

Social Defense Theory:
How a Mixture of Personality Traits in Group Contexts May Promote Our Survival

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When God looked upon man, he or she contended that, “It is not good for the man to be alone.” (Genesis, 2:18). Theory and research have indeed indicated that in the course of evolution, humans lived in small, highly interactive groups of kin, and formed complex social relationships, which are unique among mammals. Because social solutions to adaptive challenges were so crucial for human survival, many of our psychological mechanisms undoubtedly evolved to support this aspect of human existence (Buss, 1995). Brewer and Caporael (1990), as well as other scholars (e.g., Alexander, 1987; Axelrod, 1984; Cosmides, 1989; Gazzaniga, 2008), have argued that living in cooperative groups was the primary survival strategy for humans. Nevertheless, most of the research on human reactions to threats focuses on the individual level of analysis and examines mental processes such as threat perception and coping (e.g., Brandtstadter & Rothermund, 2004) or immediate self-preservation responses such as fight or flight (e.g., Brown, 1954). There is good reason to believe, however, that psychological reactions to threats are not isolated from the social context, including the groups in which people find themselves.

In the present chapter I present social defense theory (SDT; Ein-Dor, Mikulincer, Doron, & Shaver, 2010), which is based on the possibility that individuals will respond to threat based

partly on dispositional variables. Some individuals are chronically hypervigilant and constantly alert to potential threats and dangers. Other individuals, once alerted to a threat, are self-reliant and likely to take protective action rapidly and effectively. Still other individuals are relationship oriented and likely to be leaders, coordinators, and managers of collective efforts. Because each one of these personality patterns contributes to effective reactions in times of danger, SDT predicts that groups containing all three kinds of people will be more effective when dealing with threats and dangers (early detection, rapid response, and effective cooperation) than less heterogeneous groups. In the initial outline of SDT (Ein-Dor et al., 2010), these personality patterns were people's attachment orientations.

Attachment Theory

Bowlby's attachment theory (1973, 1980, 1982) proposes that human beings possess an innate psychobiological system (*the attachment behavioral system*) that motivates them to seek the aid of others – a socially based solution – when they need protection from threats and dangers. When people experience their caregivers as responsive and supportive, they develop a sense of attachment security, along with constructive strategies (e.g., support-seeking) for coping with threats and regulating emotions. Conversely, when caregivers are perceived as unavailable or unreliable, a person tends to develop an insecure attachment orientation marked by either attachment-system deactivating strategies for regulating emotions and social behavior (avoidant attachment) or attachment-system hyperactivating strategies (attachment anxiety). The different attachment orientations are measurable in infancy, childhood, and adulthood, and their causes and psychological consequences have been extensively studied (see Cassidy & Shaver, 2008; and Mikulincer & Shaver, 2007, for recent reviews).

Social and personality psychologists generally conceptualize adult attachment patterns as regions in a continuous two-dimensional space (e.g., Brennan, Clark, & Shaver, 1998). One dimension, attachment-related *avoidance*, reflects the extent to which a person distrusts relationship partners' goodwill, strives to maintain independence, and relies on deactivating strategies for dealing with threats and negative emotions. Avoidant people cope with threats by deemphasizing distress and vulnerability and by attempting to cope independently, without seeking others' help (e.g., Fraley & Shaver, 1997). The second dimension, attachment-related *anxiety*, reflects the extent to which a person worries that others will not be available or helpful in times of need. People high on attachment anxiety exaggerate their sense of vulnerability and insistently call on others for help and care, sometimes to the point of being intrusive (e.g., Feeney & Noller, 1990).

Attachment security is defined by low scores on both anxiety and avoidance. Secure people generally cope with threats by relying on internal resources developed with the help of security-enhancing attachment figures or by effectively seeking support from others or collaborating with them (Shaver & Mikulincer, 2002). Secure individuals generally have high self-esteem, trust other people, and perceive the world as a relatively safe place (see Mikulincer & Shaver, 2007, for a review).

According to both theory and research, attachment security confers adaptive advantages, compared with insecurity, in a variety of social, emotional, and behavioral domains (Mikulincer & Shaver, 2007). For example, secure individuals tend to have more lasting and satisfying close relationships as well as fewer psychological problems. They are also viewed by others as more ideal relationship partners (e.g., Klohnen & Luo, 2003). These benefits of security caused researchers to wonder why a substantial portion of all large samples studied in various countries

are insecure with respect to attachment. Belsky and colleagues were the first to argue that under certain conditions attachment insecurity has adaptive benefits, because it is associated with earlier menarche in females and earlier reproduction (e.g., Belsky, Steinberg, Houts, & Halpern-Felsher, 2010).

Theory and research also suggest, however, that survival rather than early reproduction might be the major reason for the emergence of the attachment behavioral system during mammalian, especially primate, evolution (Cassidy & Shaver, 2008; Ein-Dor et al., 2010). Threats (e.g., natural signs of danger or threats to a close relationship; Bowlby, 1982) activate the attachment system, which is adaptive because it increases the likelihood of protection, support, and survival (e.g., Mikulincer, Birnbaum, Woddis, & Nachmias, 2000; Mikulincer, Gillath, & Shaver, 2002). Therefore, my colleagues and I (Ein-Dor et al., 2010) proposed social defense theory, which is based on the possibility that each of the major attachment orientations (secure, anxious, and avoidant) confers unique adaptive advantages that increase the *inclusive fitness* (see Hamilton, 1964) of members of groups that include insecure as well as secure attachment patterns. These advantages might also contribute to group-level selection (e.g., Wilson, Vugt, & O’Gorman, 2008), although group-level selection remains controversial (see Ein-Dor et al., 2010).

Social Defense Theory

According to SDT (Ein-Dor et al., 2010), each of the three major attachment patterns—secure, anxious, and avoidant – confers special adaptive advantages that tend to increase the inclusive fitness of people in groups that contain members of all three kinds. Each pattern also has distinct disadvantages, which may decrease inclusive fitness if they are not complemented by contributions by people with different attachment styles. This view is in line with Nettle’s

argument on general personality variations that can be understood in terms of tradeoffs among fitness costs and benefits: “Behavioral alternatives can be considered as tradeoffs, with a particular trait producing not unalloyed advantage but a mixture of costs and benefits such that the optimal value for fitness may depend on very specific local circumstances” (Nettle, 2006, p. 625).

Advantages and Disadvantages of Secure Individuals

Attachment research has shown that secure individuals benefit the groups to which they belong. For example, they are generally better than insecure people at leading and coordinating group activities (Davidovitz, Mikulincer, Shaver, Ijzak, & Popper, 2007) and work more effectively with other group members when solving problems (Rom & Mikulincer, 2003; Smith, Murphy, & Coats, 1999). According to Mikulincer and Shaver’s (2003, 2007) literature reviews, these advantages stem from a sense of security rooted in past supportive experiences with attachment figures. This sense of security is closely associated with core beliefs, such as the belief that the world is a safe place, especially when significant others are present. These optimistic, comforting mental representations promote self-soothing reappraisals of threats, which help secure individuals perform better than insecure ones in many challenging situations (see Cassidy & Shaver, 2008, and Mikulincer & Shaver, 2007 for extensive reviews).

What attachment researchers call “felt security” (Sroufe & Waters, 1977), however, does not always reflect actual physical security. In times of danger, a sense of felt security can be maladaptive if it hinders rapid recognition of a threat or retards assembly of a rapid, effective response. For example, Mawson (1978, 1980, 2005) showed that the typical human response to danger is to seek the proximity of familiar people and places, even if this means remaining in or even approaching a dangerous situation (see also Baker & Chapman, 1962; Henderson, 1977;

Kinston & Rosser, 1974). Secure individuals may activate schemas and scripts that promote seeking proximity to others (e.g., Mikulincer et al., 2002; Mikulincer, Shaver, Sapir-Lavid, & Avihou-Kanza, 2009; Waters & Waters, 2006), even though this is sometimes not the safest strategy. Such proximity-seeking in cases of actual danger may have two disadvantages: (a) slower identification of early signs of danger and (b) slower activation of defensive behavior.

Sime (1983, 1985) examined these disadvantages in a retrospective study of reactions to a fire in a large coastal resort on the Isle of Man, Great Britain, in 1973. He found that people who were physically closer to significant others (e.g., family members) were less likely to react to ambiguous cues of danger, such as noises and shouts, which occurred during the early stages of the fire. They reacted only later, when unambiguous cues of danger, such as smoke, flames, and people running while holding fire extinguishers, occurred. Subsequent studies of survivors' behavior during disasters also suggest that people who were together with familiar others were slow to perceive that they were in danger (Aguirre, Wenger, & Vigo, 1998; Fitzpatrick & Mileti, 1991; Perry, 1994; Proulx, 2002, 2003). According to SDT, this tendency might be manifested by secure people's sense of security and safety.

Research examining reactions to real or imagined dangers also provides indirect support for the hypothesis that securely attached people react in nonoptimal way to signs of danger. For example, Bowlby (1973, p. 91) noted that during and after disasters, "no member of a family is content, or indeed able to do anything else, until all members of the family are gathered together." Studies of behavior during fires also show that people tend to converge and cluster (Bryan, 1985, 2002; Sime, 1983, 1985). Governments and trained professionals have great difficulty getting people to evacuate before and during disasters, because "traditional family ties

often keep individual members in the danger zone until it is too late” (Hill & Hansen, 1962, p. 217).

Taken together, the evidence suggests that although secure people with respect to attachment are better at leading and coordinating group activities, these advantages are partially offset by their slower identification of actual and imminent dangers and their sometimes nonoptimal reactions to danger because of their wish to stay close to other people. This suggests that the tendency of secure people to focus on an ongoing project irrespective of mounting danger may sometimes hamper their survival and the survival of their group. Vigilance to danger and a quick fight-or-flight response are sometimes necessary to avert disaster. People high on either attachment anxiety or attachment avoidance might confer these abilities.

Advantages and Disadvantages of People High on Attachment Anxiety

As compared with people who are secure with respect to attachment, those who score higher on anxious attachment often perform relatively poorly in groups (Rom & Mikulincer, 2003). They may take the work less seriously, make fewer or poorer-quality contributions to a team, and have lower expectations of contributing to the team effort. Nevertheless, the strategies characteristically used by anxious people to deal with threats may be beneficial to inclusive fitness in certain kinds of threatening situations. Anxious people are vigilant in monitoring the environment for threats and are emotionally expressive and desirous of support when a threat is detected (e.g., Cassidy & Kobak, 1988; Feeney & Noller, 1990). They may benefit other people in their social surroundings by reacting quickly and vocally to early, perhaps ambiguous, cues of danger, a reaction that Ein-Dor and colleagues (2010) coined *sentinel behavior*. According to SDT, this behavior is stemming from a particular kind of schema regarding ways to cope with threats – a sentinel schema. According to Rumelhart (1980), self-schemas consist of a number of

“placeholders” that supply default behaviors for certain kinds of situations. Possessing this kind of schema helps a person respond quickly to relevant situations, and if the situation provides insufficiently detailed information about how to respond, the default strategy can be quickly adopted. SDT contends that the schemas of people high on attachment anxiety contain default placeholders that cause them (a) to remain vigilant with respect to possible threats, especially in unfamiliar or ambiguous situations; (b) to react quickly and strongly to early, perhaps unclear cues of danger (e.g., unusual noises, shuffling feet, shouts); (c) to alert others about the imminent danger; (d) if others are not immediately supportive, to heighten efforts to get them to provide support; and (e) to minimize distance from others when coping with a threat (Ein-Dor, Mikulincer, & Shaver, 2011a).

Many species of animals benefit from having sentinels in their midst. For instance, various mammals (e.g., Fichtel, 2004), and primates (e.g., Coss, Ramakrishnan, & Schank, 2005; Riede, Bronson, Hatzikirou, & Zuberbuhler, 2005) produce shrill alarm signals when they detect a potential threat. In similar ways, human group members can benefit from anxious individuals’ hyperactivating strategies.

In support of this notion, Ein-Dor and colleagues (2011a) found that attachment anxiety was associated with high access to core components of the sentinel schema (noticing danger before other people do, warning others about the danger) when writing a story about threatening events. More anxious participants remembered (i.e., recognized) more recently encountered sentinel-schema information, reacted quicker than their more secure counterparts to sentinel-related information, and were prone to ‘recall’ schema-biased false memories. After reading a sentinel oriented vignette, participants who scored higher on attachment anxiety were more likely to generate more inferences and conjectures than people low on attachment anxiety.

Finally, it was found that the most attachment-anxious person in a group was more likely than other group members to quickly detect a threat (smoke from a malfunctioning computer). These effects were not explained by individual differences in attachment-unrelated verbal and memory abilities, speed of recognizing attachment-irrelevant information, or attachment-unrelated inference skills. Also, the findings were not explained by general personality traits (e.g., neuroticism, extraversion) or by scores on a measure of socially desirable responding. Instead, they were unique to individual differences in the attachment domain.

In a second research project, Ein-Dor, Mikulincer and Shaver (2011b) examined whether attachment anxiety is associated with sentinel-related behaviors. Specifically, they examined whether in threatening situations, people who score high on attachment anxiety may react emotionally and thereby alert other group members to the danger and the need for protection or escape. To test these predictions, 46 groups of 3 people were unobtrusively observed in a threatening laboratory situation: a room gradually filling up with smoke, apparently because of a malfunctioning computer. In line with predictions, they found that attachment anxiety was associated with quicker detection of the smoke in the room and therefore with greater group effectiveness. The results remained significant even when extraversion and neuroticism, two possible confounds, were statistically controlled.

More recently, Ein-Dor and Orgad (under review) extended these results and examined whether people high on attachment anxiety also share a heightened tendency to deliver a warning message without delay following a detection of threat. They led participants to believe that they accidentally activated a computer virus that erased the experimenter's computer. Then, participants were asked to alert the departments' computer technicians to the incident. On their way, participants were presented with four decision points where they could choose either to delay

their warning or to continue directly to the technicians' office. Results indicated that attachment anxious individuals were less willing to be delayed on their way to deliver a warning message than their more secure counterparts. This result remained significant when attachment avoidance, extroversion and neuroticism were statistically controlled. Thus, research has supported SDT's premise that attachment anxiety is associated with sentinel-related cognitions and behaviors.

Advantages and Disadvantages of People High on Attachment Avoidance

Avoidant people adopt distancing ways of coping with stress, and deemphasize distress and vulnerability (e.g., Fraley & Shaver, 1997). Therefore, they might be less vigilant to threat and perceive that they are in danger later than others. They do not perform well as teammates, and have lower expectations of contributing to the team effort (Rom & Mikulincer, 2003). In times of need, they are accustomed to looking out for their own interests and taking care of themselves, even if this sometimes occurs at other people's expense (e.g., B. Feeney & Collins, 2001); thus, they are more likely to rely on self-protective fight-or-flight responses in times of danger, without hesitating or needing to deliberate with other group members, a reaction that Ein-Dor and colleagues (2010) coined *rapid fight-or-flight behavior*. This defensive pattern has both disadvantages and advantages. In the face of danger, avoidant individuals may be primarily motivated to save themselves, but this tendency may allow them to quickly discover a way to do so. Meanwhile, anxiously and securely attached individuals may focus much of their attention on the whereabouts and welfare of close associates without focusing quickly and fully on how to escape.

Imagine an avoidant person in the presence of a dangerous fire. While taking quick protective action, the person may find an escape route or take effective action to put out the fire or seal a door to keep the fire outside. Moreover, the avoidant people may be personally effective

because they are not overwhelmed by emotion when drastic action is required. Although there are obvious moral dangers in behaving this way, there is little doubt that it can increase an avoidant person's survival chances while sometimes saving other people's lives, including the lives of group members about whom the avoidant individual may not care very deeply.

Evidence for the influence of a few group members' early decisions to flee a dangerous situation can be found in the research literatures on military situations and natural disasters. One of the most alarming sights for human beings is other people running from danger (e.g., Mawson, 1980). As Marshall (1947) eloquently stated in writing about military behavior during World War II: "It can be laid down as a general rule that nothing is more likely to collapse a line of infantry than the sight of a few of its number in full and unexplained flight to the rear . . . One or two or more men made a sudden run to the rear which others in the vicinity did not understand . . . In every case the testimony of all witnesses clearly [indicated] that those who started the run . . . had a legitimate or at least a reasonable excuse for the action" (pp. 145-146). It is also known that in dangerous situations people tend to follow the route they see others taking (Mawson, 1980).

Individuals who flee first (those, according to SDT, who are likely to be disproportionately avoidant) often clear a way by opening emergency doors, breaking a window, or finding a safer place to hide. When their escape route is identified and cleared, others can follow and take advantage of the escape route. Thus, avoidant individuals may increase their own and their group members' chances of survival under emergency conditions.

According to SDT, this behavior is stemming from a particular kind of schema regarding ways to cope with threats – a rapid fight-or-flight schema. SDT contends that the schemas of people high on attachment avoidance contain something like the following placeholders: (a)

minimize the importance of threatening stimuli; (b) when danger is clearly imminent, take quick self-protective action, either by escaping the situation or by taking action against the danger; and (c) at such times, do not worry about coordinating one's efforts with those of other people.

In support of this notion, Ein-Dor and colleagues (2011a) found that attachment avoidance was associated with high access to core components of the rapid fight-or-flight schema when writing a story about threatening events. This schema comprised five components: (a) escaping a situation without helping others, (b) acting without receiving help from others, (c) reacting quickly without depending on other people's actions, (d) lack of cooperation with others, and (e) lack of deliberation with others. More avoidant participants recognized more recently encountered rapid fight-or-flight-schema information, reacted quicker than people low on attachment avoidance to rapid fight-or-flight-related information, and were prone to 'recall' schema-biased false memories. After reading a rapid fight-or-flight oriented vignette, participants who scored higher on attachment avoidance were more likely to generate more inferences and conjectures than people low on attachment avoidance. Across all studies, attachment avoidance scores were not associated with processing threat-*irrelevant* information. Moreover, the effects of attachment avoidance were not explained by individual differences in attachment-unrelated verbal and memory abilities, speed of recognizing attachment-irrelevant information, or attachment-unrelated inference skills. Also, the findings were not explained by general personality traits (e.g., neuroticism, extraversion) or by scores on a measure of socially desirable responding. Instead, they were unique to individual differences in the attachment domain.

Ein-Dor and colleagues (2011b) also examined whether attachment avoidance is associated with rapid fight-or-flight-related behaviors. Specifically, they examined whether in

threatening situations, people who score high on attachment avoidance would respond quickly to a threat that has been detected (a room gradually filling up with smoke, apparently because of a malfunctioning computer); and this quick reaction might increase the survival chances of all group members. In line with predictions, they found that attachment-related avoidance was associated with speedier escape responses to the danger once it was detected and therefore with greater group effectiveness. The results remained significant even when extraversion and neuroticism were statistically controlled. Thus, research has supported SDT's premise that attachment avoidance is associated with rapid fight-or-flight-related cognitions and behaviors.

More recently, Ein-Dor and colleagues (under review) examined whether the self-oriented way of coping that people high on attachment avoidant share, influence their metabolic processes. Socially oriented people can manage their energy more efficiently (Beckes & Coan, 2011) because they can share with other people the care for young (e.g., Ehrenberg, Gearing-Small, Hunter, & Small, 2001), assist in times of need (e.g., Townsend & Franks, 1995), share resources (e.g., Roger & De Boar, 2001), and contribute vigilance for potential threat (Davis, 2010; Ein-Dor et al., 2011a). Because avoidant people do not share the cost of many of life's metabolically expensive activities with others (Beckes & Coan, 2011), they might need to maintain greater metabolic resources to make decisions, engage in problem solving, and regulate their vigilance for potential threat. In other words, people high on attachment avoidance might maintain greater resting basal glucose level, our metabolic fuel (Vannucci & Vannucci, 2000).

Ein-Dor and colleagues (under review) found that women who chronically tend to distance themselves from social ties – those high on attachment avoidance – maintained greater resting basal glucose than more socially oriented women. In a second study they replicated this result in a different culture (Israel as compared to United States of America), among women as

well as men from a different age group (adults and late adults as compared to young adults), and with a different measure to tap attachment avoidance. Thus, the association between social avoidance and basal glucose level seems robust. These findings were not explained by elevated tension and stress that might be experienced by avoidant people. Greater levels of basal glucose may be manifested by tension and stress because an elevated level of basal glucose is one of the markers of stress in many species of animals as well as in humans (e.g., Armario, Marti, Molina, Pablo, & Valdes, 1996). Research has indicated that a small and unsupportive social network, as well as the sense of loneliness, may trigger overwhelming amounts of tension and stress (e.g., Bowlby, 1973). The findings indicated, however, that the association between attachment avoidance and basal glucose level remained significant even after controlling for three sensitive indicators of tension and distress: self-report level of anxiety, hypertension disorder, and cortisol/adrenal androgen dehydroepiandrosterone (DHEA) ration (which has been repeatedly associated with tension, stress, and other related psychopathology; see Goodyer, Park, Netherton, & Herbert, 2001 for a review).

Group Composition and Its Association with Effectiveness When Dealing With Threat

SDT contend that secure and insecure attachment styles may have both unique adaptive advantages (which increase inclusive fitness) and disadvantages (which decrease inclusive fitness), and hence may have different benefits for group members under threatening conditions. This suggests that a group that contains people with different attachment patterns – secure, anxious, and avoidant members – might be superior to other groups in dealing with threats and survival problems. Groups marked by attachment-style diversity should detect potential problems and threats quickly (with anxious members acting as sentinels); act quickly without much deliberation, negotiation, or compromise (with avoidant members serving as models of

rapid self-protection); and manage complex social tasks (with secure members acting as leaders and coordinators of the group).

To date, this proposition was directly tested in a single study by Ein-Dor and colleagues (2011b). They observed 46 groups of 3 people in a threatening laboratory situation: a room gradually filling up with smoke, apparently because of a malfunctioning computer. In line with predictions, they found that the more diverse a group in terms of attachment patterns, the more effective was the group. Pending on the ability to replicate this finding, the study highlights the potentially adaptive aspects of groups' composition with respect to attachment orientations.

Concluding Comments

SDT was devised to account for the social nature of human reactions to threats. It is based on the premise that people with different attachment patterns – secure, anxious, and avoidant members – bring different abilities into a group in which they find themselves in, and thus making it superior to other groups in dealing with threats and survival problems. Research has indicated that people high on attachment anxiety may act as sentinels that detect potential problems and threats quickly and alert others to those threats (Ein-Dor & Orgad, under review; Ein-Dor et al., 2011a, 2011b). People high on attachment avoidance may act quickly without much hesitation, which contribute to group effectiveness and promote their own survival as that of other people around them (Ein-Dor et al., 2011a, 2011b). Research has also indicated that avoidant people might have elevated metabolic fuel to support such individualistic behavior (Ein-Dor et al., under review). Finally, more secure individuals (those low on both attachment anxiety and avoidance) manage complex social tasks better than their more insecure counterparts (Rom & Mikulincer, 2003), and cooperate better with other teammates. If SDT continues to receive empirical support, it may bear important implications for theory and research concerning

group processes, threat detection, and our understanding of the adaptive aspects of personality variations.

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