non-attachment-related primes (Mikulincer, Hirschberger, Nachmias, & Gillath, 2001). Finally, repeated security priming was found to yield long-lasting positive effects (such as increases in self-esteem and positive mood; Gillath et al., 2008), suggesting that the effects of attachment security priming could be maintained over time. Our results are in line with Lemay’s work (see current volume) on the interpersonal security regulation model. Specifically, Lemay suggests that when person perceives expressions of insecurity by his or her partner, the “perceiver” can respond in a way that bolsters the partner’s felt security. It is possible that over time the security-enhancing responses by the perceiver may aid chronically insecure partners to become secure via repeated interactions over time.

In many of the studies conducted to date, security priming procedures (Mikulincer & Shaver, 2007b) do not appear to interact with attachment style (i.e., trait attachment anxiety and avoidance); rather, these priming procedures yield beneficial effects on most study participants regardless of their dispositional attachment style. For example, in one study conducted in our laboratory (Gillath & Shaver, 2007) people were asked to select how they would respond to various relational scenarios, many of which included negative acts by their partner (e.g., their partner betraying them).

At first people were asked to select among different behaviors that represent secure, anxious, or avoidant responses to the act. In this first stage of the study, people’s attachment style was found to predict which option they were likely to select (e.g., anxious people were likely to select an anxious response). In the second stage of the study, participants were primed with a security or insecurity prime first and then completed the questionnaire including the hypothetical scenarios again. Priming people with a security prime caused them to react in a secure manner to threatening relationship scenarios, regardless of their dispositional attachment style. By and large, the responses chosen after exposure to security priming were prosocial in nature.

Although in many studies the effects of security occur regardless of one’s dispositional style, some studies have shown that security priming may actually interact with people’s dispositional style. In one recent study (Shaver, Mikulincer, Lavy, & Cassidy, 2009), participants were asked to recall an incident when a close relationship partner hurt their feelings. After recalling this event, participants were primed with a security prime or a control prime and then asked to rate their current feelings. Security priming had a different effect on people as a function of their attachment styles. Among anxiously attached individuals it reduced the tendency to exaggerate and augment hurt feelings, leading to a decrease in reported hurt feelings. Conversely, among avoidantly attached individuals security priming decreased the tendency to defensively deny hurt feelings or to react aggressively rather than minimize the experience of being hurt. That is, increasing people’s sense of security lowered avoidant individuals’ defensive tendencies (see also Arndt, Schimel, Greenberg, & Pyszczynski, 2002), leading to an increase in reported hurt feelings.

Additional support comes from another recent study conducted in our laboratory that focused on breakup strategies (T. J. Collins & Gillath, 2012). Participants were asked to select which breakup strategy best fits their usual tendencies (e.g., the degree to which they engage in compassionate or direct strategies). In one study, people’s attachment styles were found to predict which strategies they selected (e.g., people high on avoidance chose less direct breakup strategies and those high on anxiety chose strategies meant to keep the option of getting back together open). We then primed participants with either a security or a control prime. We found that the prime interacted with people’s attachment style, such that those high on avoidance were less likely to choose the less direct strategies, and those high on anxiety were less likely to select the “keep options open” strategies after exposure to the security prime.
The findings reported above demonstrate the potential diversity in the effects of security priming and its interaction with attachment style. The fact that in some studies security priming interacts with chronic attachment style, and not in others, raises the issue of a potential moderator. Is it an issue of power (sample size), prime strength (some procedures are more efficient at increasing security), or some other factor? Future research will have to investigate which moderators may explain these diverse effects. The findings reviewed above also add to our notion that security priming truly increases a person’s sense of attachment security; it does not simply create a semantic connection between a positive stimulus and a resulting positive affect. The effects of security priming seem (even if only temporary in nature) to augment attachment system functioning.

As means of organizing the research related to security priming and its benefits, we recently conducted a systematic review of the area (Gillath, Karantzas, & Karantzas, 2015). Examining published and unpublished research papers and doctoral theses between the year 1981 and April 2013, we identified a total of 92 studies that examined the effects of security priming (most studies were conducted in the late 1990s and beyond after Baldwin and colleagues [1996] introduced the idea of multiple attachment models and their temporary activation). Just over 91% of studies reported an effect for security priming, with approximately 65% of studies employing supraliminal priming methods and the remainder of the studies employing subliminal methods. Related to the current chapter, approximately 30% of these studies investigated prosociality (see examples below), with investigations focusing on issues such as caregiving, blood donation, tolerance and interaction with outgroup members, volunteerism, minimization of deceit and cheating, experiencing of compassion and empathy when exposed to a distressed or needy individual, and general feelings of universalism and benevolence. Across all these studies investigating the effects of security priming on prosociality, an average effect size of $r = .28, p < .01$ was found. Thus, security priming is consistently associated with prosocial behavior.

**Security Priming and Prosociality**

Enhancing one’s sense of security has been found to increase other-oriented prosocial tendencies and behaviors. For example, Mikulincer, Gillath, and colleagues (2001, 2003) showed that priming people with attachment security primes led participants to endorse more self-transcendence values (universalism and benevolence) and report higher willingness to behave more empathically toward people in need. Moreover, participants who were exposed to a security prime actually exhibited a greater willingness to take the place of a fellow participant who could not complete various aversive tasks, as compared with participants in the control condition (Mikulincer, Shaver, Gillath, & Nitzberg, 2005).

Experimentally increasing people’s sense of attachment security has also been found to increase compassionate responses to others’ suffering, even among insecure individuals (Mikulincer et al., 2005). People high on attachment avoidance typically have less empathic reactions to others’ suffering, including being less willing to help a distressed person. However, when primed with a security prime, avoidantly attached people tended to be more prosocial, compassionate, and helping, similar to their secure counterparts (e.g., Mikulincer et al., 2005). Anxiously attached people are more likely to have an emotional reaction to a person in need. That is, they do not ignore or downplay the event but rather experience negative affect—termed personal distress by Batson et al. (1987). The negative emotions, accompanied with a sense of being overwhelmed by these emotions, make anxious people inwardly focused. Thus, while they may want to help another (in order to stop the negative emotions experienced from seeing another person in distress) they often cannot (because they are overwhelmed). This, in turn, leaves anxious individuals in a state where they are not more (or less) likely to provide help.
However, when primed with a security prime, anxiously attached people, much like avoidant ones, show increased levels of caregiving (for similar findings see Mikulincer, Gillath, et al., 2001; Mikulincer et al., 2003). These findings provide evidence for a causal link between attachment security and the tendency to care, such that enhancing a person’s sense of attachment security increases that person’s tendency to be more compassionate and behave in a more prosocial manner.

**Mechanisms Underlying Security Priming and Prosociality**

Although ample research documents the effects of attachment security, relatively little is known about the mechanisms and pathways by which security priming results in these effects. To address this gap in the literature, we (Canterberry & Gillath, 2012) recently conducted an fMRI study to examine the neural mechanisms that underlie enhanced attachment security. In our study, participants were exposed either subliminally (i.e., for 20–30 milliseconds) or supraliminally (500 milliseconds) to security- and insecurity-related words (i.e., “love” and “kindness” as examples of security versus “separation” and “rejection” as examples of insecurity). Security priming led to co-occurring activation in brain areas reflective of cognitive, affective, and behavioral processes (e.g., medial frontal cortex, parahippocampus, Brodmann area 6).

These findings support the conceptualization of attachment security as part of a behavioral system with multiple components (affective, cognitive, and behavioral). These components act together as a resource, enabling the functioning of other behavioral systems. Thus, brain activation goes along with the idea that security allows a person to relax, boosts the person’s self-esteem and positive affect, and buffers distress and anxiety (affective component). Security priming provides examples of how to deal with stressors, and schemas of a secure base scenario, and caregiving provision (cognitive). Finally, security priming increases one’s tendency to act on these prosocial or other-oriented tendencies (behavioral).

Further support for the idea that attachment security can act as a resource comes from another recent study focused on the association between security and glucose. Glucose serves as a vital resource for our metabolism and brain functioning (e.g., Gailliot et al., 2007). In our glucose study, we (Gillath, Pressman, Schoemann, Moskovitz, & Stetler, 2015) primed people with security or control primes and examined whether priming affected participants’ glucose levels assessed via saliva samples. If security indeed acts as a resource, one would expect an increase in glucose to occur following the security priming. As expected, we found that security priming resulted in higher glucose levels.

These findings suggest that security priming results not only in affective and cognitive changes (e.g., mood and attention) but also in physiological changes, and specifically the enhancement of physiological resources such as blood glucose levels. It is more than likely that the various cognitive, affective, behavioral, and neuro-physiological changes that have been linked to security priming are co-occurring. If this is the case, then it may be posited that the effects of security priming are multilevel in nature and involve various physiological and psychological pathways. Future research using a multilevel, multimethod approach to study security priming is likely to offer important insights into the mechanisms and processes that underpin attachment security.

With regard to security and prosociality, we recently (Gillath, Atchley, Imran, & El-Hodiri, 2015) conducted three studies to explore the relationship between generosity and attachment, by examining the effects of attachment security priming on generosity and responses to reciprocated or unreciprocated generous behavior. In the first study, we found attachment avoidance to be negatively associated with self-reported tendencies to feel and behave generously, whereas attachment anxiety was mainly associated with generosity-related guilt and burden.

Study 2 showed that participants who were exposed to a security prime while playing an online economic decision-making game showed higher levels of generous behavior. A third study
using event-related potentials (ERPs; a measure of brain activity during cognitive processing) demonstrated that attachment security primes reduced the emotional impact of negative feedback (as reflected in a reduced feedback negativity ERP component). Also, avoidantly attached participants showed a higher P3 response (an ERP response related to being surprised or experiencing a negative evaluation) when they lost money (or did not get back what they invested) but only when they were primed with an insecure or neutral prime. This effect was diminished in the security priming condition.

This suggests that security priming buffers negative reactions to the risks or losses associated with generous behavior. In other words, by making people focus on the needs of others (being generous and giving money) rather than on their own needs, and by reducing or buffering the negative effects of the giving not being reciprocated (feeling betrayed, frustrated, cheated, etc.), the security priming increased people’s generous behavior.

Implications and Conclusion

In this chapter, we have demonstrated that attachment security is a central predictor that is consistently associated with prosociality. We began by briefly describing attachment theory, attachment style, and the interplay between the attachment and caregiving systems. We then provided evidence for the link between attachment, caregiving, and prosociality. We then discussed how temporarily enhancing people's sense of attachment security via security priming works and how it can increase various forms of prosociality. Finally, we briefly outlined some possible affective, cognitive, and neural mechanisms underlying security priming and its effects on prosociality and in general.

The consistent findings regarding the effects of attachment security on prosocial tendencies and behaviors in the laboratory have recently raised the question whether the same effects can occur outside the laboratory. Some preliminary evidence suggests the answer to this question is yes. For instance, Charles-Sire, Guéguen, Pascual, and Meineri (2012), studying a blood drive on campus, showed that priming feelings of love made people more likely to donate blood. Although this study was not based on attachment theory, the authors used similar primes to those used in the attachment research (i.e., the word “love”), and the findings fit with the security priming literature reviewed in this chapter. This supports the possibility that security priming could be applied to other real-world contexts.

One such context is that of therapy (Davila, 2003). For instance, using therapeutic techniques that are similar to security priming—getting clients to retrieve or use positive relationship experiences—can induce a sense of security and positive mood, which in turn can lead to greater openness in therapy and potentially improve people’s sense of well-being and their capacity to act in prosocial ways. Further, having a therapist act as a secure base (a foundation for exploration) and a safe haven (a safe place to come back to and rejuvenate; Bowlby, 1982) for the client can not only provide the client with the needed support but also teach an insecurely attached individual how to be empathic, compassionate, and caring. In the long run, these processes could potentially yield shifts in people’s attachment style toward dispositional or earned security (Johnson & Whiffen, 2003) and in turn increase their prosocial tendencies.

Enhancing a person’s sense of security is also likely to have broader implications affecting society in general via individuals’ engagement in humanitarian and social causes. For instance, advertising campaigns that target the homeless or socially marginalized individuals, or those who suffer from poverty or hunger, may elicit disgust or personal distress and hence a reduction in helping tendencies (Batson et al., 1987). Priming people with cues designed to invoke attachment security can reduce these adverse effects and may make them more likely to respond in a prosocial manner. Similarly, having security-enhancing messages at medical centers may increase people’s tendencies to provide care.
to engage in initiatives such as blood and organ donation. Priming within medical contexts may also increase openness to and compliance with various medical regimes and treatments as well as potentially reduce symptomology associated with medical conditions (Armitage & Harris, 2006; J.A. Feeney & Ryan, 1994). Clearly, applied research focusing on the enhancement of attachment security is an important area for future endeavors. Future studies could identify the most appropriate methods to promote people’s prosociality in the real world and the contexts in which these methods work the best.

In summary, attachment security not only facilitates people’s ability to empathize with the suffering of others but also provides individuals with the knowledge and resources to deliver sensitive and responsive care, making attachment security a central pillar of prosociality.

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