
BRIEF REPORT

Prospective Associations Between Prosocial Behavior and Social Dominance in Early Childhood: Are Sharers the Best Leaders?

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ABSTRACT. A short-term longitudinal study during early childhood ($N = 96$; $M = 42.80$; $SD = 7.57$) investigated the concurrent and prospective association between prosocial behavior and social dominance. Time-intensive school-based focal child sampling with continuous recording observations of prosocial behavior to peers were conducted and teacher-reports of social dominance were collected. The study documents significant prospective links between prosocial behavior to peers and increases in social dominance over time. Social dominance was not associated with changes in prosocial behavior. The findings extend past empirical work in early childhood and future directions are discussed.

Keywords *prosocial behavior, social dominance, observation, early childhood, preschool, gender*

Prosocial behavior is defined as “voluntary behavior intended to benefit another” (Eisenberg, Fabes, & Spinrad, 2006, p. 646) and is believed to be an important set of social skills that young children acquire in early childhood. Prosocial behavior includes not just traditional helping and sharing behaviors, but also intentional inclusion of other children in play (Greener & Crick, 1999). Our knowledge of prosocial behavior has been growing in recent years with an emphasis on elucidating processes of resilience, competence, and identifying strengths rather than just weaknesses in children (Gest, Sesma, Masten, & Tellegen, 2006).

The study of social dominance has a long and rich tradition within psychology (e.g., Sluckin & Smith, 1977; Strayer & Strayer, 1978). Social dominance reflects interactions among individuals within group structures and how those relationships impact access to various limited resources (e.g., Bjorklund & Pellegrini, 2002). Social dominance has been viewed as an index of social

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competence (La Freniere & Sroufe, 1985; Vaughn et al., 2009). Although aggression may be used to achieve social dominance status (Pellegrini et al., 2007), careful observations of preschool classrooms suggest that the most aggressive individuals are typically not always the most dominant and the targets of aggressive behavior are not always the most submissive children (Strayer & Strayer, 1978).

Socially dominant individuals can gain resources via assertive, coercive, or prosocial means. In fact, Charlesworth (1996) theorized that the ability to compete using various instrumental actions is widespread across cultures and may be a universal occurrence. Other scholars have posited that cooperation and prosocial behaviors may be conceptualized as behaviors that facilitate social resources and from an evolutionary perspective may represent investment in the collective group and mutual aid (Jensen-Campbell, Graziano, & West, 1995). According to these scholars, individuals who are motivated by cooperation and altruistic goals achieve resources (Jensen-Campbell et al., 1995). Additional developmental research suggests that prosocial behavior and social dominance constructs should be associated. Theoretically, assertive tendencies may be required to approach peers and offer guidance after identifying that a peer is in need of assistance (Eisenberg et al., 2006). Thus, we contend that prosocial behavior may facilitate the acquisition of resources and power within peer groups.

Early childhood is theorized to be an important developmental period for the study of both prosocial behavior and social dominance. Recent studies with young children have contributed a great deal to our extant knowledge on the present topic. For example, Roseth, Pellegrini, Bohn, Van Ryzin, and Vance (2007) found that teacher-rated social dominance was positively associated with observed rates of affiliation (i.e., “children interacting positively or neutrally with each other, as gauged by mutual gaze or verbal interaction” [p. 483]) and the findings underscored that different strategies (i.e., aggression and affiliation) may be used by preschoolers to obtain control of resources. The present study was designed to explore the concurrent and prospective association between actual prosocial behavior to peers and social dominance in early childhood.

The study uses a multimethod and informant short-term longitudinal design. We anticipate that prosocial behavior will predict increases in social dominance over time. Gender (e.g., Ostrov, Pilat, & Crick, 2006) and age (e.g., Hay, 1994; Pellegrini et al., 2007) have been shown to be possible moderators and often are statistically controlled and will be in the present study as well.

METHOD

Participants

Ninety-six children (51 girls) participated at time 1 and were an average of 42.80 months old ($SD = 7.57$ months) at the beginning of data collection. The ethnic composition of the participating sample was 4.2% African American, 4.2% Asian, 3.1% Hispanic–Latino, 1% Native American, 80.2% Caucasian, 2.1% multiracial, and 5.2% unknown. Parental occupational information was obtained from parents at the time of enrollment in the study. Using Hollingshead’s (1975) Four-Factor Index 9 point scoring system (i.e., 9 = executives and professionals; 1 = service workers), each parent’s reported occupation was given a corresponding value (range = 2–9). According to Hollingshead’s occupational codes, the median occupation score was 7.00, which suggests that the sample was primarily middle class.

Children were recruited from five schools and nine participating mixed-age classrooms within those schools in a large city in the northeast. Of the participating schools, two were university–college affiliated and three were community-based schools. Each of the schools had a similar educational philosophy and were each either currently National Association for the Education of Young Children (NAEYC) accredited or working on reaccreditation. Within the nine classrooms, the teachers had known the participating child for 9.79 months at time 1 ($SD = 9.90$ months). Across the two time points, attrition was small (7%; 3 girls and 4 boys) and was due to children changing schools or families moving out of the area. The final sample with prospective data from time 1 to time 2 was thus 89 children (48 girls).

Measures

Observations of prosocial behavior

Focal child sampling with continuous recording observations (see Pellegrini, 2004) of children's prosocial behavior were conducted during free-play using revised procedures (Crick et al., 2006) originally developed by Ostrov and Keating (2004; for a review, see Leff & Lakin, 2005). To date, this observation system has been used primarily to study relational and physical aggression and the present study is the first to focus on prosocial behavior. In keeping with the past procedures, each child was observed for exactly 10 min (using a stopwatch) for each of the eight assessments by a trained observer over a two-month period. That is, each child was observed for 80 min at each of the two overall time points or 160 min of total observation time per child across the study. Observers (6 female undergraduate as well as two female and one male graduate students–professional staff who were used primarily for training and reliability purposes) were trained via discussion, watched past DVDs from prior studies, conducted live practice coding, and completed a coding examination. Observers were trained to reduce reactivity and maintained a minimally responsive manner in the classroom (i.e., monitoring nonverbals, posture, sitting position, eye contact and movement around the classroom or playground; Pellegrini, 2004). Observers always conducted observations within earshot of the focal child in order to hear and see the full peer interactions. Reactivity (i.e., frequency of comments, direct eye contact from the focal child, and questions from the focal child to the observer) was low over the course of the study ($M < .42$; $SD = .42$). Focal children were only observed one time per day and the order was determined randomly, while keeping an equal number of observations per each child, within each day of observation.

For the present study, observers recorded the focal child's display of prosocial behavior (i.e., sharing, helping, cooperating, and including others in games or activities). Prosocial behavior was not recorded if the teacher or an adult asked the child to share (or insisted that they share) and not in response to threats or provocations from the recipient. That is, a genuine (not forced by the teacher or others) sense of sharing, cooperating, helping, or including was needed in order to code this behavior. To be conservative in our assessment of prosocial behavior, observers were carefully trained to make these distinctions and to realize that friendly, affable, and sociable behavior was not necessarily prosocial behavior (e.g., smiling or saying hello were not considered prosocial acts on their own, but they could accompany other behaviors of interest). Observers recorded physical aggression, relational aggression, and additional behaviors for purposes of the

larger longitudinal study (Ostrov, Murray-Close, Godleski, & Hart, 2013). The observers always recorded a written description of what occurred and the gender of all children involved. A paper-and-pencil approach was used and observers were trained to briefly record the behaviors on an observational form in order to avoid missing details while writing (for more details, see Ostrov & Keating, 2004). In keeping with past procedures, each separate independent behavior, based on a temporal break in the interaction, was recorded as a new behavior. Behaviors were summed to yield total scores.

Reliability was assessed for approximately 15% of the time and was conducted across the study to avoid observer drift concerns, a threat to the validity of the study (Pellegrini, 2004). As the authors of this system have noted previously (see Crick et al., 2006; Ostrov & Keating, 2004), the means by which the observations are collected was not amenable to kappa coefficients as observers did not indicate intervals when the prosocial behaviors were absent (see Pellegrini, 2004). The use of intraclass correlation coefficients (ICCs) has been suggested in similar situations (see McGraw & Wong, 1996) and used by past authors (e.g., Arnold, Homrok, Ortiz, & Stowe, 1999; Crick et al., 2006; NICHD Early Child Care Research Network, 2004; Ostrov & Keating, 2004). Past studies have supported the favorable reliability of the observation system (i.e., ICCs > .70; Crick et al., 2006; Ostrov, 2010; Ostrov & Keating, 2004). In the present investigation, reliability was acceptable for observations of prosocial behavior (ICCs > .85 at both time points). This observational system has also demonstrated appropriate validity in the past with moderate correlations between teachers and observers (see Leff & Lakin, 2005).

Social dominance ratings

Ratings of each child's dominance were collected from head teachers at each time point. Teacher-reports have been used successfully in past research during early childhood (Pellegrini et al., 2007). Teachers independently rated how socially dominant and influential each child in their class was by answering a six-item questionnaire developed and used successfully in past research (e.g., "S/he gets what s/he wants in class," "S/he usually gets what s/he wants, even if others don't" Hawley, 2002, 2003). The slightly revised (see also Murray-Close & Ostrov, 2009; Ostrov et al., 2006) teacher measure (i.e., rating scale was changed from seven responses to five in order to be in keeping with other measures from the present study) consisted of an index for rating the child on a 5-point Likert-type scale ranging from 1 (*almost never or seldom*) to 5 (*often or almost always*). Past research has demonstrated acceptable internal consistency for this scale (e.g., Cronbach's $\alpha > .85$; Hawley, 2003; Ostrov et al., 2006). In the present study, the teacher-report of social dominance demonstrated acceptable internal consistency (Cronbach's $\alpha = .80$ at time 1 and $\alpha = .82$ at time 2) at both time points. This teacher-report measure has also been moderately associated with observations of social dominance (Ostrov et al., 2006). In the present study, following past procedures (e.g., Murray-Close & Ostrov, 2009; Ostrov, 2010) a research assistant report (RA-Report) of social dominance, using the same rating form that teachers completed, was also completed by one of the original observers once all observations were completed at each of the two time points. The RA-Report of Social Dominance was generally within the acceptable range for internal consistency at each time point (Cronbach's $\alpha = .68$ at time 1 and $.90$ at time 2). Importantly, supporting the validity of the measure, teacher-report and RA-report were significantly correlated at both time points (i.e., $r = .31$, $p = .002$ at time 1;

$r = .34, p = .001$ at time 2). To further test the construct validity of the teacher-report measure, at time 1, a principal axis factor analysis with varimax rotation was conducted. An inspection of the traditional scree plot suggested only one factor accounted for the data (eigenvalues of 2.41, 0.96, 0.87, 0.69, 0.57, and 0.51). All six items loaded on the one factor with factor loadings greater than .31.

Procedure

The study was approved by the local social and behavioral sciences Institutional Review Board and parents provided written consent prior to participation. Children's head teachers also provided written informed consent prior to completing reports. In order to permit time for children to establish peer relationships and for teachers to get to know the children, observations were started approximately eight weeks after the children began attending school (i.e., most began school in August) for that year (i.e., observations began roughly in mid October). Observations typically took eight weeks to collect at each of the time points. The second time point was approximately four months after the conclusion of time 1 (i.e., late March depending on school vacations). Teacher reports were always distributed when approximately half of the observations were completed. Teachers were provided an honorarium (\$25 gift certificate) after completing packets at each time point. Participants and school personnel received newsletters summarizing the major results of the project.

RESULTS

First, preliminary analyses (i.e., descriptive statistics, stability, correlations between study variables) were conducted. Second, using hierarchical regression models, we tested the concurrent associations between prosocial behavior and social dominance, when controlling for gender and age. Third, we tested for prospective associations between prosocial behavior and social dominance, when controlling for gender, age, and initial levels of behavior. As part of this goal we tested both direction of effects between prosocial behavior and social dominance.

Descriptive statistics were calculated and are found in Table 1. Skew was less than 3 and kurtosis less than 8 suggesting that nonnormality of the data was not a concern (Kline, 1998).

TABLE 1
Descriptive Statistics and Correlations Between Key Study Variables

	1	2	3	4	M	SD	Range
Prosocial observations time 1	—	.53***	.32**	.33**	2.13	2.10	0–10
Prosocial observations time 2		—	.23*	.41**	1.79	1.81	0–9
Social dominance teacher report time 1			—	.55***	18.34	2.40	12–25
Social dominance teacher report time 2				—	18.68	3.18	12–30

* $p < .05$. ** $p < .01$. *** $p < .001$.

Moreover, an inspection of the frequency of behavior suggests that 75.8% of the focal children were observed engaging in prosocial behavior at time 1 and 75.3% were observed displaying prosocial behavior at time 2. More specifically, 18.1% were observed displaying prosocial behavior during four or more sessions (i.e., for half of the observed sessions) at time 1 and 15.7% displayed prosocial behavior at this rate at time 2. Thus, despite the low frequency of behavior for some children there was sufficient variability in the observed prosocial behavior data. Correlations between the study variables indicated that observed prosocial behavior was associated with both concurrent (at time 1) and future social dominance. Social dominance was moderately stable across time (see Table 1).

To test the key study goals a series of hierarchical regression models were conducted. The first and second models tested the concurrent (at time 1) associations between observed prosocial behavior and teacher-reported social dominance, controlling for both gender and age. The first model revealed that prosocial behavior was significantly associated with social dominance. The second model demonstrated that age was a significant and positive predictor of prosocial behavior and social dominance was concurrently and positively associated with prosocial behavior. These preliminary models suggested the importance of controlling for age and indicated the need for prospective models to isolate the direction of effect issue.

The third model tested the prospective associations between observed prosocial behavior at time 1 and teacher-reported social dominance at time 2 controlling for gender and initial social dominance behavior. The interaction between gender and observed prosocial behavior was entered at step 3. The interaction term was not significant and thus for ease of communication it is not presented. It was found that observed prosocial behavior was a significant predictor of increases in social dominance over time (see Table 2). The fourth regression model tested the reverse direction of effect. That is, gender continued to be entered at step 1, but now social dominance at time 1 was entered at step 2 and the outcome was observed prosocial behavior at time 2. In addition, initial observed prosocial behavior was entered at step 1. The interaction between gender and social dominance was entered at step 3. The interaction term was not significant and thus for ease of communication it is not presented. The findings indicated that although age continued to be a significant predictor, social dominance was not significantly associated with changes in prosocial behavior across time.

TABLE 2
Regression Models Testing Concurrent Relations Between Prosocial Behavior and Social Dominance

<i>Outcome, step, predictors</i>	β	F, ΔF	R ²	ΔR^2
Model 1. Social dominance TR T1				
Step 1: Gender	-.009	(2, 91) = 0.013, $p = .99$.00	
Age	-.015			
Step 2: Prosocial behavior OBS T1	.36***	(1, 90) = 12.01, $p = .001$.12
Model 2. Prosocial behavior OBS T1			.35	
Step 1: Gender	.16	(3, 84) = 14.81, $p < .001$		
Age	.28**			
Step 2: Social dominance TR T1	.33***	(1, 90) = 12.01, $p = .001$.11

Note. OBS = observations; TR = teacher report; T1 = time 1.
* $p < .05$. *** $p < .001$.

DISCUSSION

The present study had two main study objectives. We found that observed prosocial behavior predicted increases in social dominance. However, we did not find evidence that social dominance was significantly associated with changes in prosocial behavior to peers. Thus, the direction of effect seems to be from prosocial behavior to increases in social dominance rather than social dominance predicting changes in prosocial behavior. We certainly await replication of these effects and additional longitudinal designs that permit the examination of the nature of the dynamic association between these constructs is needed (e.g., Roseth et al., 2011).

The present study has several strengths and addresses novel empirical questions. The study relied on multiple informants (i.e., teacher reports, research assistant reports, and time-intensive focal child observations) and a short-term longitudinal design with a moderate to large sample size for observational studies of this type (e.g., Keating & Heltman, 1994 [$N = 57$]; Pellegrini et al., 2007 [$N = 65$]). Despite the strengths there are several limitations that must be addressed in future research. First, the demographics of the sample limit the external validity and generalizability of the findings. The decision to use high quality childcare centers, which generally share an educational philosophy and have similar school climates, was motivated by a desire to eliminate confounding variables. However, future research should be conducted to replicate the findings in a more diverse sample and with schools that have greater range in quality. Second, the time interval between the two time points was brief given the amount of time it took to collect the observations. This interval is consistent with prior studies (e.g., Crick et al., 2006; Hay, Castle, Davies, Demetriou, & Stimson, 1999), but additional longitudinal work is needed that examines these associations across a longer time period (see Table 3).

The findings indicate that prosocial behavior is associated with increases in social dominance. That is, sharers were the best leaders or more precisely those that shared, helped, and

TABLE 3
Regression Models Testing Prospective Relations Between Prosocial Behavior and Social Dominance

<i>Outcome, step, predictor</i>	β	F, ΔF	R ²	ΔR^2
Model 3. Social dominance TR T2				
Step 1: Gender	-.016	(3, 84) = 12.18, $p < .001$.300	
Age	.02			
Social dominance TR T1	.55***			
Step 2: Prosocial behavior OBS T1	.22*	(1, 83) = 5.21, $p = .025$.041
Step 3: Gender \times Prosocial Behavior OBS T1	-.63	(1, 82) = 3.97, $p = .051$.030
Model 4. Prosocial behavior OBS T2				
Step 1: Gender	-.02	(3, 84) = 14.81, $p < .001$.350	
Age	.24*			
Prosocial behavior OBS T1	.48***			
Step 2: Social dominance TR T1	.13	(1, 83) = 1.95, $p = .17$.015
Step 3: Gender \times Social Dominance TR T1	-.37	(1, 82) = 1.83, $p = .18$.014

Note. OBS = observations; TR = teacher report; T1 = time 1; T2 = time 2.

* $p < .05$. *** $p < .001$.

included others increased in their ability to secure resources in the future. Future research is needed to examine the possible overlap between prosocial behaviors and prosocial resource control strategies. The reviewed past literature points to some rationale for overlap (e.g., Hawley, 1999) but this remains an important theoretical and empirical question. In conclusion, this study advances our understanding of the social benefits of sharing and helping behavior among young children.

AUTHOR NOTES

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