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Differential Expression of Social Dominance as a Function of Age and Maltreatment Experience

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Abstract

Recent perspectives on social dominance in normative populations suggest a developmental progression from using primarily coercive strategies to incorporation of more socially competent strategies to attain material and social resources. Parental influences on the resource control strategies children use have been proposed, but not investigated empirically. The present study examined age- and gender-related differences in dominance strategies in 470 children from high-risk neighborhoods who were between 6 and 13 years of age, and approximately half of whom had experienced maltreatment. A Q-sort measure of social dominance was developed and received preliminary support. Consistent with predictions from resource control theory, age-related differences in dominance-related behavior were demonstrated in both non-maltreated and maltreated children. Maltreated children were more likely than non-maltreated children to be identified as dominant bullies at any age. Dominance and bullying were not more likely to be associated for children who had experienced physical and sexual abuse relative to those who were neglected or emotionally maltreated. Results are discussed in terms of the influence of maltreatment on the social development of children and intervention approaches for limiting these deleterious effects are recommended.

Keywords

Social Dominance; Child Maltreatment

The present investigation examines the construct of social dominance and the nature of dominant behavior in children at school age, a significant period in terms of social development. Despite an historical focus on aggression as a primary means of achieving dominance, recent perspectives have suggested that dominant individuals are unlikely to rely solely on aggression, given the complexity of social systems and potential negative social consequences. Instead, in order to balance success in terms of controlling resources as well as maintaining positive social standing, individuals are apt to employ socially competent and prosocial strategies, such as cooperation, instead of or in addition to aggression (Charlesworth, 1996; Hawley, 1999).

Drawing from a developmental psychopathology perspective, we seek to further knowledge regarding the nature of social dominance by examining developmental differences in the strategies that children use to achieve their social aims. Developmental psychopathology asserts that much can be learned about normative development by contrasting developmental processes and testing theories about normative development in atypical populations (Cicchetti, 1984, 1993; Rutter & Sroufe, 2000). Similarities and differences between normative and atypical groups can shed light on the direct and indirect effects of interacting risk and protective factors, amounting to a more complete understanding of varying developmental pathways, including those leading from adverse events to resilience or dysfunction (Cicchetti & Schneider-Rosen, 1984). Given the profusion of literature highlighting the harmful impact of childhood maltreatment on children's social functioning (Cicchetti & Valentino, 2006), the present investigation included children with and without

histories of maltreatment. This design was selected with the purpose of informing models of the normative development of social dominance expression by providing a contrast with children with atypical rearing experiences likely to affect their social behavior. Consistent with contemporary models of social dominance, we anticipate that although some dominant individuals (e.g., bullies), primarily pursue their goals via coercive methods, for others (e.g., leaders), dominance is affiliated with more competent social functioning. Furthermore, we expect that examining the nature of social dominance in maltreated children will shed light on the early life experiences that lead children to adopt primarily coercive versus competent orientations to pursuing dominance.

Social Dominance

Evolutionary perspectives have highlighted the natural inclination of humans and other animals alike towards survival and reproduction (Darwin, 1859). Given this compelling force coupled with limited resources, competition is inevitable and thus generally considered to be a normative element of social organization. Outcomes of competitions have structural importance in terms of establishing hierarchies within social groups. Specifically, individuals who are more dominant, as measured by repeated competitive successes, also are more socially visible and have greater influence on the distribution of resources (Hawley, 1999). Although the organizing effect of dominance hierarchies appears to serve the ultimate purpose of reducing conflict (Rowell, 1974), research in animal behavior has consistently identified aggressive behavior as a common route to dominance (Drews, 1993; Wilson, 1975).

Among humans, particularly young children, coercive approaches to dominance also have yielded positive outcomes in terms of social centrality and positive evaluation by peer groups (Lafreniere & Charlesworth, 1987; Strayer & Strayer, 1976). Recent perspectives on dominance, however, have challenged the foundational emphasis on coercive behaviors in describing social dominance striving in humans. Rather than equating dominance with coercion and hostility, it has been proposed that social dominance, when defined as a means of resource acquisition and control, is as likely to be sought through socially competent behaviors, such as cooperation, as it is through coercive behaviors (Charlesworth, 1996; Hawley, 1999). Hawley (2002, 2007) has demonstrated the utility of person-centered approaches for understanding social dominance, having identified types of dominant individuals based upon their preferred dominance strategies. The current study also utilized a person-centered analytical strategy to differentiate children in terms of the likelihood that social dominance would be primarily associated with coercive and aggressive versus more socially competent strategies. Additionally, this investigation proposes to add to the literature by investigating potential sources of this strategic variation, including normative developmental differences and atypical rearing experiences. Resource control theory (Hawley, 1999) was used as a guiding framework for the present investigation. Although we do not specifically measure resource acquisition and control, we present a novel measure that describes socially dominant individuals and relate this measure to ratings of qualitatively different social strategies (e.g., bullying and social competence), which may be employed in the pursuit of material and social resources.

Developmental Variation in Dominance Strategies

Derived from ethological and developmental psychological perspectives, the resource control theory of social dominance offers new conceptualizations regarding the nature of dominance in humans and the development of varying strategies for achieving dominance (Hawley, 1999, 2007). Specifically, Hawley suggests that dominance is unlikely to be pursued by older children and adolescents, in the same way it is in younger children, or at

least that the social consequences of such behavior may vary. In early childhood, children may be more inclined to use coercive control strategies when handling conflict with their peers. Coercive strategies also appear to be successful in achieving dominance with few consequences in terms of reduced likeability (LaFreniere & Charlesworth, 1987; Strayer & Trudel, 1984). In fact, evidence suggests that aggressive dominance is positively associated with peer perceptions in males as old as 5 to 6 years (Pettit, Bakshi, Dodge, & Coie, 1990; Price & Dodge, 1989). These findings may be most relevant when considering instrumental forms of aggression, as hostile aggression marked by emotional dysregulation has been identified for its potential to increase the risk for victimization by peers (Kochenderfer-Ladd, 2003; Schwartz, Proctor, & Chien, 2001).

Although there appears to be little differentiation in the nature of dominance behavior during early childhood (Hawley, 2002), as children reach middle childhood and beyond, control strategies become more distinct, with coercive behaviors becoming less likely to be socially effective. Instead, older individuals adopt additional tactics for achieving their goals, including prosocial strategies, which are effective in balancing resource attainment with the added goal of relationship maintenance. Prosocial behaviors result in positive perceptions from others, whereas coercive behaviors lead to high visibility and influence in the social context, but also low peer regard (Hawley, 1999). Pettit et al. (1990), for example, found that aggression was associated with dominance ranking in both 1st and 3rd grade males, but that leadership behavior uniquely predicted dominance in the older, but not the younger, group. Additionally, these authors noted that dominance, as determined by engagement in instrumental and hostile aggressive behavior, was associated with peer preferences in first grade boys, but that this was not the case in the older age group. Further evidence for the apparent developmental shift in social impact of dominance strategies comes from investigations with older children and adolescents, which indicate that prosocial influence is consistently associated with peer preference, whereas bullying and aggression lead to rejection by peers (Coie & Dodge, 1983; Coie, Dodge, Terry, & Wright, 1991; Olweus, 1993).

Growing empirical support for a common developmental shift from a focus on aggressive approaches to dominance in early childhood to increasing inclusion of prosocial approaches with age is evident. This developmental transition is likely to result not only from increased negative consequences of coercive behavior, but also from associated developmental changes in language skills and more sophisticated social understanding, moral development, and perspective taking (Eisenberg, Fabes, & Spinrad, 2006; Kohlberg & Kramer, 1969; Piaget, 1965). Furthermore, exposure to socializing agents, such as teachers and other socially competent peers is likely to result in broader repertoires of available behaviors for social understanding and influence (Bandura, 1986; Vygotsky, 1978). Support for the developmental shift in strategies used by socially dominant individuals will be sought in the present investigation. Specifically, it is expected that children's engagement in bullying, an instrumental form of aggression, and social competence will both be associated with children's social dominance orientations. However, it also is expected that there will be a stronger association between social dominance and social competence for older children, whereas younger dominant children may be more apt to engage in coercive behavior.

Child Maltreatment, Gender, and Dominance Expression

Although there appears to be a normative developmental transition towards utilizing more prosocial dominance strategies, some individuals continue to rely on hostility and coercion throughout development (e.g., bullies). In addition to hypotheses regarding general developmental transitions, the resource control theory also makes predictions regarding the factors involved in shaping the trajectories children take towards primarily coercive versus

competent dominance orientations. Hawley (1999) suggests that early socializing experiences will have a significant influence on the paths that children follow. Although a general orientation towards dominance may be primarily associated with genetic or constitutional factors such as temperament and personality, how that orientation is ultimately expressed is likely related to exposure to behavioral models, such as parents, siblings, and peers. Adults in particular are considered to play a critical role in the communication of social values and norms (Farmer, Xie, Cairns, & Hutchins, 2007; Youniss, 1980). The present investigation examines this aspect of the resource control theory further by studying the relationship between early parent-child relationships and the nature of dominance-related behavior observed in children. Specifically, this investigation will focus on the experience of child maltreatment, due to its known potential to have a deleterious impact on children's social development.

A considerable body of empirical support exists, linking childhood experiences of maltreatment with behavioral maladaptation, often in the form of aggression. Physically abused children, in particular, are repeatedly identified as being at increased risk for the expression of such behaviors (Cicchetti & Lynch, 1995; Trickett & McBride-Chang, 1995). Investigations have uncovered several factors that promote the relation between maltreatment and children's aggressive behavior, including social cognitive errors and emotional dysregulation (Dodge, Bates, & Pettit, 1990; Teisl & Cicchetti, 2008). These investigations have largely focused on generalized or reactive forms of aggression with less emphasis on instrumental forms, such as bullying. Social learning perspectives regarding the development of instrumental aggression have suggested that this behavior results from exposure to adult models of aggression and the anticipation of social and material rewards for aggressive behavior (Vitaro, Barker, Boivin, Brendgen, & Tremblay, 2006; Vitaro & Brendgen, 2005). Peers also play a role, as evidence suggests that adolescents who have been victimized by their peers may learn to adopt the instrumentally aggressive behavior they have experienced (Barker, Arseneault, Brendgen, Fontaine, & Maughan, 2008). Investigations of child maltreatment that have examined bullying have indicated that victims of maltreatment are particularly likely to engage in bullying behavior in both early and late childhood, in part as a result of deficits in emotion regulation (Shields & Cicchetti, 2001). Due, in part, to their exposure to adult modeling of coercive behaviors, we anticipate that bullying also will have instrumental value for maltreated children, as evidenced by its association with social dominance. Given their experiences of physical coercion, physically abused children may evidence a particularly strong association between bullying and dominance.

Bullying was used in the present investigation as a form of instrumental aggression and example of coercively controlling behavior. Bullying has been associated with social power and the pursuit and maintenance of social status (Salmivalli & Peets,; Vaillancourt, Hymel, & McDougall, 2003), which in turn improves access to social and material resources (Hawley, 1999). Although some have distinguished bullying from more clearly instrumental aggression, these same authors also note the potential utility of bullying in establishing position in the social hierarchy of novel peer groups, particularly when children have less sophisticated social strategies (Coie, Dodge, Terry, & Wright, 1991). Given the relative novelty of the peer groups we examined in the present investigation, we perceived bullying behavior over the course of a one week camp as indicative of instrumental efforts to establish dominance over peers.

It is important to note that resource control theory allows for the possibility that some individuals may employ both coercive as well as prosocial dominance strategies. In fact, these bistrategic controllers have been found to exhibit the highest levels of dominance while also retaining their social appeal (Hawley, 2003a, 2003b). We did not have specific

expectations about the relative likelihood that maltreated or non-maltreated would be identified as bistrategic controllers or whether a subgroup of bistrategic controllers would be detected in this sample. Instead, we expected that person-centered techniques would indicate that dominant individuals would be relatively more likely to exhibit aggressive social behavior if they had a history of maltreatment and socially competent behavior if they had not.

It is unclear what role gender may play in differentiating individuals in terms of their dominance-related social behavior (e.g., coercive vs. competent) in the present study. Much of the research regarding dominance and aggression in school-aged children has focused on males. Due to varying socialization histories, males appear to be differentially reinforced for expressing aggression openly and acting in assertive ways (Zahn-Waxler, Crick, Shirtcliff, & Woods, 2006), whereas females are encouraged to develop a strong interpersonal orientation (Zahn-Waxler & Polanichka, 2004). According to Hawley and her colleagues, females generally report less aggression and dominance striving than males (Hawley, Little, & Card, 2005). Given that females engage in more relational and less overt forms of aggression (Crick & Grotpeter, 1995; Lagerspetz, Bjorkqvist, & Peltonen, 1988), we suspect that males are more likely to exhibit coercively controlling behavior in the form of bullying. However, it also is important to consider that maltreated females are likely exposed to similar models of coercive control as maltreated males, and their approaches to dominance may reflect their experiences. Research conducted with maltreated children has indicated that maltreated girls, as well as maltreated boys, are more likely to engage in bullying than their non-maltreated counterparts (Shields & Cicchetti, 2001). Thus, the present investigation included both boys and girls in order to ascertain whether the relationships among age, dominance behavior, and maltreatment history differed by gender.

Summary and Hypotheses

In summary, the present investigation sought to examine age-related differences in dominance-related behavior using a sample including children with and without maltreatment histories. Specific hypotheses are as follows:

1. Social dominance will be positively related to bullying as well as social competence. Furthermore, we expect that dominant children can be classified in terms of behavioral strategies, as determined from adult observations of peer interactions. Dominance profiles based on adult ratings also will be verified by examining their consistency with peer ratings of social behavior.
2. The relationship between dominance and bullying vs. social competence will vary by age, such that older children will be increasingly likely to exhibit social competence in relation to dominance, relative to younger children.
3. Relative to non-maltreated children, we expected that children who have been maltreated will be more likely to exhibit bullying in relation to social dominance than non-maltreated children. For children who have experienced physically dominating forms of abuse (e.g., physical and sexual abuse), bullying others rather than adopting more socially competent approaches is expected to will occur most frequently.

Method

Participants

A total of 470 children between the ages of 6 and 13 years ($M = 9.48$, $SD = 1.98$) attended a research summer camp program and participated in the investigation. The sample included

both maltreated children ($n = 250$) and non-maltreated children ($n = 220$). Maltreated children were identified for possible recruitment by a county Department of Human Services (DHS) liaison based on the presence of documented records of child abuse and/or neglect. The DHS liaison contacted a random sample of families for possible participation, if interested, and subsequent recruitment into the study. Because most DHS-identified maltreating families were low-income, demographically comparable families were identified for recruitment for the non-maltreatment group from a list of families receiving Temporary Assistance to Needy Families (TANF) by the DHS liaison. Families were subsequently screened by the liaison to confirm the absence of maltreatment history and then were randomly approached for participation. Parents provided informed consent for their child's participation, as well as consent for access to any family DHS records. Additionally, in order to confirm the absence of prior DHS involvement or maltreatment histories for children identified as non-maltreated, mothers were interviewed using the *Maternal Child Maltreatment Interview* (Cicchetti, Toth, & Manly, 2003). This interview also was conducted with mothers in the maltreatment group to supplement information available in the DHS records.

The maltreated and non-maltreated children were comparable in terms of age and race/ethnicity, as well as on a number of family demographics (See Table 1). Nearly half of each group came from single parent families and the majority (> 95%) of both groups had received public assistance. Relative to the non-maltreatment group, however, the maltreatment group included a larger percentage of male participants, had significantly more children in their families, and had mothers with less average years of schooling. The number of children in the family and mother's years of education correlated with some of the outcome variables of interest and thus were controlled in analyses involving these variables (Table 2).

Maltreatment classification—DHS records provide detailed information regarding the maltreating events occurring within families identified and investigated by Child Protective Services (CPS). Independent determinations of various aspects of maltreatment also were made using the Maltreatment Classification System (MCS; Barnett, Manly, & Cicchetti, 1993). Trained clinical psychologists, doctoral students, and research assistants carefully reviewed each family's DSS case history in order to determine the nature of maltreatment that had occurred. The MCS outlines criteria for operationalizing maltreatment subtypes, including physical abuse, physical neglect, sexual abuse, and emotional maltreatment. Consistent with previous research on maltreatment (Cicchetti & Barnett, 1991), the majority of maltreated subjects groups (74.4%) were found to have experienced multiple forms of maltreatment, with 68.4% experiencing physical neglect, 56.0% emotional maltreatment, 24.0% physical abuse, and 4.8% sexual abuse. CPS records for 30 children from maltreating families did not contain information specific to the target children and thus these children could not be classified in terms of maltreatment subtype experienced. These children, therefore, were not included in subtype analyses.

Given that children frequently experienced multiple subtypes of maltreatment, two subtype groups were formed based on the presence of abuse and relative base frequencies of the subtypes. Children who had experience physical and/or sexual abuse were classified into an abuse group (P/SA; $n = 72$), given the physically dominating nature of these forms of maltreatment. Within this group, 66.7% also had experienced physical neglect and 58.3 % also had experienced emotional maltreatment. Children who had experienced neglect and/or emotional maltreatment but not physical or sexual abuse were classified in a physical neglect/emotional maltreatment group (PN/EM; $n = 148$).

Procedures

The research was conducted in the context of a summer day camp, allowing for an ecologically valid evaluation of targeted children among peers (see Cicchetti & Manly, 1990 for a detailed description of research summer camp procedures). Children attended camp for one week and were placed in groups of approximately 8 same-sex children of similar age. Efforts also were made to assign equal proportions of maltreated and non-maltreated children to each group. At the camp, children participated in a variety of group-oriented, recreational activities, and participated individually in research. Measures used in the present investigation included a sociometric assessment children completed regarding their peers and ratings of the children completed by their group counselors. Children did not participate in therapeutic activities at the camp.

Measures

Counselor measures—At the end of each camp week, group counselors completed a series of ratings of each of the children in their respective groups. Each set of ratings was completed following approximately 35 hours of intensive observation of and interaction with the children. The camp counselors were not aware of research hypotheses or the maltreatment status of children attending camp, and all counselor ratings were completed independently.

California Child Q-set (CCQ; Block & Block, 1980): The CCQ asks raters familiar with a child to sort 100 items describing children's behavioral and personality characteristics into nine categories ranging from least descriptive to most descriptive, using a forced-choice format (i.e., a fixed number of items were assigned to one and only one category). Two counselors created Q-sort profiles for each child based on approximately 35 hours of observation. Interrater agreement for these profiles ranged from .78 to .85.

Social Dominance Q-scale: Previous investigations of social dominance have adopted a largely structural view, with measures designed to assess behavior used to resolve conflicts, the outcomes of dyadic confrontations, or individuals' placement in social hierarchies (Bernstein, 1981; Pettit et al., 1990; Strayer & Strayer, 1976). Given our interest in social dominance as a higher order construct with variable forms of expression, both coercive as well as cooperative, we anticipated that focusing solely on behavioral or structural assessments would result in an incomplete assessment of dominance orientation. Additionally, given the proposition that behaviors used to achieve dominance vary with age, it was important to use a measure that would reflect dominance orientation across a wide range of ages and without a bias towards specific dominance-related behaviors, such as aggression. As such, the present investigation included the preliminary examination and validation of a novel measure of trait social dominance, based upon adult ratings, using the California Child Q-set. Criterion Q-sorts have been developed for a variety of personality dimensions and developmental constructs. One potential benefit of a measure of this type is that, while based on adult observations and impressions of children, the identification of dominance orientation will not be confounded with specific dominance-related behaviors, such as aggression. Development began with ten Ph.D. level psychologists and graduate students generating Q-sort profiles based upon a description of a socially dominant individual as assertive, influential, confident, and successful in competition for resources. A composite criterion Q-sort reflecting social dominance was then created by averaging the placement of each Q-sort item by all individual raters. A further step was taken to derive a social dominance Q-scale by identifying only the five most descriptive and five least descriptive items in the Q-sort, thus maximizing the specificity of the items to the target construct.

Social Competence Q-sort: In addition to the social dominance Q-scale, the present investigation included the criterion Q-sort for social competence, derived by Waters, Noyes, Vaughn, and Ricks (1985). The social competence Q-sort was originally developed based upon the ratings of seven psychologists with expert knowledge about the construct of social competence. A composite Q-sort reflecting the items most (e.g., gets along well with other children, is helpful and cooperative) and least (e.g., is visibly deviant from peers, has transient interpersonal relationships) characteristic of social competence was constructed by averaging the scores of the seven independent raters. Correlations among the social competence profiles generated by the independent raters ranged from $r = .56$ to $.80$. Profiles were combined to form a single criterion Q-sort for social competence, which evidenced an internal consistency of $\alpha = .97$. The five most and least descriptive Q-sort items for *social dominance* and *social competence* are listed in Table 3 with mean ratings for purposes of comparison.

Mt. Hope Bully-Victim Questionnaire (VV-R; Shields & Cicchetti, 2001)—In order to assess engagement in instrumental aggression, counselors completed a 10-item questionnaire regarding children's involvement in bullying as both bullies and victims. Five items assess overt forms of bullying behavior, such as attempts to dominate weaker peers through coercion or aggression, while five additional items assess submissive responses to domination or aggression from peers. Counselors were asked to rate the frequency with which children exhibited these behaviors over the camp week using a 4-point Likert-type scale, and scores were averaged across raters. High internal consistencies have been reported with Cronbach's alphas of $.93$ for bullying and $.76$ for victimization. Average interrater reliabilities for the present sample are $.75$ for bullying and $.64$ for victimization.

Child measures

Peer nominations—At the end of each camp week, children were asked to complete a sociometric measure developed by Coie and Dodge (1983). Specifically, children were instructed to nominate one peer who best fit each of a set of items describing certain behavioral characteristics, including Acts Shy, Cooperative, Leader, Disruptive, and Starts Fights. Coie and Dodge (1983) reported a moderate degree of stability over four years for the behavioral description variables, particularly for Disruptive (r of Grade 3 to 7 = $.38$, $p < .01$) and Starts Fights (r of Grade 3 to 7 = $.44$, $p < .01$). Children completed this measure individually and were assured that their responses would be kept confidential. The total number of nominations each child received from their peers was subsequently determined and converted to proportions of total possible nominations per category. The proportion of nominations that each participant received was standardized within camp group and year prior to combining data from across camp years.

Results

Analytic Strategy

The first set of analyses was designed to evaluate the social dominance Q-scale in terms of its relationships to related measures, including bullying, social competence, and victimization. Specific analyses included a principal components analysis and an examination of correlations amongst the three measures. In order to establish discriminant validity in support of the social dominance construct, the correlation between the Q-scale and adult ratings of victimization by peers was examined. It is important to note that the bullying and victim variables both were primarily kurtotic and skewed. Log-transformations were conducted in order to produce more normal distributions prior to conducting analyses. Descriptive information for all non-transformed variables is depicted in Table 4.

In a subsequent set of analyses, a person-centered analytical technique was used to determine whether individuals inclined towards dominance can be classified into subgroups differentiated by reliance on bullying versus evidence of social competence. Specifically, a latent profile analysis (LPA) was conducted to derive a typology based on adult ratings of social dominance, social competence, and bullying behavior. Prior to conducting the analysis, the social dominance, social competence, and bullying variables were standardized to eliminate scaling differences. The LPA model also incorporated pertinent variables (e.g., maltreatment history, age, and gender) as covariates in the model in order to evaluate the relations of these variables to the derived dominance classes. Age was included in accordance with predictions from resource control theory. Also, although maltreatment history was not associated with a general inclination towards dominance ($r = .01$, ns), maltreatment status was included in order to address questions posed regarding the association between maltreatment history and dominance-related behavior. Finally, we were uncertain whether gender would be related to developmental trends in the use of dominance-related behavior or the relationship between maltreatment and dominance-related behavior. However, given preexisting gender differences between maltreatment groups and empirical evidence suggesting gender-based dissimilarities in the form aggression takes, gender also was included in the LPA. In order to support the resulting LPA classification, a range of statistical and conceptual indices were considered.

An additional set of multinomial logistic regressions was conducted with LPA classes as the dependent variable in order to test hypotheses regarding classification differences for maltreatment subtypes and interaction effects of maltreatment, age, and gender. Similar analyses were conducted using maltreatment subtype in place of general maltreatment history. Subtype classification was represented by contrast codes comparing physically and/or sexually abused (P/SA) children with neglected and/or emotionally maltreated (PN/EM) children, and comparing both maltreatment groups to the non-maltreatment group. Product terms also were created to represent the interaction of maltreatment subtype with age and gender.

As a final step, a multiple analysis of covariance (MANCOVA) was conducted to confirm dominance classes identified by the LPA by comparing classes in terms of peer nominations of dominance-related behaviors, including leadership, cooperation, aggression, disruptiveness, and shyness. Given significant correlations with the peer nomination variables, mother's education and the number of children living in the household were included as covariates.

Social Dominance Q-scale

A principal components analysis including the social dominance, bullying, and social competence variables was conducted using a Varimax rotation to support the construct validity of the social dominance Q-scale. This analysis yielded a two-factor solution with competence ($-.81$) and bullying ($.90$) loading on one factor and dominance ($.98$) loading on the other. Bivariate correlations also indicated that social dominance was significantly and positively related with both bullying ($r = .39$, $p < .001$) and social competence ($r = .42$, $p < .001$; see Table 2). Consistent with the results of the principal components analysis, although the variables were related, they were not redundant, indicating that the social dominance Q-scale was tapping a construct that was distinct from either aggression or social competence. Further support for the validity of the social dominance scale was achieved by examining its correlation with ratings of victimization by bullies, which indicated that dominance, as expected, was significantly and negatively ($r = -.32$, $p < .001$) correlated with this variable.

The Nature of Dominance Behavior

In order to examine the utility of classifying dominance expression in the present sample, steps were taken to assign children to categories based on ratings of dominance, competence, and bullying. It was expected that classes of dominant children would be identified and that these classes would be distinguishable based on relative ratings of bullying and social competence. The MPlus Version 6.0 data analysis package (Muthen & Muthen, 1998–2010) was used to conduct a LPA using dominance, competence, and bullying, as three dependent variables which resulted in assignment of individuals to categorical latent variables.

Three profile solutions ranging from two to four classes were specified and compared to each other using the Bayesian Information Criterion (*BIC*), Sample-size Adjusted Bayesian Information Criterion (*ABIC*), the Lo-Mendell-Rubin Likelihood Ratio Test (*LMR*), the Akaike Information Criterion (*AIC*), and the model entropy (see Table 5). The model entropy for all three models was above .80, suggesting good accuracy, with some suggestion that the two class model was most accurate. Examination of the fit statistics indicated that the three class model provided a significantly better fit than the two class model. According to the *BIC*, *AIC*, and *ABIC*, the four class model also provided a slightly better fit than the three class model. However, the *LMR* appeared to favor a three class model over the two and four class models. The *LMR* has been shown to serve as a reliable fit index to evaluate optimal class solution using model based techniques (Nylund, Asparouhov, & Muthen, 2007). Based on Nylund et al.'s (2007) recommendations, when interpreting the *LMR*, it is safer to assume that the first non-significant value is accurate in ruling out models with the greater number of classes. Furthermore, when examining the constitution of classes from the varying models, it was apparent that the four class solution included two groups with some redundancy as well as relatively small sample sizes, resulting in reduced power to detect differences between classes. Given the results of the *LMR*, concerns regarding relative group size with the four class model, and theoretical considerations, we elected to use the three class model.

Examination of the resulting class means (see Figure 1) revealed that the first class ($n = 117$) exhibited low mean ratings for dominance, bullying, and competence. The second class ($n = 260$) exhibited moderate ratings for dominance, low ratings for bullying, and moderate to high ratings for competence. The third and final class ($n = 93$) evidenced low ratings for competence, moderate to high dominance, and high bullying. The posterior probabilities that cases were assigned to each of the three classes were relatively high at .89, .95, and .94, respectively. Based upon the profile of means, the respective categories are descriptively similar to Hawley's noncontrollers, prosocial controllers, and coercive controllers. In this study, they will be referred to as *non-dominant*, *competent*, and *coercive*. A subgroup consistent with Hawley's description of bistrategic controllers was not identified, even when examining the four class solution.

Age, Gender, Maltreatment, and the Nature of Dominance Behavior

Predictions regarding developmental variation in and the influence of maltreatment history on dominance behavior were tested by examining the parameter estimates predicting class assignment from the LPA by each of the covariates (see Table 6). First, regarding assignment to the non-dominant group, relative to the competent group, the results indicated that both age and maltreatment were significant predictors of the resultant three profile solution. Specifically, older children were significantly more likely to be assigned to the competent group whereas maltreated children were significantly more likely to be assigned to the non-dominant group. Next, we considered whether covariates differentially predicted the likelihood of assignment to the coercive group, relative to the competent group. Results

indicated that maltreatment and gender were significant predictors, such that maltreated children and males were significantly more likely to be assigned to the coercive group than to the competent group. Alternatively, non-maltreated children and females were significantly more likely to fall in the competent group. Although, on average, children in the competent group (9.8 years) were older than those in the coercive group (9.4 years), the log odds coefficient for age was not significant. None of the covariates significantly accounted for assignment to the coercive group relative to the non-dominant group.

Results of the multinomial logistic regression using the dominance class assignments as the dependent variable and gender, age, and maltreatment status as well as all two-way (gender \times age, $\chi^2(2, N = 470) = 3.49$, ns; gender \times maltreatment, $\chi^2(2, N = 470) = 1.48$, ns; age \times maltreatment, $\chi^2(2, N = 470) = .06$, ns) and one three-way interaction terms (gender \times age \times maltreatment, $\chi^2(2, N = 470) = .63$, ns) entered as covariates revealed that none of the interaction terms significantly added to the prediction of group assignment. Results further indicated that there was neither a significant difference between maltreatment subtypes on dominance class (subtype, $\chi^2(2, N = 440) = 2.91$, ns), nor any significant interaction effects using maltreatment subtype (gender \times subtype, $\chi^2(2, N = 440) = 2.25$, ns; gender \times age, $\chi^2(2, N = 440) = 3.95$, ns; age \times subtype, $\chi^2(2, N = 440) = .91$, ns; gender \times age \times subtype, $\chi^2(2, N = 440) = .09$, ns).

In order to rule out potential bias in the examination of interactions among age, gender, and maltreatment as predictors of classes estimated using these same variables, we conducted an additional LPA with social dominance, social competence, and bullying as dependent variables without covariates. The three class solution for this LPA was virtually identical to the one including age, gender, and maltreatment as covariates, with only three cases changing class. A multinomial logistic regression using the modified classes confirmed that neither the three-way, nor any of the two-way interactions significantly added to the prediction of dominance class assignment.

Convergence of Counselor and Peer Perceptions

As a final step, in order to confirm the validity of the classes, a multivariate analysis of covariance (MANCOVA) was conducted to determine how well classes, based upon counselor observations, predicted peer perceptions of social behaviors (see Table 7; Figure 2). Results indicated a significant omnibus main effect for class membership, $F(10, 924) = 21.01$, $p < .001$, $\eta^2 = .19$. Examination of the univariate statistics revealed a significant main effect of class membership on all five peer nomination variables. Post-hoc contrasts using Bonferroni correction for pairwise comparisons further elucidated the differences between classes on peer nomination variables. Specifically, the coercive group received significantly more nominations of disruptiveness and fighting than either the competent ($p < .001$) or non-dominant ($p < .001$) groups. The competent group on the other hand received more nominations of cooperation and leadership than the non-dominant ($p < .001$) or coercive ($p < .001$, $p = .07$, respectively) group. Finally, the non-dominant group received more nominations of shyness than either the competent ($p < .001$) or the coercive ($p < .001$) group. Figure 1 depicts the three dominance profiles in terms of adult-rated dominance variables and peer nominations.

Discussion

This investigation examined the nature of social dominance in school-aged children with and without histories of maltreatment. In general, the results supported recent theory regarding age-related differences in the strategies children use to achieve social dominance, even for children exposed to physically dominating forms of maltreatment. Furthermore, the results lend support to the prediction that early experiences of harsh and/or insensitive

caregiving have a profound influence on social development and functioning, including the manner in which children manage social interactions related to interpersonal dominance.

Consistent with predictions drawn from resource control theory, social dominance was related to social competence as well as coercive behavior in the present sample. In turn, it was possible to distinguish a subset or class of dominant individuals who were largely considered socially competent from a class of children who were identified as bullies. Membership in these classes, as determined by adult observation and ratings, was supported via comparisons to peer nominations. Children classified by counselors' ratings as competently dominant were most likely to be perceived by peers as leaders, whereas children classified as coercive were most likely to be perceived by peers as aggressive and disruptive. Also, children differentiated as non-dominant by their counselors were nominated as shy by their peers. It is important to note that mean ratings of dominance were higher in the coercive group than in the competent group. This finding may result from the inclusion of a significant proportion of maltreated children, who, as predicted, were more likely to evidence an association between bullying and dominance. Given that half of each camp group was composed of children with maltreatment histories, the tendency to use aggressive dominance strategies, such as bullying, may have been unusually high within these camp groups. In addition, participants were drawn from low-income urban neighborhoods where community violence is more common. As a result, aggression may have been a more common dominance strategy for all children in the study than would be the case in a more representative sample.

It also is worth noting that we identified three groups using the latent class profile analysis. In a sample of low to middle class, school-age children in Germany, Hawley, Little, and Pasupathi (2002) identified an additional subset of bistrategic controllers who achieved dominance via prosocial as well as coercive strategies. We cannot be certain why a bistrategic group was not identified in the present sample. Consistent with findings that prior to the establishment of a social hierarchy in novel groups, aggressive strategies predominate (Pelligrini & Long, 2003), it may be that the period of observation (1 week) was not long enough for children to exhibit their full repertoire of dominance strategies. Although a group of bistrategic controllers was not identified in the present sample, we were able to distinguish dominant individuals based upon their relative likelihood of exhibiting socially competent or bullying behavior. Additionally, findings from the present investigation provide support for the expectation that behaviors associated with social dominance vary by age. Interestingly, there were no apparent differences in the likelihood that individuals would be identified as dominant bullies based upon age. However, consistent with predictions drawn from the resource control theory of social dominance, more individuals were identified as competent and dominant at older ages than were individuals at younger ages. This finding supports the argument that humans increasingly adopt prosocial strategies of control as the exposure to, mastery of, and support for these strategies grows with age. This finding also may help explain our lack of identification of a bistrategic group, given that socially competent dominance was generally less evident in the younger age groups. Focusing on an older sample of children where social strategies have become more sophisticated may have supported the identification of individuals exhibiting multiple dominance-related behaviors.

The present investigation is the first to examine predictions posed by the resource control theory of social dominance using a sample including individuals who experienced child maltreatment. As noted, it was possible to identify distinct subsets of dominant individuals based on their relative engagement in bullying and socially competent behavior. Also, results from the present investigation indicated that maltreatment history did not moderate the apparent age-related increase in the alignment of social dominance with social

competence. Nor did maltreatment history alter the greater likelihood that males would be identified as dominant bullies. Despite apparent similarities in the age-related and gender-based differentiation in social behavior for maltreated and non-maltreated children, there was evidence that, in general, maltreated children exhibited a higher propensity to be coercive and dominant than did non-maltreated children. Non-maltreated children, on the other hand, were significantly more likely to be identified as competent and dominant. We cannot rule out the influence of past history of peer victimization, which has been shown to increase the risk for later bullying behavior (Barker et al., 2008), as this was not measured. However, the results provide convincing evidence that early experiences of child maltreatment have a significant impact on developing social competencies, particularly in regards to the pursuit of social dominance.

It was anticipated that children exposed to forms of maltreatment that were physically coercive and controlling (e.g., physical and sexual abuse) would be most likely to be identified as coercive and dominant. However, this was not the case, as both the abused as well as neglected and/or emotionally maltreated children were significantly more likely to engage in bullying than were non-maltreated children. This suggests that exposure to physical aggression may not confer a specific risk for the use of aggression or coercion as a social tool above and beyond other forms of maltreatment. Alternatively, although the non-abused maltreated sample may not have directly experienced physical maltreatment according to their records, they may have been exposed to physical maltreatment occurring to a sibling or even to adults in their home. Additionally, parenting practices in homes where there is emotional maltreatment and/or neglect may include coercion even if not direct physical abuse. On a positive note, although dominant maltreated children were more likely to be classified as bullies in the present investigation, the majority of dominant children with maltreatment histories were classified as competent, even in the abused group. Thus, a significant subset of maltreated individuals appeared to demonstrate resilient social functioning despite the experience of significant early stress. Future research will benefit by elucidating the elements that contribute to resilience. These elements may include close relationships with a non-maltreating parent or exposure to other positive socializing agents.

The profile of results presented herein, particularly results regarding exposure to coercive forms of maltreatment, are not clearly consistent with a social learning explanation. Other theories may be useful to consider in understanding how early experiences of various forms of child maltreatment. Attachment theory, for example, offers a useful framework for considering how deviations from consistent and sensitive caregiving contribute to an individual's approach to social interactions via the formation of internal working models. According to attachment theory, harsh and insensitive parenting may contribute to generalized perceptions of others as threatening and unworthy of trust. In turn, some maltreated individuals may perceive relatively little value in cooperative strategies given their expectations that similar courtesies would not be shown to them. Belsky, Steinberg, and Draper (1991) offer related predictions by way of their evolutionary theory of socialization. These authors suggest that the stressful and resource-limited social conditions under which insensitive parenting is likely to occur are likely to influence the development of social and survival strategies. Given the context of heavy competition for resources and the development of cynical internal working models, children are more likely to develop a callous and opportunistic orientation in regards to negotiating the distribution of resources with others (Belsky, 2008). Future theory-driven investigations of resource control strategies will be helpful in identifying the mechanisms that lead from maltreatment experiences to coercive approaches, as well as those that are prosocial or more balanced.

An interesting finding that we had not predicted was that children who had been maltreated were more likely to be assigned to the non-dominant class than the competent class. This is

not entirely surprising given findings indicating that maltreated children tend to exhibit poor social skills (Cicchetti & Valentino, 2006) and are at risk for victimization by their peers (Shields & Cicchetti, 2001). Although this was not the focus of the current investigation, the finding highlights the diversity of social, emotional, and behavioral concerns associated with childhood maltreatment, and the need for research and intervention to consider multiple pathways to dysfunction from early life stress.

An additional accomplishment of the present investigation was the development and validation of a new measure of social dominance using Q-sort methodology. The Q-scale, developed for the purposes of identifying socially dominant children, was shown to be related to multiple dominance-related behaviors, including bullying as well as more prosocial strategies encompassed by the construct of social competence. Furthermore, the principal components analysis indicated that the Q-scale for social dominance measured a distinct construct and did not overlap with measures of either aggression or prosocial behavior. Q-sort ratings of dominance also were negatively related to victimization by peers, further supporting the validity of the measure. Investigators with existing datasets that include Q-sort profiles of participants and are interested in furthering the study of the nature of social dominance in various groups may benefit from the consideration of this Q-scale. However, further validation of this measure in other samples will be important. Examination of the convergence of the social dominance Q-scale with structural measures of dominance will be valuable in establishing its validity. (cf. Vaughn, Vollenweider, Bost, Azria-Evans, and Snider, 2003).

Limitations

A limitation of the current investigation lies in the reliance on a single form of instrumental aggression (i.e., bullying). Given the sometimes subtle nature in which individuals influence the social environment, it would have been advantageous to include additional measures, particularly those tapping relational aggression. The gender-related differences noted in the present sample regarding the use of coercive strategies may have been less apparent had we included less direct forms of coercion. Future investigations into the varying strategies humans use to exert social control ought to include measures of relational aggression, particularly when considering the role of gender in strategy selection. Relational aggression could be of particular interest when considering maltreatment as well, given recent findings linking experiences of sexual abuse with this particular form of aggression in females (Cullerton-Sen, Cassidy, Murray-Close, Cicchetti, Crick, & Rogosch, 2008). It also is important to note that although we considered bullying to be a form of instrumental aggression employed to achieve interpersonal dominance, we did not specifically measure the intent associated with children's behavior. Research suggests that there is value to considering the form and function of behavior in investigations of aggression (Little, Brauner, Jones, Nock, & Hawley, 2003; Little, Jones, Henrich, & Hawley, 2003), and these distinctions should be applied in future investigations of the role of aggression in social dominance.

An additional direction for future investigators interested in the role of early caregiving experiences in the development of dominance strategies would be to include longitudinal measurement. In this way, it would be possible to track trajectories in order to determine whether children tend to remain in the same classes over time or whether and how class membership shifts. Longitudinal data would particularly allow for a better assessment of whether children who have been maltreated are more consistent in their reliance on coercive strategies over time than are non-maltreated children. Research of this nature could aid in identifying individuals at specific risk for following a life-course persistent trajectory of antisocial behavior (cf. Moffitt, 1993). Furthermore, such research could have implications for the optimal timing of interventions designed to enhance children's competence in terms

of balancing the gratification of their personal needs with their status as members of the social order.

Despite its limitations, this study succeeded in providing support for recent perspectives on the developmental variation of social dominance strategies. Furthermore, we validated predictions based in normative development, in individuals with socialization histories that are remarkably divergent from those in the general population. Although maltreatment did not moderate the predicted relationships among age, gender, and dominance type, it is important to consider that maltreated children were at greater risk for primarily engaging in coercive approaches to dominance. First and foremost, this finding supports the argument that the early experience of coercive control is likely to predispose children to utilize comparable behaviors during interactions with peers. Second, it is evident that maltreatment experiences do not guarantee that children will become coercive controllers and that other forces contribute to shaping the developing personalities and social behaviors of these children. Finally, it is important to develop interventions based upon our understanding of these alternative influences and to target children at greatest risk for social maladaptation, such as those who have been maltreated. Ingredients for these interventions may include the promotion of children's relationships with positive models of social skills, such as mentors or teachers. Positive relationships with non-parental adults have been highlighted for their potential to support the social development and well-being of children (Pianta, 1999). In addition, a focus on understanding the negative impact of aggressive tactics used in isolation, as well as increased mastery of prosocial skills could help to increase children's flexibility and balance their repertoire of resource control strategies (Hawley, 2007).

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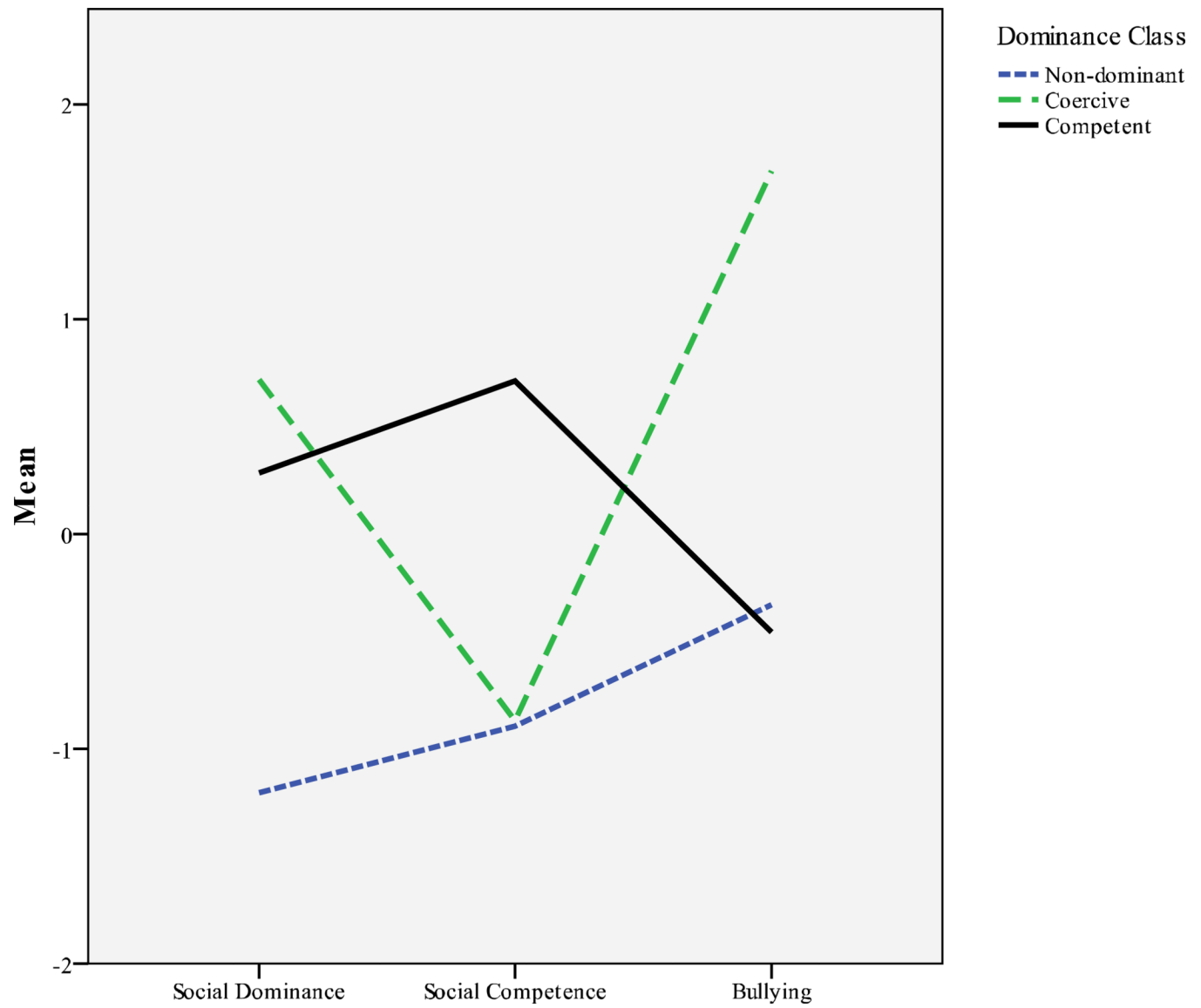


Figure 1. Dominance Class Profiles Based on Adult Ratings of Social Dominance, Social Competence, and Bullying

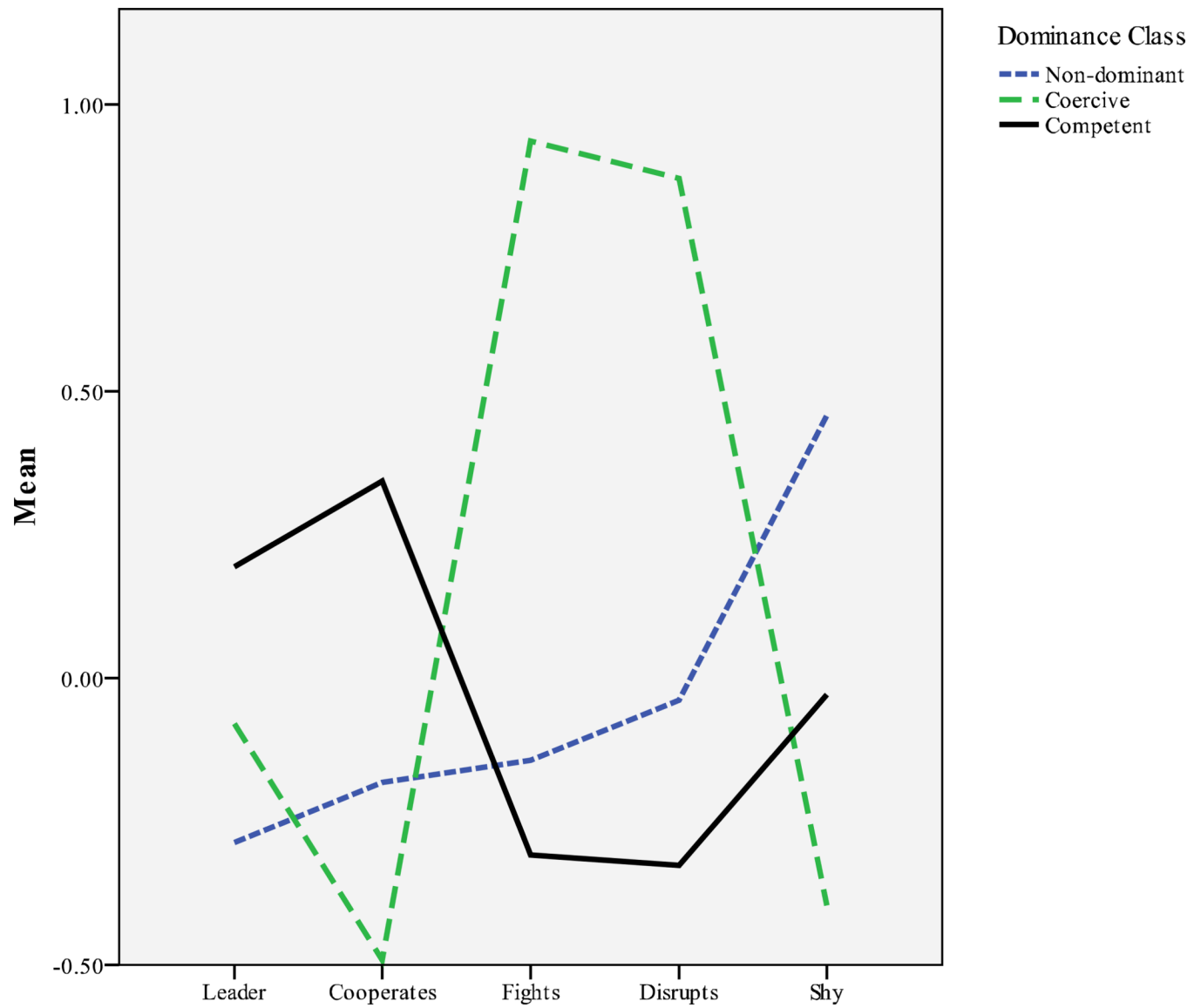


Figure 2. Dominance Class Profiles Based on Peer Nominations of Social behavior

Table 1

Demographic Comparison of Maltreated and Non-maltreated Groups

	Maltreated <i>M (SD)</i>	Non-maltreated <i>M (SD)</i>	<i>t</i>
Child's age	9.49 (2.06)	9.47 (1.89)	-0.10
Children in the family	3.39 (1.70)	2.97 (1.53)	-2.83 **
Mother's education	11.42 (2.21)	12.38 (1.81)	5.08 ***
			Φ
Child's gender (Male)	58.0%	45.5%	0.13 **
Child's race (Minority)	81.2%	85.0%	0.05
Single parent family	46.0%	40.9%	0.05
History of public assistance	95.4%	96.1%	0.02
\$20K in household income/benefits	50.8%	43.6%	0.07

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$

Table 2

Bivariate Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	--	-.13**	.06	.13**	.14**	-.01	-.08	.06	.02	.01	.01	.01
2. Mother's Education		--	-.11*	-.02	.06	-.08	-.05	.03	.09*	-.08	-.09*	.05
3. Number of Children			--	-.06	-.02	.01	-.13**	-.06	-.07	-.02	-.09*	.06
4. Social Dominance				--	.42***	.37***	-.35***	.24***	-.01	.29***	.19***	-.38***
5. Social Competence					--	-.46***	-.33***	.29***	.38***	-.32***	-.39***	-.12**
6. Bullying						--	.07	-.02	-.28***	.52***	.49***	-.21***
7. Victim							--	-.15**	-.12**	.05	.14**	-.01
8. Leader								--	.29***	-.12**	-.10*	-.16***
9. Cooperates									--	-.39***	-.42***	.02
10. Fights										--	.70***	-.26***
11. Disrupts											--	-.21***
12. Shy												--

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

Comparison of Mean Placement of the Most and Least Characteristic Q-Sort Items on the Social Dominance (SDm) Q-Scale and Social Competence (SC) Criterion Q-Sort

Table 3

Social Dominance Item	SDm	SC	Social Competence Item	SC	SDm	SDm
<i>Most Characteristic</i>	<i>M</i>	<i>M</i>	<i>Most Characteristic</i>	<i>M</i>	<i>M</i>	<i>M</i>
82. Is self-assertive	9.0	7.4	5. Is admired and sought out by other children	8.9	7.5	7.5
88. Is self-reliant, confident	8.9	8.1	4. Gets along well with other children	8.4	6.6	6.6
41. Is persistent; does not give up easily	8.4	6.1	6. Is helpful and cooperative	8.3	5.9	5.9
93. Behaves in a dominating manner	8.1	5.4	88. Is self-reliant, confident	8.1	8.9	8.9
89. Is competent, skillful	8.0	8.0	89. Is competent, skillful	8.0	8.0	8.0
<hr/>						
<i>Least Characteristic</i>	<i>Least Characteristic</i>					
46. Tends to go to pieces under stress	2.1	2.1	33. Cries easily	2.1	2.4	2.4
98. Is shy and reserved	1.7	2.9	46. Tends to go to pieces under stress	2.1	2.1	2.1
53. Tends to be indecisive, vacillating	1.5	3.7	10. Has transient interpersonal relationships	2.0	3.8	3.8
44. When in conflict, tends to give in	1.2	3.3	91. Emotional reactions are inappropriate	2.0	3.1	3.1
100. Is easily victimized by other children	1.1	2.1	27. Is visibly deviant from peers	1.4	3.3	3.3

Table 4

Distributions of Non-transformed Variables of Interest

Variable	M (SD)	Range	Skewness	Kurtosis
<i>Adult Ratings</i>				
Social Competence	.31 (.34)	-.67 to .80	-.46	-.82
Social Dominance	51.91(10.05)	22.50 to 76.50	-.36	-.26
Bullying	1.38 (.57)	1.00 to 3.90	1.94	3.58
Victim	1.35 (.48)	1.00 to 3.50	1.72	2.86
<i>Peer Nominations</i>				
Leadership	.01(1.00)	-1.90 to 2.77	.12	-.47
Cooperative	.05(1.01)	-2.22 to 2.46	.61	-.65
Disruptive	-.02(1.00)	-1.39 to 3.13	1.15	.22
Fights	-.02 (.98)	-1.40 to 3.01	1.23	.33
Shy	.02 (1.01)	-1.74 to 2.86	1.17	.13

Table 5

Fit Indices for LPA Models with 2–4 Classes

Class	Free Parameters	H0 (Loglikelihood)	LMR	AIC	BIC	ABIC	Entropy
2	13	–1828.19	334.26***	3682.38	3736.37	3695.11	0.89
3	20	–1715.04	221.18***	3470.07	3553.13	3489.65	0.84
4	27	–1658.12	111.24	3370.25	3482.37	3396.68	0.87

 $p < .001$.

LMR = Lo-Mendell Rubin Likelihood Ratio Test; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; ABIC = Adjusted Bayesian Information Criterion

Table 6

Log Odds Coefficients and Odds Ratio (OR) for the Three Class Model with Maltreatment, Age, and Gender as Covariates (Competent as Reference Class)

Variable	Logit	SE	OR (95 % CI)
<i>Non-dominant</i> (n = 117)			
Age	−0.18 *	0.07	0.84 (0.72 – 0.97)
Gender	0.04	0.27	1.04 (0.62 – 1.75)
Maltreatment	0.80 ***	0.30	2.23 (1.24 – 4.02)
<i>Coercive</i> (n = 93)			
Age	−0.08	0.07	0.92 (0.80 – 1.06)
Gender	0.62 *	0.28	1.87 (1.09 – 3.20)
Maltreatment	1.12 ***	0.28	3.07 (1.78 – 5.31)

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 7

Mean Comparisons of Peer Nominations by Dominance Class

	Coercive M (SE)	Competent M (SE)	Non-Dominant M (SE)	F	η^2
Peer Nominations				21.01***	.19
Leader	-.008 (.10) ^c	.19 (.06)	-.29 (.09) ^b	10.06***	.04
Cooperative	-.48 (1.00) ^b	.34 (.06)	-.18 (.09) ^b	30.02***	.11
Disruptive	.87 (.09)	-.33 (.06) ^a	-.03 (.08) ^a	62.01***	.21
Fights	.93 (.09)	-.31 (.05) ^a	-.14 (.08) ^a	72.80***	.24
Shy	-.39 (.10) ^d	-.03 (.06) ^d	.45 (.09)	20.64***	.08

 $p < .001$.

^a significant mean comparison vs. Coercive, $p < .001$;

^b significant mean comparison vs. Competent, $p < .001$;

^c marginal mean comparison vs. Competent, $p = .07$;

^d significant mean comparison vs. Non-Dominant, $p < .001$