

College Aggression and Prosociality as Social Strategies

Daniel J. Glass & Gary D. Fireman

Department of Psychology, Suffolk University

ABSTRACT

While peer aggression and victimization research has traditionally focused on children and adolescents, less research has examined this phenomenon in college students. The current study examines aggression, victimization, and prosociality in a college sample from the perspective of peer aggression as a possible adaptation to form and maintain social dominance hierarchies. A sample of college freshman was surveyed in their first and second semesters of college to determine whether peer aggression and victimization decreased over time, as would be expected if it functioned to organize social hierarchies. Contrary to hypothesis, levels of aggression and victimization were stable over time. However, overt and relational aggression and victimization were not necessarily linked to negative psychosocial outcomes, consistent with the hypothesis that they may be a normal feature of social organization in moderate amounts. Prosociality and aggression were found to be uncorrelated, suggesting that they may be two complementary social strategies that can be selectively used by individuals.

KEYWORDS

College; Peer Aggression; Victimization; Prosociality; Social Strategies

While peer aggression research has traditionally focused on children and adolescents, especially in school settings (Pellegrini, 1998), and, more recently, adults in the workplace (Rayner & Hoel, 1997; Salmivalli, 2010), the last several years have seen an increased awareness of the incidence and effects of peer aggression and victimization at the college level (Coleyshaw, 2010; Duncan, 2010; Keashley & Neuman, 2010; Perry, 2015; Rospenda, Richman, Wolff, & Burke, 2013). The current study will examine patterns of peer aggression and victimization in a college population to assess the extent to which peer aggression can be viewed as a social strategy for forming and maintaining social hierarchies in college students (Pellegrini, 2008).

Aggression and victimization in college has been associated with negative psychosocial outcomes; for example, Storch, Bagner, Geffken, and Baumeister (2004) found that perpetrating peer aggression was associated with higher levels of

social anxiety, depression, loneliness, and substance use. Rospenda and colleagues (2014) found that being victimized at school or work was associated with increased alcohol use and abuse in college freshmen. Werner and Crick (1999) found that perpetrating relational aggression – attempting to “harm others through the manipulation and damage of relationships and feelings of social inclusion” (p. 615) – was positively correlated with peer rejection in a college sample, and in women, was also positively correlated with a number of negative psychosocial measures such as antisocial behavior, depressive and bulimic symptoms, and self-harm behaviors. Storch, Werner, and Storch (2003) also found an association between perpetrating relational aggression and being rejected by peers in both sexes, and between relational aggression and alcohol use in females. Perpetrating relational aggression has been found to be associated with perpetrating overt aggression – direct hostility that can be physical or verbal – in a college sample (Storch et al., 2004) as well as in children and adolescents (Crick & Grotpeter, 1995), but the correlations are moderate (r between 0.4 and 0.5, Crick & Grotpeter, 1995; Storch et al., 2004), suggesting that overt and relational aggression are two separate constructs.

Much of the existing literature on peer aggression within social groups focuses on *bullying*, defined by the Centers for Disease Control and Prevention as aggression that is recurrent (or likely to recur), unwanted, and “involves an observed or perceived power imbalance” (Centers for Disease Control and Prevention, 2014, p. 7). Here, *peer aggression* will be used to refer to the perpetration of either direct or indirect hostile behaviors toward other individuals of roughly the same age, regardless of whether the criteria for bullying are present. *Peer victimization* will refer to being the target of direct or indirect hostile behaviors perpetrated by other individuals of roughly the same age.

Due to the detrimental effect of peer aggression and victimization on student mental health and well-being, institutions of higher education have an incentive to provide prevention and intervention programs targeting peer aggression in college populations. Thus, there are a number of approaches to designing interventions for aggression, but not all of them are equally effective (Prinstein, 2001; Ttofi & Farrington, 2011), perhaps partially due to debatable assumptions embedded in some approaches that peer aggression is aberrant or pathological (Ellis et al., 2012). For example, zero-tolerance disciplinary policies implicitly assume that lack of harsh consequences is an important factor in the maintenance of aggressive behavior, although there is a lack of empirical evidence for this assumption. Bullying interventions based on psychosocial education assume that bullies have some social or cognitive deficit, but there is evidence that the opposite may sometimes be true: many bullies may be highly socially skilled and use aggressive strategies to their advantage (Sutton, Smith, & Swettenham, 1999).

With this in mind, a number of recent perspectives on peer aggression have viewed these behaviors as, to an extent, normative and functional. While there are different types of peer aggression undertaken with specific intent (e.g., sexual aggression, intent to steal), some have theorized that much of the peer aggression taking place within social groups is related to individuals achieving and maintaining their status in social hierarchies (Hawley, 2003; Kolbert & Crothers, 2003). These researchers have suggested that social status-related peer aggression is an evolved

adaptation that contributed to genetic fitness in our evolutionary past by helping to form relatively stable social dominance hierarchies (Pellegrini & Bartini, 2001). Dominance hierarchies, in turn, are beneficial because they facilitate the distribution of resources without the need for individuals to constantly compete over them, which would carry the potential for injury or death (Pellegrini & Bartini, 2001); being a part of a relatively stable social hierarchy means knowing ahead of time roughly how resource distribution will take place (i.e., which group members will get what). In this way, competition (including aggression) is generally restricted to the initial formation of dominance hierarchies and during reorganizations of the hierarchy, rather than recurring each time resources need to be distributed.

A naïve view of peer aggressors and bullies is that they are not well-liked by others. However, for peer aggression to be an adaptive social strategy for achieving status, aggressors cannot alienate their entire social group. There is indeed evidence that those who engage in peer aggression are often popular if their aggression is carried out in a socially competent way, such as being accompanied by *prosocial* behaviors -- behaviors voluntarily engaged in with the intent of benefiting another person (Hawley, 2003). Cillessen and Mayeux (2004) distinguish between two types of popularity, being well-liked (known as *social preference*) and having social status as perceived by others. Children with high perceived social status generally display both prosocial and aggressive behaviors (Cillessen & Mayeux, 2004), although bullying seems to be a less successful strategy among young children than it is in adolescents; it is not until middle school that peer aggressors tend to be both socially preferred and high in status (Swearer & Cary, 2003). In a longitudinal study of children from ages 10 to 14, Cillessen and Mayeux (2004) found developmental differences in how aggression is regarded; as children get older, relationally aggressive individuals are regarded as more popular but less personally likeable, while physically aggressive individuals are regarded as less popular but more personally likeable (i.e., socially preferred).

Prinstein and Cillessen (2003) found that in general, aggressive adolescents were perceived as popular by peers but not necessarily well-liked, revealing a distinction between status and likability. However, these authors did not measure prosociality, and so could not distinguish between aggressive adolescents who were high in affiliative behaviors from those who were low in such behaviors.

Hawley (2002) found that socially dominant preschoolers engaged in higher levels of both coercive and prosocial behaviors than more subordinate children during a dyadic play task (here, the coercion could, but need not, be aggressive; e.g., non-aggressive demands also counted as coercion). Yet, the dominant children engaged in almost twice as many prosocial as coercive behaviors, whereas subordinate children engaged in prosocial and coercive behaviors about equally. According to Hawley, (2002) these findings underscore the counterintuitive functional similarity between prosocial and coercive behaviors, since they can both be used as resource control strategies, albeit in an optimal proportion with prosocial behaviors being more prevalent. Hawley (2008) does not believe that these two control strategies are limited to children, but rather suggests that they carry through to adulthood.

In another study with preschoolers, Hawley (2003) found that *bistrategic controllers* (those who used both prosocial and coercive control) were highly

preferred as social partners by other children relative to children who used only coercive control or children who were low in both strategies. In fact, bistrategic controllers were rated slightly but nonsignificantly higher than purely prosocial controllers in terms of preference, suggesting that coercive strategies may be a social asset when combined with prosocial behaviors. Despite the fact that both bistrategic and pure aggressive strategists use coercive control of other students in the classroom, teachers rated bistrategic preschoolers to be more physically attractive than coercive children (Hawley, Johnson, Mize, & McNamara, 2007), suggesting that prosocial strategies are attractive even when accompanied by coercion with or without aggression (these effects were not due to bistrategic controllers actually being physically more attractive, as independent raters who did not know the children's behavior did not rate any group as systematically more attractive). Adolescents reported that even though their bistrategic controller friends engaged in coercion and even aggression toward them, they considered these friendships to be more fun and intimate than those with pure coercive, prosocial, or typical (not high on either prosocial nor coercive strategies) friends (Hawley, Little, & Card, 2007).

Book, Volk, and Hosker (2012) utilized the HEXACO personality inventory (similar to the Big Five inventory but with a sixth personality dimension, Honesty-Humility) and found that the dimension of Honesty-Humility was the only personality predictor of bullying. This personality dimension is comprised of traits such as "truthfulness, fairness, sincerity, modesty, and lack of greed" (Book et al., 2012, p. 219), which bullies were found to have lower levels of. Contrary to the stereotype of the antisocial bully, however, bullies were not found to be lower than nonbullies on the dimension of Agreeableness, which captures forgiveness, tolerance, and low aggression. Book and colleagues (2012) interpreted this finding as consistent with the bistrategic model of bullying, since it suggests that bullies can be both high in prosocial behaviors and high in willingness to exploit others.

Adams, Bartlett, and Bukowski (2009) found in a sample of sixth-graders that for adolescents who were relationally aggressive and not themselves victims, relational aggression may have had positive effects on social dominance but no effect on how well-liked or disliked they were. However, relational aggressors who were also victims (i.e., *bully-victims*; see Bowers, Smith, & Binney, 1992) were less well-liked than other adolescents (Adams et al., 2009). This finding underscores the point that bully-victims are generally the exception to the finding that aggression can increase popularity. The aggression of the bully-victim is qualitatively different than that of the typical peer aggressor, tending to be *reactive* (i.e., due to being provoked) rather than *instrumental* (undertaken to coerce others or obtain some outcome); bully-victims do not tend to use aggression in a socially successful way and may represent the true cases of aberrant or pathological bullying, in contrast to typical individual who bullies (Pellegrini, 2002).

SOCIAL FUNCTIONS OF PEER AGGRESSION

If individuals engage in peer aggression in order to form dominance hierarchies that allow resources to be efficiently distributed, what resource(s) are

they competing for? Pellegrini (2001) suggests that, at least in adolescence and beyond, social dominance affords mating opportunities. There is evidence that successful peer aggressors do potentially benefit in the mating domain. Vaillancourt, Hymel, and McDougall (2003) found that bullies in a middle and high school sample who were rated by peers as having high social power were viewed as highly competent, athletic, stylish, and attractive. In a study following fifth grade boys into sixth grade, both prosocial and aggressive dominance strategies were predictive of romantic relationships at the end of the school year (Pellegrini & Bartini, 2001).

According to literature on the *operational sex ratio* (OSR) – the ratio of sexually active males to sexually receptive females in a population – competition for mates is lowest when the male-to-female ratio is 1:1. If the OSR in a population is skewed, and there is an overabundance of either males or females, competition is hypothesized to increase (Del Giudice, 2012). Pellegrini (2001) suggests that skewed OSRs may result in increased dominance-related aggression in high schoolers.

Crucially, whether or not peer aggression has an evolutionary function of achieving and maintaining status, or whether such status functions in part to increase mating opportunities, does not depend on whether individuals are consciously pursuing these goals. In the evolutionary behavioral sciences, a distinction is drawn between the *ultimate* and the *proximate* explanations for behaviors; the former refers to the evolutionary forces that have shaped the behavior while the latter refers to the immediate internal and external (biochemical, developmental, psychological) processes that cause the behavior (Scott-Phillips, Dickins, & West, 2011). The formation and maintenance of social hierarchies may be an ultimate explanation for peer aggression, but there is no reason to expect that the proximate psychological reasons for aggressive behavior – such as individuals' subjective reasons for engaging in aggression – should reflect its ultimate roots. In fact, from sexual activity to caring for offspring, organisms rarely have conscious insight into the ultimate reasons why they engage in evolutionarily salient behaviors; such insight is unnecessary from the perspective of natural selection and thus, is rarely selected for (Dawkins, 2006; Kurzban, 2012). Nevertheless, Sijtsema, Veenstra, Lindenberg, and Salmivalli (2009) found that bullies in fourth and eighth grades did have social status goals, with older children showing higher levels of these goals than younger children.

Based on peer aggression's theorized role in establishing and maintaining social hierarchies, some conjectures can be made about contexts that increase the possible utility for aggressive behaviors. Pellegrini (2001) suggests that when social hierarchies are disrupted – specifically by the addition of new members into a group, or the coming together of two existing groups – aggression is likely to increase, as individuals attempt to find their relative places in the new hierarchy. In a study of fifth graders moving to sixth grade, Pellegrini and Bartini (2001) found that aggressive behaviors were more salient at the beginning of the year, when hierarchies were being formed, and affiliative behaviors more salient later in the year, suggesting that aggression is used to initially establish dominance but prosocial behaviors are used to maintain it.

GENDER AND PEER AGGRESSION

If status-related peer aggression is an evolutionary adaptation, it is reasonable to assume that it may have different forms and functions in the different sexes. Supporting the hypothesis that peer aggression can serve a social dominance role, there is evidence that peer aggression toward males is perpetrated mainly by males, while peer aggression toward females is perpetrated by both males and females (Pellegrini & Long, 2002; Schäfer et al., 2004). Across species, social hierarchies tend to be sex-specific, explaining the male-on-male and female-on-female pattern of aggression. Sexual aggression and intimidation likely accounts for the majority of male-on-female aggression -- this type of aggression generally takes a different form and has different motivations than social status-related peer aggression, and is outside the scope of this paper.

On average, across cultures, males engage in more overt, especially physical, aggression throughout the lifespan than females do (Archer, 2004). Adolescent girls engage in more relational aggression than adolescent boys do, but there is evidence that by adulthood, males may use just as much relational aggression as females (Archer, 2004; Björkvist et al., 1992; Storch et al., 2004). In a sample of college athletes, Storch and colleagues (2003) found that relational aggression was negatively correlated with prosocial behaviors in women but not in men. In other words, men were likely to use both prosocial and relationally aggressive behaviors, supportive of the bistrategic model. Women in this sample, on the other hand, seemed to use one strategy or the other (Storch et al., 2003); further research is needed to ascertain exactly how or why women choose one strategy or the other, and whether such strategies are stable or dynamic within individuals.

THE CURRENT STUDY

The current study attempts to apply the social dominance theory of peer aggression (Pellegrini, 2002), which has previously been examined almost exclusively in children and adolescents, to a college population. If college-aged adults use peer aggression and prosociality as dual strategies to achieve social status, then a number of evolutionarily informed hypotheses can be tested. By understanding the function of peer aggression, we are better able to design effective interventions and prevention programs to combat aggression and bullying on college campuses.

Students are hypothesized to report engaging in and experiencing higher levels of aggression in their first semester of college than in their second semester, even controlling for self-reported stress levels due to the disruption of existing social hierarchies (Pellegrini, 2002). In contrast, levels of prosocial behavior are hypothesized to remain constant across semesters as prosociality is a relatively low-cost social strategy compared to aggression; further, prosociality has other social functions beyond competition, and thus is likely to be observed even when competition is not high.

Individuals who engage in high levels of prosocial behavior are predicted to have high levels of social support and many friends, even if they are high in

aggressive behaviors, since both prosocial and aggressive behaviors are conceptualized here as potentially effective social strategies. By contrast, students with low prosocial behaviors and low aggressive behavior are expected to have fewer friends, since they are foregoing both social strategies. Students with low prosocial behaviors and high aggressive behaviors are predicted to have the fewest friends, as they are use only the “stick” social strategy without having the benefit of being able to shift to the “carrot” strategy when warranted.

Males are hypothesized to be higher in overt aggression than females, but based on prior research of relational aggression in adults (Archer, 2004; Björkvist et al., 1992; Storch et al., 2004), males and females are expected to show no differences in levels of relational aggression. Relational and overt aggression are predicted to be positively correlated based on findings from prior literature (e.g., Crick & Grotpeter, 1995; Storch et al., 2004). Both relational and overt aggression are predicted to be associated with victimization. This hypothesis is partially based on the existence of bully-victims (Bowers et al., 1992), who are high on levels of both peer aggression and victimization. Also, however, if low to moderate peer aggression and victimization are part of typical social group functioning, as is being hypothesized, then most individuals who engage in social relationships (and thus are part of social hierarchies) are expected to both engage in peer aggression and be victimized by others to at least a minor extent. Contrary to models that would place prosocial and aggressive behaviors at opposite ends of a behavioral dimension (such as a social deficit model of peer aggression that suggests peer aggressors lack prosocial skills) and thus suggest that they are negatively correlated, prosociality and aggression are hypothesized to be uncorrelated, as they are conceptualized here as two strategies that may be used either in isolation or in conjunction.

Additionally, students in dorms with more skewed sex ratios (i.e., many more males than females, or vice versa) are predicted to report greater aggression than students in dorms with sex ratios closer to 1:1. This predication is derived from literature suggesting that much aggression is due to (direct or indirect) competition over mates (Del Giudice, 2012); thus, if one sex is relatively rare, competition may result. Balanced sex ratios are thus hypothesized to be associated with lower levels of aggression (Pellegrini, 2001). Accordingly, social group cohesion is hypothesized to increase as dorm sex ratio nears 1:1 and decrease as the ratio deviates from 1:1.

METHOD

PARTICIPANTS

Participants consisted of college freshmen ($N = 64$) at a private Northeastern university. Potential participants were recruited via flyers posted in student areas, announcements in freshman courses, e-mail announcements to the student body, and through the psychology subject pool website. Inclusion criteria were that participants have current freshman status within the university (i.e., first-year transfer students with sophomore or upperclassman status were excluded), be fluent in English, and be 18 years of age or older. Participants who were enrolled in

the introductory psychology course were given one subject pool credit (two of which were necessary to pass the course) for completion of the study, which was awarded upon completion of Time 1 of the study. Additionally, all participants were offered the opportunity to earn a \$10 prepaid gift card for completing both parts of the study, Time 1 and Time 2.

The sample at T1 consisted of 55 females (78.6%), 13 males (18.6%), and 2 participants (2.8%) who either identified with another gender (specifying “nonbinary” in the open-ended input area) or not wishing to report a gender. Of these participants, 30 completed the survey at T2, twenty-four females (80%), five males (16.67%), and one who preferred not to specify gender (3%). Of the total sample, 38 participants identified as white/Caucasian (57.6%), ten as Asian or Asian-American (15.2%), seven as Latino/Hispanic (10.6%), four as Black/African-American (6.1%), and eight as Other (12.1%); ethnic/racial categories were not mutually exclusive, so participants could check as many identifications as they wished. Mean age was 18.41 years ($SD = .95$, $Range = 7$).

MATERIALS

The study was administered using the online tool SurveyMonkey and consisted of demographic questions and the below measures.

Revised Peer Experiences Questionnaire

The Revised Peer Experiences Questionnaire (RPEQ) is a self-report measure that assesses the incidence and frequency of peer aggression that individuals may have experienced or perpetrated, as well as prosocial behaviors they engaged in or were recipients of, either in person or online (De Los Reyes & Prinstein, 2004). Items are answered on a 5-point scale (1 = Never, 2 = Once or twice, 3 = A few times, 4 = About once a week, 5 = A few times a week). The RPEQ assesses both relational aggression/victimization (sample item: “I left a peer out of an activity or conversation”) and overt aggression/victimization (sample item: “A peer chased me like s/he was really trying to hurt me”) in addition to prosocial behaviors (sample item: “A peer was nice and friendly to me when I needed help”). Each of 18 items describing a different aggressive or prosocial act participants may have experienced is matched to a similarly worded item describing behaviors that participants may have engaged in, for a total of 36 items. Participants were asked to consider the time period since the beginning of the academic year for Time 1 and the previous month for Time 2.

Each 18-item half of the RPEQ (behaviors engaged in by self vs. behaviors engaged in by others) has nine items pertaining to relational aggression, four items pertaining to overt aggression, and five items relating to prosociality.

As the RPEQ was initially developed for high schoolers, the wording for the current study was changed to refer to “peers” rather than “teens,” and phrasing was slightly changed in several places to make the scenarios more relevant to college-age students (e.g., “I would not sit near a teen who wanted to be with me at lunch or in class,” was changed to “I would not sit near a peer who wanted to be with me at a meal or in class.”). To reduce the chances that participants were reporting about

sexual aggression (which is likely to have a different set of theoretical explanations than the phenomenon currently under investigation), the instructions specified that participants should answer in reference either to other "...MALES YOUR AGE in the University community..." or "...FEMALES YOUR AGE in the University community..." depending on which gender they had selected on the demographic page of the survey. Participants who marked Other/Prefer Not to Say rather than Male or Female were given a gender-neutral ("...PEOPLE YOUR AGE...") version of the measure. Both the RPEQ and the original Peer Experiences Questionnaire from which it was drawn are shown to have good internal consistency (between .76 and .80), moderate test-retest reliability (between .48 and .52), and good concurrent validity (De Los Reyes & Prinstein, 2004). For the current study, the total 36-item scale had high internal consistency both at T1 ($\alpha = .85$) and T2 ($\alpha = .82$).

There was also high internal consistency for the subscales, including T1 prosocial behaviors engaged in ($\alpha = .85$), T1 prosocial behaviors received ($\alpha = .74$), T2 prosocial behaviors engaged in ($\alpha = .82$), T2 prosocial behaviors received ($\alpha = .85$), T1 relational aggression ($\alpha = .81$), T1 relational victimization ($\alpha = .79$), T2 relational aggression ($\alpha = .79$), T2 relational victimization ($\alpha = .69$), T1 overt aggression ($\alpha = .79$), and T1 overt victimization ($\alpha = .79$). For T2 overt aggression and victimization, the small number of participants and very low individual item variance resulted in a negative average covariance among items and uninterpretable Cronbach's alpha values, T2 overt aggression ($\alpha = -.01$) and T2 overt victimization ($\alpha = -.05$).

Social Cohesion and Trust Scale

The Social Cohesion and Trust Scale (SCAT) (Sampson, Raudenbush, & Earls, 1997) is a 9-item 5-point Likert scale measuring participants' perceptions of the levels of cohesion and trust in their community and social group (sample item: "People in my groups of friends are willing to help each other"). Responses are anchored from Strongly Disagree to Strongly Agree. Each participant was given two versions of the SCAT; the first instructed them to report in reference to their friend group, while the second referred to "the community where you reside (the group of people living in your dormitory, apartment building, neighborhood, etc.)." The SCAT has been shown to have high concurrent validity and inter-rater reliability (Meunier, Wade, & Jenkins, 2012; Sampson et al., 1997). The living community SCAT measure was included to assess its potential role as a covariate in levels of aggression. For the current study, the friend group SCAT showed high internal consistency at T1 ($\alpha = .80$) and T2 ($\alpha = .71$), as did the community SCAT at T1 ($\alpha = .81$) and T2 ($\alpha = .71$).

Perceived Stress Scale

A measure of perceived emotional stress was deemed necessary because of its important role as a covariate in explaining peer aggression. The Perceived Stress Scale 10-item version (PSS-10; Cohen & Williamson, 1988) measures self-reported emotional stress, and includes 10 Likert-type items on a five-point scale from Never to Very Often (sample item: "In the last month, how often have you been

upset because of something that happened unexpectedly?”). Participants were asked to consider their “feelings and thoughts” for the time period since the beginning of the academic year for Time 1 and during the previous month for Time 2. The PSS-10 has adequate internal reliability (Cohen & Williamson, 1988) and has been found to have high internal consistency and moderate to high content validity for use in a nonclinical college sample (Roberti, Harrington, & Storch, 2006). In the current study, the PSS-10 showed high internal consistency for both T1 ($\alpha = .89$) and T2 ($\alpha = .88$).

Social Support Questionnaire

The Social Support Questionnaire (SSQ; Sarason, Levine, Basham, & Sarason, 1981) is a measure of the size and perceived quality of participants' social support networks. Six items instruct participants to list the individuals (by initials) who they feel fulfill various criteria of social support domains (sample item: “Whom can you count on to care about you, regardless of what is happening to you?”). Participants can list up to nine individuals for each item, and the number of people listed for each item is retained. Additionally, each of these six items is accompanied by a follow-up item that asks “How satisfied are you overall with the level of support you have in this area?”, which participants rate on a seven-point scale from Very Dissatisfied to Very Satisfied. The SSQ has been shown to be highly reliable at one-month follow-up and to have good criterion validity (Sarason et al., 1981). The SSQ was administered to examine its potential role as correlate of peer aggression. The size of social support network items showed high internal consistency at T1 ($\alpha = .85$) and T2 ($\alpha = .92$), as did the quality of social support items ($\alpha = .95$ at T1, $\alpha = .90$ at T2).

PROCEDURE

Participants were asked to complete an online survey twice – once in the first (fall) semester of their freshman year, and again in their second semester, the following spring. Participants access the survey online through SurveyMonkey from any internet-capable device of their choosing, and were first asked to verify whether they were freshmen; answering “yes” to this question took participants to the informed consent page, while answering “no” ended the survey. All participants answered this verification question in the affirmative.

Participants were informed that while their e-mail addresses would be collected for purposes of following up with the Time 2 questionnaire and allowing data to be linked, all responses would be confidential, and the link between their e-mail addresses and their survey data would be destroyed after linking the data.

Demographic data collected included gender (male, female, or other/prefer not to say), age, and racial and ethnic identity (to assess the representativeness of the sample). Finally, participants were asked to select which of the four campus dormitories they lived in (to determine the operational sex ratio of their living community) or to indicate if they lived off-campus.

Participants completed the RPEQ, SCAT, PSS-10, and SSQ, and, at the end of the Time 1 survey, were asked to provide an e-mail address that could be used to follow up with them during the next semester. When the spring semester began, participants were contacted at the provided e-mail address and given a custom weblink that would associate their Time 1 data with Time 2. The survey procedure was identical between Time 1 and Time 2. After completing the Time 2 questionnaire, participants were given a unique identification code that they could use to anonymously claim their gift cards in person.

RESULTS

To test for mortality threats to internal validity, a series of *t*-tests was conducted and revealed no significant differences in T1 scores on any of the aggression, victimization, prosocial, social cohesion, social satisfaction, or psychological stress measures between those who completed T2 and those who dropped out; this result suggested that differences in aggression or victimization did not have a systematic effect on whether a participant returned to complete the study in the second semester. Overall, levels of self-reported peer aggression as measured by the RPEQ were fairly low, with overt aggression being especially low. The mean level of total aggression at T1 was 16.49 ($SD = 4.84$) on a possible range of 13 to 65. This total aggression measure was comprised of relational aggression ($M = 12.42$, $SD = 4.10$, possible range: 9 to 45) and overt aggression ($M = 4.38$, $SD = 1.36$, possible range: 4 to 20). Findings were similar at T2 for total aggression ($M = 16.07$, $SD = 4.08$), relational aggression ($M = 12.34$, $SD = 4.30$), and overt aggression ($M = 4.13$, $SD = 0.51$). Contrary to prediction, paired samples *t*-tests no significant differences between T1 and T2 scores for total, relational, or overt aggression, indicating overall stability on these measures.

Overall levels of self-reported victimization were also low. At T1, mean total victimization was 18.26 ($SD = 5.65$, possible range: 13 to 65), mean relational victimization was 13.71 ($SD = 4.60$, possible range: 9 to 45), and mean overt victimization was 4.48 ($SD = 1.55$, possible range: 4 to 20). At T2, mean total victimization was 17.17 ($SD = 4.20$), mean relational victimization was 12.60 ($SD = 3.80$), and mean overt victimization was 4.57 ($SD = 1.10$). Also contrary to prediction, no significant differences were found between T1 and T2 scores for any of the victimization measures.

Finally, levels of prosocial behaviors engaged in ($M = 14.76$, $SD = 4.68$) and received ($M = 12.69$, $SD = 3.74$) at T1 were close to the midpoint of the scale (possible range for both: 5 to 25), as were levels of prosocial behaviors engaged in ($M = 14.45$, $SD = 4.42$) and received ($M = 12.43$, $SD = 4.67$) at T2. The difference in prosocial behaviors between T1 and T2 was also nonsignificant.

There was no significant difference in friend group cohesion between T1 ($M = 34.25$, $SD = 5.56$) and T2 ($M = 34.47$, $SD = 4.52$), $t(27) = -.31$, $p = .762$. Similarly, there was no significant difference in community cohesion between T1 ($M = 29.41$, $SD = 5.72$) and T2 ($M = 31.72$, $SD = 5.16$), $t(25) = -.61$, $p = .549$. Psychological stress levels were moderate (T1 $M = 30.93$, $SD = 6.73$; T2 $M = 30.34$, $SD = 6.72$,

possible range: 10 to 50) and virtually unchanged between semesters, $t(25) = 1.06$, $p = .30$.

Number of friends as measured by the social support questionnaire did not differ significantly between T1 ($M = 5.05$, $SD = 1.18$) and T2 ($M = 4.06$, $SD = 2.32$), $Z = 1.26$, $p = .21$ (due to non-normality of data, a Wilcoxon signed-ranks tests was used in place a paired-sample t -test). Satisfaction with social support was moderately high but not significantly different between T1 ($M = 24.81$, $SD = 15.42$) and T2 ($M = 4.73$, $SD = 1.04$), $Z = 1.47$, $p = .14$ (a Wilcoxon signed rank test was used due to heterogeneity of variance).

AGGRESSION, VICTIMIZATION, AND GENDER DIFFERENCES

In keeping with previous literature on gender differences in the amount and type of aggression, and as hypothesized, males were found to have higher levels of overt aggression ($M = 5.08$, $SD = 2.81$) than females at T1 ($M = 4.33$, $SD = 1.02$), $U = 247.5$, $p = .045$, $r = .25^1$ (Mann-Whitney U tests were calculated in place of independent sample t -tests due to heterogeneity of variance). As predicted, there was no significant difference between males ($M = 14.46$, $SD = 7.18$) and females ($M = 11.84$, $SD = 2.76$) in relational aggression at T1, $U = 286.5$, $p = .57$. Females reported significantly higher psychological stress ($M = 32.08$, $SD = 6.08$) at T1 than males ($M = 25.45$, $SD = 7.83$), $t(57) = 3.09$, $p = .003$, Cohen's $d = .95$. There were no other gender differences in any variable at T1, and there were not enough males retained at follow-up to run gender comparisons at T2.

As predicted, total aggression was strongly correlated with total victimization, both at T1 ($r = .73$, $p < .001$) and T2 ($r = .60$, $p < .001$), indicating that participants who endorsed higher levels of aggression also tended to endorse higher levels of victimization. This association was driven by a strong correlation in males ($r = .97$, $p < .05$ at T1) and a low-moderate correlation in females ($r = .33$, $p < .05$ at T1 and $r = .56$, $p < .05$ at T2).

In males, relational aggression was strongly associated with overt aggression ($r = .75$, $p = .003$), relational victimization ($r = .97$, $p < .001$), and overt victimization ($r = .79$, $p = .001$). In females, relational aggression was weakly associated with total victimization ($r = .31$, $p = .04$) and overt aggression ($r = .28$, $p = .05$) at T1. These findings were in line with predictions.

For males, overt aggression was strongly associated with overt victimization ($r = .95$, $p < .001$) and relational victimization ($r = .73$, $p = .005$) at T1, while for females, overt aggression was strongly associated with overt victimization ($r = .66$, $p < .001$) but not relational victimization ($r = .08$, $p = .59$) at T1. Overt aggression was, however, associated with relational victimization in females at T2 ($r = .46$, $p = .03$). For females at T2, overt victimization was strongly associated with total aggression ($r = .71$, $p < .001$) and both relational ($r = .64$, $p = .002$) and overt ($r = .50$, $p = .02$) aggression.

¹ Effect size for Mann-Whitney U test is calculated via the following formula: $r = Z/\sqrt{N}$.

RELATIONSHIP BETWEEN AGGRESSION/VICTIMIZATION AND SOCIAL SUPPORT/PSYCHOLOGICAL STRESS

In males at T1, relational victimization was strongly negatively correlated with size of social support network ($r = -.63, p = .03$). In females, but not in males, stronger community cohesion was associated with lower levels of relational aggression ($r = -.49, p = .001$) and relational victimization ($r = -.41, p = .005$) at T1. In females at T1, overt victimization, but not relational victimization, was associated with perceived stress ($r = .29, p = .05$). Overt victimization at T1 was also strongly associated with psychological stress at T2 in females ($r = .57, p = .007$). For females, social satisfaction at T2 was negatively associated with total victimization ($r = -.53, p = .02$), relational victimization ($r = -.49, p = .03$), and overt aggression ($r = -.48, p = .03$), but not relational aggression ($r = -.12, p = .62$).

PROSOCIALITY

As hypothesized, prosocial behavior was not correlated with any of the aggression or victimization measures. Also in line with hypotheses, engaging in prosocial behaviors was strongly correlated with levels of prosocial behaviors received from others in males at T1 ($r = .98, p < .001$), and in females at T1 ($r = .72, p < .001$), and moderately for females at T2 ($r = .48, p = .02$). For males at T1, social group cohesion was strongly correlated with both engaging in ($r = .65, p = .02$) and receiving ($r = .66, p = .02$) prosocial behaviors. For females at T1, the size of the social group was moderately correlated with both engaging in ($r = .34, p = .03$) and receiving ($r = .33, p = .03$) prosocial behaviors. Similarly, satisfaction with the social support network was moderately correlated with engaging in ($r = .34, p = .02$) and receiving ($r = .33, p = .02$) prosocial behaviors for females at T1. In females, level of prosocial behavior engaged in during T1 was associated with size of the social support network at T2 ($r = .52, p = .01$).

SEX RATIO

The university has four dormitories; the operational sex ratio of each dormitory was calculated using raw numbers of males and females in each dorm provided by the residence life department of the university. For each dormitory, the number of males was divided by the number of females, resulting in a rational number for each dorm. Thirty-three participants of the sample (50%) lived in one of the four dormitories with the following sex ratios: .40 ($n = 8, 12.1%$), .62 ($n = 12, 18.2%$), .63 ($n = 11, 16.7%$), and .90 ($n = 2$). All dormitories had OSRs less than 1.0, indicating a female-biased sex ratio in each; one dormitory was slightly skewed (.90), two were moderately skewed (.62 and .63), and one was extremely skewed (.40). The other 50% of the sample lived off-campus. Contrary to hypotheses, there was no correlation between OSR and any of the RPEQ variables or social group cohesion.

DISCUSSION

The purpose of the current study was to extend the literature on the social dominance theory of peer aggression into a college sample. A number of predictions stemming from the social dominance literature and evolutionary theory were tested. Firstly, it was hypothesized that peer aggression and victimization would be relatively high at the beginning of the academic year, when freshmen first arrived at the university and joined a new social group, and would decline in the second semester, after the students had found their place in their new social hierarchies. This hypothesis was not supported due to relatively low and stable levels of self-reported peer aggression and victimization from one semester to the next.

There are a number of possible explanations for this finding, with the caveat that interpreting from these non-significant findings must be done with caution due to the limitations of the sample size and unbalanced gender ratio in the current study. The increase in aggression that occurs around school transitions (e.g., Pellegrini & Bartini, 2001; Pellegrini & Long, 2002) may be a phenomenon that is limited to younger individuals. Perhaps as people mature or enter more professional social settings, aggression becomes a less attractive and less effective strategy for achieving dominance due to its high social, professional, and physical costs.

If this were the case, the formation of new social groups may still present the necessity to compete for status, but prosocial, rather than aggressive, acts may be the most effective currency. Thus, prosocial behaviors might be expected to peak during times of social transition and decline as social groups stabilize (as found in Pellegrini & Bartini, 2001), but the current data did not support this pattern either. Prosociality may be a more stable trait than strategic aggression; it is possible that since prosocial behaviors, while they carry a cost, are not as risky as aggressive behaviors, there is less pressure to downregulate them even when competition is low.

Hierarchies must be maintained once status is achieved, and both affiliative and aggressive behaviors can be used strategically to maintain status. It is possible that the continued need for maintenance of social hierarchies in college freshman results in levels of strategic aggression and prosociality being maintained beyond the initial competition period. Alternatively, it is conceivable that this initial competition period is much less salient for college students than it is for children and adolescents, and so the strategic competition never takes place. A further possibility is that perhaps individuals' retrospective reporting styles tended to be stable regardless of actual levels of peer aggression and victimization; i.e., the self-report measure used may have been insensitive to changes in aggression and victimization from one semester to the next if people's recollections or responses are biased toward their formative early college experiences.

In addition, the sample in the current study was overwhelmingly female, and attrition from Time 1 to Time 2 made comparison of males' data over time unfeasible. Given the known gender difference in aggressive competition and the importance of status in male mating, the effects under investigation may have been more visible in a sample with more male representation. A further explanation for the findings is that many of the participants in T1 completed the questionnaire near

the end of the semester, meaning that their T1 and T2 administrations were fairly close in time. While the RPEQ asked participants to consider their answers “since the beginning of the semester,” in order to control for this possibility, it is still feasible that completing the questionnaire later in the semester, after some of the dominance competition may have settled, may have biased participants away from reporting aggression and victimization, since the memories were not as fresh.

Secondly, it was hypothesized that prosocial behavior would remain stable over time, since it may represent a more global and low-cost social strategy relative to aggression, and as such, may not be limited just to periods of competition. While no difference was found between T1 and T2 prosociality scores, it is not clear what to make of this finding in the context of the other null findings on the aggression and victimization subscales of the RPEQ. It is possible that there was, in fact, no change in prosocial behaviors, or the measure may have been insensitive to change for the reasons mentioned above.

As predicted, aggression and victimization were associated, as were relational and overt aggression. There are several possible interpretations of this pattern. Perhaps particular situational and personality variables interact to make some people simply more prone to aggressive interactions, both as a perpetrator and as a recipient. Also, peer aggression can be conceptualized as a strategy that comes with a cost, and by engaging in aggressive interactions, some individuals may reap the consequences by being aggressed upon by others. Individuals high in both aggression and victimization could be defined as bully-victims. However, there may be others in the study, perhaps most of the sample, for whom both aggression and victimization happen, but in low to moderate levels; these individuals may be engaging in typical social functioning and should not be considered to be pathological. While the current study had too low a sample size for person-level analyses, future studies in this vein may benefit from noting individual patterns through the use of cluster analysis to identify and differentiate possible bully-victims from pure bullies, pure victims, individuals with moderate levels of bullying and victimization, and individuals who neither bully nor are victimized.

Also in accordance with predictions, prosociality and aggression were not negatively associated as one would expect if they were the poles of a unidimensional construct. Rather, they seem to lie on two separate dimensions, supporting their role as two separate strategies that can be used in conjunction with each other. This was true for both sexes -- the finding of Storch and colleagues (2003) that relational aggression and prosociality were negatively correlated in females was not replicated here. Thus, the social deficit model of peer aggression, in which bullies or other aggressors are seen to engage in aggression because they don't know how to be prosocial was not supported in this sample. Certainly there may be individuals for whom this model is accurate, but the current study suggests that the majority of peer aggression and victimization that occur in college populations is not associated with a lack of prosocial behaviors, and that aggression can happen regardless of level of prosociality.

EFFECTS OF AGGRESSION AND PROSOCIALITY ON SOCIAL GROUPS

For males, consistent with the hypothesis that aggression is not a maladaptive behavior due to social ineptitude, aggression was not negatively correlated with any of the social support measures. If being aggressive were necessarily harmful to one's social life, aggressive behavior would have been negatively associated with size, quality, or cohesion of the social group. Relational victimization, however, was negatively correlated with size of social support network; this finding could signify that large social networks are protective against relational victimization, that relational victimization is effective at damaging the target's social networks, or that some third factor such as affect or personality style impacts both variables.

In females, however, both relational aggression and relational victimization were associated with having less community cohesion. While the direction of this effect is not clear, it is conceivable that a strong community may be protective against aggression and victimization, a possibility that university campus life departments may wish to look more into. Also possible, of course, is that aggression and victimization can erode actual community cohesion or the perception that one's community is cohesive.

For females, being the victim of overt aggression was associated with higher levels of perceived stress, but being the victim of relational aggression was not. Perhaps being relationally victimized at the low levels found in this sample may be normative enough in female social life that it does not cause stress in the same way that overt victimization does, consistent with the role of relational aggression as a normative social strategy.

Finally, females' satisfaction with their social support group in the second semester of the study was negatively associated with victimization and overt aggression, but, notably, not with relational aggression. One interpretation of these results is that having a satisfying social network can be protective against victimization and overt aggression, but does not impact relational aggression, as it is perhaps such an ingrained or normative social strategy. Another possibility is that, unlike overt aggression, which may be seen as antisocial, relational aggression can be compatible with belonging to a fulfilling social group. Overall, these findings too are consistent with relational aggression as a potentially effective social strategy.

Additionally, the benefits of prosociality as a positive social strategy were underscored here; those who engage in affiliative behaviors tend to also be the recipients of affiliative behaviors. For males, engaging in and receiving prosocial acts is associated with self-perceived level of social group cohesion. For females, prosocial acts are correlated with the quality and size of the social support network. Whichever the direction of causality, these results affirm the intuition that prosociality is effective and adaptive.

On the whole, these data suggest that in a college population, perpetrating peer aggression is not associated with worse social outcomes, with the exception of overt aggression in females (which, due to not conforming to female gender roles in our society, may be associated with stigma). This pattern of data is consistent with the perspective that peer aggression can be functional in moderation. While being a victim was found to be negatively associated with social outcomes, this pattern did

not hold with respect to relational aggression in females; this finding is consistent with the theory that peer aggression can be a normative, or even functional, aspect of social group structure, and being relationally victimized at low levels may be typical. The overrepresentation of females relative to males in this sample warrant caution in ascribing any meaning to gender differences, and thus future research can confirm the extent to which relational victimization may be normative in both genders.

GENDER AND TYPES OF AGGRESSION

As hypothesized, males displayed higher levels of overt aggression than females, a consistent finding across aggression research (Archer, 2004). More interestingly, however, was the supported hypothesis that females did not report more relational aggression than males. The notion that relational aggression is higher in females has become a canonical aspect of aggression research in children and adolescents (Björkvist, Lagerspetz, & Kaukiainen, 1992; Crick, 1996; Galen & Underwood, 1997), which makes it all the more interesting that the current study replicated the findings that this gender difference seems to disappear by young adulthood (Archer, 2004; Björkvist et al., 1992; Storch et al., 2004). Relational aggression can be viewed as an alternate competitive strategy to overt aggression, designed to minimize costs and risks to the self; male children and adolescents may be more willing to take these risks, but adult male college students – for whom overt aggression begins to bear increasingly serious legal, professional, social, and physical risks – may find the relative safety of relational aggression just as useful a tool for social competition as women do. Thus, relational aggression may be the weapon of choice in college settings, even for males. Again, it is worth noting that males were underrepresented in this sample, limiting the extent of conclusions that can be drawn about gender differences.

OPERATIONAL SEX RATIO AND AGGRESSION

A final hypothesis under investigation was that skewed sex ratios in participants' living communities would be associated with increased aggression and decreased social group cohesion. This hypothesis was not borne out in the current study, perhaps as a result of the small number of participants who lived in dormitories; participants who lived off-campus (half the sample) were thus not included in these analyses. It is further difficult to identify what level of community that individuals use as their local environment when (unconsciously) calculating sex ratio and calibrating competitive behavior accordingly. For some students, this local environment may in fact be their dormitory, while for others it may be the common spaces and classes of the university more broadly, or the off-campus neighborhood where they spend much of their time, or the entire city of Boston. Further, it is well-established that males are, on average, the more sexually competitive species in humans (Buss & Schmitt, 1993), and so the current sample may not have contained enough males to reveal patterns of competition.

Overall, the findings of the current study, modest though they may be, suggest that peer aggression and victimization may play a normal role in the social

organization of college students. The data suggest that peer aggressors are not simply those individuals who do not act in prosocial ways, but rather that prosocial and aggressive behaviors may be selectively utilized depending on the circumstances and the recipient (e.g., his/her relative status or ingroup/outgroup membership). This study affirms the positive factors associated with engaging in prosocial behaviors while also calling into question the proposition that engaging in aggressive behaviors is necessarily associated with negative factors. While this study cannot directly address questions about the evolutionary function of peer aggression, it is suggestive of the role both prosocial and aggressive behaviors play in typical social organization, particularly in a college setting but perhaps applicable to other young adults or other age groups as well.

LIMITATIONS AND FUTURE DIRECTIONS

A main limitation of the current study is the lack of a measure of social dominance or status as an outcome measure to gauge the effectiveness of the ostensibly competitive strategies, aggression and prosociality. Including such a measure in future studies would allow stronger inferences to be made about the adaptive social dominance functions of peer aggression and prosociality. Another potential outcome variable would be a measure of mating success; one of the benefits of dominant status in a social hierarchy is increased mating opportunities, so successful dominance competition should often lead to greater mating success (Pellegrini, 2001).

The current study focused on aggression that was non-sexual and assumed that the reported aggression was dominance-related rather than related to direct resource-acquisition (e.g., beating up a classmate for his lunch money) or other functions. The RPEQ also does not make distinctions between various types of aggression (e.g., instrumental, reactive) that may have different functions under different conditions. Future studies may wish to examine specific patterns and types of aggression and other important contextual variables to more clearly distinguish social status-related aggression from other types of aggression that may have different functions, such as sexual aggression. The current study also relied on self-report, which may be unreliable; future studies may use peer-report methods, which are less prone to reporting biases in the realm of peer aggression (Werner & Crick, 1999).

Another factor that was not specifically examined in this study was fraternity and sorority related aggression and victimization, such as hazing and within- or between-house competition. In essence, fraternities and sororities act as formalized representations of the hierarchical dynamics that play out in typical college social life, where at least mild aggression and victimization to reinforce hierarchical roles is frequent (for example, upperclassmen fraternity members making freshman pledges wear ridiculous outfits in public). These institutions can involve a form of aggression that is often sanctioned or at least tolerated by the victims; for example, initiates who are pledging a fraternity may expect to be victimized as part of the process and reap the reward of camaraderie and inclusion if they endure it.

Thus, it is possible that victimization and aggression were underreported in our study because members or prospects of fraternities and sororities may be less

likely to view Greek life-related peer aggression as actual aggression. However, it should be noted that there are very few fraternities and sororities at the university where this study was conducted, and thus most students were unlikely to be part of these systems. At any rate, the social strategies model of peer aggression applies just as much to fraternity and sorority life, if not more so, than it does to general college life. As such, fraternities and sororities would be an excellent subject of study for future research on college peer aggression.

Further, as this study represents an early stage of the current research program, Bonferroni correction was not used despite the multiple hypotheses tested, so as to minimize risk of Type II error. Thus, the significant results of the current study should be taken with caution.

Finally, there were several limitations of the current sample that may have impacted the findings, including the high level of attrition, unbalanced gender representation, and the fact that much of the sample did not live on campus. Additionally, many of the participants completed their surveys late in the semester at Time 1, potentially deflating the difference in scores between T1 and T2.

IMPLICATIONS AND APPLICATIONS

Overall, these findings are consistent with the model of both relational aggression and prosocial behaviors as social strategies that can exist simultaneously and be employed selectively. Colleges and universities may be interested to note the potential importance of community cohesion at buffering against peer aggression and victimization. While this correlational design does not allow causal inferences, it may be the case that focusing on programs to create close-knit and cohesive dormitory communities can pay large dividends in the fight against campus peer aggression.

One potential way to interpret the static levels of aggression and victimization found in this study is that college peer aggression may not abate on its own throughout the freshman year, underscoring the importance of intervention programs. The bistrategic model of peer aggression examined in this study has implications for what types of interventions may be most effective. If aggression and prosociality function as dual social strategies in a college population as they seem to in elementary and high schools, then interventions that take this functional perspective into account may be most effective.

Ellis and colleagues (2012) suggest that the reason why many interventions aimed at curbing aggression and bullying in schools fail to achieve large effects (Merrell, Gueldner, Ross, & Isava, 2008; Pellegrini, 2002) is because they rely on assumptions and methods that are at odds with our evolved human nature. These authors suggest that zero-tolerance policies are ineffective because they do not take into account that bullying and peer aggression can be effective strategies to gain social status (Pellegrini, 2008), for which people naturally strive; thus, simply demanding an end to bullying or aggressive behavior and setting up harsh punishment structures without providing alternate means of achieving social goals is not sufficient to eliminate these behaviors (Ellis et al., 2012). Ellis and colleagues (2012) suggest that effective interventions must recognize peer aggression as a social strategy and focus on altering reward structures so that prosocial strategies

are more effective at achieving status than are antisocial strategies. One way to achieve this end is to address the attitudes of the students and their proximate ecological systems (e.g, teachers, administrators, and families) so aggressive strategies are no longer as effective; another is to focus on helping students build social dominance through prosocial rather than aggressive behaviors. While the current study does not itself address the question of whether peer aggression is related to social goals or which interventions may be effective, it is an important first step in examining these questions, which may profoundly illuminate the way interventions are conceptualized.

Finally, the current study adds to the small but growing body of literature on peer aggression in college-aged adults. If peer aggression and bullying function to form and maintain social hierarchies, then it is a phenomenon affecting humans, not just children and adolescents, and as such, deserves to be studied across the span of human development. The current study is a first step toward examining the social function of peer aggression in college students. The study sheds also light on the increased use of relational aggression in males that appears to take place during the transition to adulthood and suggests that this aggression plays a functional, adaptive role rather than being the product of a social deficit. Future research can continue to illuminate the full implications of the social strategies approach to understanding peer aggression, and inform interventions for children, adolescents, and adults alike.

REFERENCES

- Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology, 8*(4), 291-322.
- Björkqvist, K., Lagerspetz, K. M., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior, 18*(2), 117-127.
- Bowers, L., Smith, P. K., & Binney, V. (1992). Cohesion and power in the families of children involved in bully/victim problems at school. *Journal of Family Therapy, 14*(4), 371-387.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: an evolutionary perspective on human mating. *Psychological Review, 100*(2), 204-232.
- Centers for Disease Control and Prevention (2014). *Bullying surveillance among school aged children: Uniform definitions and recommended data elements*. Centers for Disease Control and Prevention (CDC), Washington DC: Author.
- Cillessen, A. H., & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development, 75*(1), 147-163.
- Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on Applied Social Psychology* (pp. 31-67). Newbury Park, CA: Sage.

- Coleyshaw, L. (2010). The power of paradigms: A discussion of the absence of bullying research in the context of the university student experience. *Research in Post-Compulsory Education*, 15(4), 377-386.
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, 66(3), 710-722.
- Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development*, 67(5), 2317-2327.
- Dawkins, R. (2006). *The selfish gene: 30th anniversary edition*. New York: Oxford University Press.
- Del Giudice, M. (2012). Sex ratio dynamics and fluctuating selection on personality. *Journal of Theoretical Biology*, 297, 48-60.
- De Los Reyes, A., & Prinstein, M. J. (2004). Applying depression-distortion hypotheses to the assessment of peer victimization in adolescents. *Journal of Clinical Child and Adolescent Psychology*, 33(2), 325-335.
- Duncan, S.H. (2010). College bullies – precursors to campus violence: What should universities and college administrators know about the law?. *Villanova Law Review*, 55(2), 269-320.
- Ellis, B. J., Del Giudice, M., Dishion, T. J., Figueredo, A. J., Gray, P., Griskevicius, V., ... Wilson, D. S. (2012). The evolutionary basis of risky adolescent behavior: Implications for science, policy, and practice. *Developmental Psychology*, 48(3), 598-623.
- Galen, B. R., & Underwood, M. K. (1997). A developmental investigation of social aggression among children. *Developmental Psychology*, 33(4), 589-600.
- Hawley, P. H. (2002). Social dominance and prosocial and coercive strategies of resource control in preschoolers. *International Journal of Behavioral Development*, 26(2), 167-176.
- Hawley, P. H. (2003). Strategies of control, aggression, and morality in preschoolers: An evolutionary perspective. *Journal of Experimental Child Psychology*, 85(3), 213-235.
- Hawley, P. H. (2008). Competition and social and personality development: Some consequences of taking Darwin seriously. *Anuario de Psicología/The UB Journal of Psychology*, 39(2), 193-208.
- Hawley, P. H., Johnson, S. E., Mize, J. A., & McNamara, K. A. (2007). Physical attractiveness in preschoolers: Relationships with power, status, aggression and social skills. *Journal of School Psychology*, 45(5), 499-521.
- Hawley, P. H., Little, T. D., & Card, N. A. (2007). The allure of a mean friend: Relationship quality and processes of aggressive adolescents with prosocial skills. *International Journal of Behavioral Development*, 31(2), 170-180.
- Keashly, L., & Neuman, J. H. (2010). Faculty experiences with bullying in higher education: Causes, consequences, and management. *Administrative Theory & Praxis*, 32(1), 48-70.

- Kolbert, J. B., & Crothers, L. M. (2003). Bullying and evolutionary psychology: The dominance hierarchy among students and implications for school personnel. *Journal of School Violence, 2*(3), 73-91.
- Kurzban, R. (2012). *Why everyone (else) is a hypocrite: Evolution and the modular mind*. Princeton, NJ: Princeton University Press.
- Merrell, K. W., Gueldner, B. A., Ross, S. W., & Isava, D. M. (2008). How effective are school bullying intervention programs? A meta-analysis of intervention research. *School Psychology Quarterly, 23*(1), 26-42.
- Meunier, J. C., Wade, M., & Jenkins, J. M. (2012). Mothers' differential parenting and children's behavioural outcomes: Exploring the moderating role of family and social context. *Infant and Child Development, 21*(1), 107-133.
- Pellegrini, A. D. (1998). Bullies and victims in school: A review and call for research. *Journal of Applied Developmental Psychology, 19*(2), 165-176.
- Pellegrini, A. D. (2001). The roles of dominance and bullying in the development of early heterosexual relationships. *Journal of Emotional Abuse, 2*(2-3), 63-73.
- Pellegrini, A. D. (2002). Bullying, victimization, and sexual harassment during the transition to middle school. *Educational Psychologist, 37*(3), 151-163.
- Pellegrini, A. D., & Bartini, M. (2001). Dominance in early adolescent boys: Affiliative and aggressive dimensions and possible functions. *Merrill-Palmer Quarterly, 47*(1), 142-163.
- Perry, A. D., & Blincoe, S. (2015). Bullies and victims in higher education. *Journal of Bullying and Social Aggression, 1*(1).
- Prinstein, M. J., & Cillessen, A. H. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly, 49*(3), 310-342.
- Rayner, C., & Hoel, H. (1997). A summary review of literature relating to workplace bullying. *Journal of Community & Applied Social Psychology, 7*(3), 181-191.
- Rigby, K. (2010). *Bullying intervention in schools*. Camberwell, Victoria, Australia: Acer.
- Roberti, J. W., Harrington, L. N., & Storch, E. A. (2006). Further psychometric support for the 10-Item Version of the Perceived Stress Scale. *Journal of College Counseling, 9*(2), 135-147.
- Rospenda, K. M., Richman, J. A., Wolff, J. M., & Burke, L. A. (2013). Bullying victimization among college students: Negative consequences for alcohol use. *Journal of Addictive Diseases, 32*(4), 325-342.
- Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior, 15*(2), 112-120.
- Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*(5328), 918-924.
- Schäfer, M., Korn, S., Smith, P. K., Hunter, S. C., Mora-Merchan, J. A., Singer, M. M., & Van der Meulen, K. (2004). Lonely in the crowd: Recollections of bullying. *British Journal of Developmental Psychology, 22*(3), 379-394.

- Scott-Phillips, T. C., Dickins, T. E., & West, S. A. (2011). Evolutionary theory and the ultimate–proximate distinction in the human behavioral sciences. *Perspectives on Psychological Science*, 6(1), 38-47.
- Sijtsema, J. J., Veenstra, R., Lindenberg, S., & Salmivalli, C. (2009). Empirical test of bullies' status goals: Assessing direct goals, aggression, and prestige. *Aggressive Behavior*, 35, 57-67.
- Storch, E. A., Werner, N. E., & Storch, J. B. (2003). Relational aggression and psychosocial adjustment in intercollegiate athletes. *Journal of Sport Behavior*, 26(2), 155-167.
- Storch, E. A., Bagner, D. M., Geffken, G. R., & Baumeister, A. L. (2004). Association between overt and relational aggression and psychosocial adjustment in undergraduate college students. *Violence and Victims*, 19(6), 689-700.
- Sutton, J., Smith, P. K., & Swettenham, J. (1999). Social cognition and bullying: Social inadequacy or skilled manipulation?. *British Journal of Developmental Psychology*, 17(3), 435-450.
- Swearer, S. M., & Cary, P. T. (2003). Perceptions and attitudes toward bullying in middle school youth: A developmental examination across the bully/victim continuum. *Journal of Applied School Psychology*, 19(2), 63-79.
- Ttofi, M. M., & Farrington, D. P. (2011). Effectiveness of school-based programs to reduce bullying: A systematic and meta-analytic review. *Journal of Experimental Criminology*, 7(1), 27-56.
- Vaillancourt, T., Hymel, S., & McDougall, P. (2003). Bullying is power: Implications for school-based intervention strategies. *Journal of Applied School Psychology*, 19(2), 157-176.
- Werner, N. E., & Crick, N. R. (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal of Abnormal Psychology*, 108(4), 615-623.
- Williams, K. R., & Guerra, N. G. (2007). Prevalence and predictors of internet bullying. *Journal of Adolescent Health*, 41(6), S14-S21.