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Gender Differences in Patterns of Association Between Prosocial Behavior, Personality, and Externalizing Problems

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Abstract

This study examines whether prosocial behavior and personality have independent or overlapping associations with adolescent externalizing problems. A total of 128 female and 103 male early adolescents ($M = 13.6$ years old) completed personality inventories. Prosocial behavior was assessed by peer nominations ($N = 663$). Composite aggression and delinquency scores were derived from maternal and self-reports. Path analyses indicated gender differences in patterns of association. For girls, links between prosocial behavior and both aggression and delinquency were fully mediated by agreeableness and partially mediated by conscientiousness. For boys, prosocial behavior, agreeableness, and conscientiousness were independently and negatively associated with aggression and delinquency. The findings suggest that personality and prosocial behavior are uniquely related to boys' behavior problems but cannot be readily disentangled when it comes to girls' behavior problems.

Does personality shape peer perceptions of aggressive and delinquent youth? We know that emotional dysregulation, immaturity, and social anxiety predict peer rejection and promote externalizing difficulties, but efforts to identify risk factors for maladjustment tend to overlook constructs that buffer youth from adverse outcomes (Rubin, Bukowski, & Parker, 2006). Behavior problems are rare among cooperative and helpful children (Eisenberg, Fabes, & Sprinrad, 2006), and personality traits, particularly agreeableness and conscientiousness, are also inversely associated with maladjustment (Caspi, Roberts, & Shiner, 2005). Previous studies have separately linked personality traits and prosocial states to youth externalizing problems, but little is known about the relative importance of each or the variance they may share. Our investigation starts from the premise that prosocial behavior (e.g., caring, sharing, and helping) has important ties to adjustment, but its significance varies as a function of

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personality variables that shape perceptions of prosociability. Prosocial behavior may only protect those whose personality traits are consistent with these behaviors. In the present study, we employed path analyses to identify unique and overlapping associations from personality and peer perceptions of prosocial behavior to adolescent aggression and delinquency.

Prosocial behavior is predicated on caring for the interests of others. Prosocial youth are cognizant of the consequences their behavior may have on others and are apt to strongly disapprove of inappropriate or aggressive conduct (Nelson & Crick, 1999). These tendencies help prosocial youth avoid problem behaviors. Recent evidence suggests that the benefits of helping, caring, and sharing behavior accrue across childhood and into adolescence. For instance, peer assessments of prosocial behavior at age 12 have been found to predict (negatively) teacher reports of externalizing problems at age 14 (Chen, Li, Li, Li, & Liu, 2000). Girls tend to score higher than boys on indices of prosocial behavior but gender does not appear to moderate associations between prosocial behavior and externalizing problems. Taken together, the findings are consistent with the view that cooperative, helpful behavior is uncharacteristic of aggressive, antisocial children.

Given their conceptual overlap, it is not surprising that evidence ties prosocial behavior to agreeableness and conscientiousness. Prosocial tendencies give rise to responsible and helpful behavior, constructs that characterize agreeableness; prosocial behavior requires self-regulation and self-control, constructs that define conscientiousness (Caspi et al., 2005). Agreeableness and conscientiousness have been concurrently and prospectively linked to prosocial behavior during adolescence (Shiner, 2000), with some studies reporting stronger links among girls than boys (Sneed, 2002). In sum, the construct of prosocial behavior overlaps considerably with the constructs of agreeableness and conscientiousness, particularly among girls.

There is also evidence that agreeableness and conscientiousness play a role in behavior problems. Aggressive, antisocial behavior is common among undercontrolled youth, who are noteworthy for low levels of agreeableness and conscientiousness (Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996). Meta-analytic findings confirm that antisocial behavior is inversely associated with these traits (Miller & Lynam, 2001). Although women and girls tend to score higher than men and boys on agreeableness and conscientiousness, there is no evidence of gender differences in their association with externalizing behaviors.

The picture that emerges is one in which externalizing problems are inversely linked to prosocial tendencies and to agreeableness and conscientiousness. These associations have been examined separately, but no study has included personality and peer perceptions of prosocial behavior as independent predictors. The present investigation was designed to address two research questions. First, are personality and peer perceptions of prosocial behavior uniquely related to externalizing problems? Second, are patterns of association moderated by gender? Because agreeableness, conscientiousness, and prosocial behavior are typically regarded as feminine attributes, perceptions of these constructs are expected to be more closely aligned among girls than among boys. Put simply, we hypothesized that peer perceptions of prosocial behavior would be more strongly tied to girls' personality than to boys' personality. As a consequence, prosocial behavior should account for little unique variance in girls' externalizing behaviors beyond that accounted for by agreeableness and conscientiousness, whereas prosocial behavior and personality traits should be independently related to boys' externalizing problems.

Method

Participants

Participants included 231 8th grade adolescents (128 girls and 103 boys) ranging in age from 12 to 15 years old ($M = 13.6$). Of this total, 55% were European Americans ($n = 127$), 18% were Asian Americans ($n = 41$), 10% were African Americans ($n = 24$), 10% were Hispanic Americans ($n = 24$), and the remainder identified mixed and other ethnic backgrounds. Mothers were 32 to 55 years old ($M = 44.7$). Of a potential range of 8 to 66, Hollingshead (1975) socioeconomic status scores ranged from 13 to 66 ($M = 53.27$, $SD = 10.9$).

Participants represented the first wave of personality data collected in a larger, ongoing longitudinal study of youth in the Washington DC metropolitan area. All 8th grade students in four public middle schools were invited to complete peer nomination surveys ($N = 1065$). Consent for participation in this phase of the study was obtained from 68% of the students (393 females and 331 males). Mothers of the 724 adolescents who completed the peer nomination survey were later invited to participate in a second wave of data collection in which they and their children would receive surveys in the mail. Of those invited to participate, 31.9% ($n = 231$) of mothers and adolescents returned personality and behavior problems inventories.

Instruments and Procedure

Peer reports of social functioning—During class, participants and classmates completed the Extended Class Play (Wojslawowicz, Rubin, Burgess, Rose-Krasnor, & Booth-LaForce, 2006), a modified version of the Revised Class Play (Masten, Morison, & Pellegrini, 1985). Students were instructed to pretend that as the director of an imaginary class play, they needed to select classmates who best fit 35 roles. For each role, three boys and three girls were listed in rank order. Classmates could be nominated for more than one role; self-nominations were possible. *Prosocial Behavior*, the focus of the present inquiry, consists of 6 items (someone who helps others; someone who plays fair; someone who is polite; someone who waits his/her turn; someone with good ideas for things to do; someone you can trust). Nominations were summed and standardized by gender within grade.

Self-reports of Personality—Participants completed the Big Five Inventory (John & Srivastava, 1999), a 44-item measure of five dimensions of personality: *Agreeableness* (e.g., has a forgiving nature), *Conscientiousness* (e.g., does things efficiently), *Extraversion* (e.g., talkative), *Neuroticism* (e.g., worries a lot), and *Openness* (curious about many different things). Items are rated on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Internal reliability was adequate ($\alpha = .71 - .84$, $M = .79$).

Maternal and self-reports of externalizing problems—Mothers completed the Child Behavior Checklist (Achenbach, 1991a) and adolescents completed the Youth Self-Report (Achenbach, 1991b). Two 15–18 item subscales address externalizing problems: *Aggression* (e.g., gets into many fights) and *Delinquency* (e.g., steals). Items are rated on a scale from 0 (*not true*) to 2 (*very true or often true*). Mother and adolescent-reports were standardized and summed to create composite scores. Internal reliability was adequate ($\alpha = .70 - .87$, $M = .79$).

Plan of Analysis

Path analyses described the degree to which peer perceptions of prosocial behavior and personality uniquely predicted concurrent externalizing problems. Multiple group mediation models were tested with AMOS 5.0 (Arbuckle, 2003). Statistically significant correlations between the potential mediator variable and both the predictor variable and the outcome variable are a necessary precondition for mediation. Only agreeableness and conscientiousness satisfied this precondition (see Table 1). Two sets of path analyses were conducted. The first

analyses identified unique associations between prosocial behavior and externalizing problems, after accounting for variance attributed to personality. Prosocial behavior was the predictor variable, aggression or delinquency was the outcome variable, and agreeableness or conscientiousness was the mediator variable. The second analyses examined an alternative model that identified unique associations between personality and externalizing problems, after isolating variance attributed to prosocial behavior. Multiple group analyses determined whether gender moderated associations. Full and partial mediation were considered. In full mediation, associations between predictor and outcome variables are rendered nonsignificant by the inclusion of a mediator variable. In partial mediation, the inclusion of a mediator variable reduces but does not eliminate associations between the predictor and outcome variable, as indicated by a Sobel (1982) test.

Results

Associations Between Prosocial Behavior and Aggression

Figure 1 summarizes the results for aggression. The initial model (excluding personality variables) revealed direct links between prosocial behavior and aggression for girls and boys. Subsequent analyses (including personality variables) indicated that agreeableness and conscientiousness mediated the association for girls but not for boys. For girls, greater prosocial behavior was linked to greater agreeableness and to greater conscientiousness, and each, in turn, were linked to less aggression; the initial association between prosocial behavior and aggression was eliminated by the inclusion of agreeableness, indicating full mediation, and attenuated by the inclusion of conscientiousness, indicating partial mediation (Sobel $z = 2.38$, $p = .02$). For boys, agreeableness and conscientiousness were inversely related to aggression, but there were no statistically significant links between prosocial behavior and either agreeableness or conscientiousness; the addition of these paths to the model did not significantly decrease the initial association between prosocial behavior and aggression.

Associations Between Prosocial Behavior and Delinquency

Figure 2 summarizes the results for delinquency. The initial model (excluding personality variables) revealed direct links between prosocial behavior and delinquency for girls and boys. Subsequent analyses (including personality variables) indicated that agreeableness and conscientiousness mediated the association for girls but not for boys. For girls, greater prosocial behavior was linked to greater agreeableness and to greater conscientiousness, which were linked to less delinquency; the initial association between prosocial behavior and delinquency was eliminated by the inclusion of agreeableness, indicating full mediation, and attenuated by the inclusion of conscientiousness, indicating partial mediation (Sobel $z = 2.36$, $p = .02$). For boys, agreeableness and conscientiousness were inversely related to delinquency, but there were no statistically significant links between prosocial behavior and either agreeableness or conscientiousness; the addition of these paths to the model did not significantly decrease the initial association between prosocial behavior and delinquency.

Associations Between Personality Variables and Externalizing Problems

Prosocial behavior did not mediate associations between agreeableness and aggression (girls: initial $\beta = -.57$, final $\beta = -.54$, boys: initial $\beta = -.60$, final $\beta = -.56$) or delinquency (girls: initial $\beta = -.48$, final $\beta = -.45$; boys: initial $\beta = -.40$, final $\beta = -.36$). Prosocial behavior also failed to mediate associations between conscientiousness and aggression (girls: initial $\beta = -.42$, final $\beta = -.38$, boys: initial $\beta = -.46$, final $\beta = -.42$) or delinquency (girls: initial $\beta = -.40$, final $\beta = -.36$, boys: initial $\beta = -.37$, final $\beta = -.34$).

Discussion

This study examined concurrent predictors of adolescent aggression and delinquency. Gender differences emerged in patterns of association from prosocial behavior and personality to externalizing problems. For girls, peer perceptions of prosocial behavior were closely bound to self-reports of agreeableness and conscientiousness. As a consequence, peer perceptions of prosocial behavior accounted for little unique variance in aggression and delinquency when agreeableness and conscientiousness were entered into the model. For boys, peer perceptions of prosocial behavior were largely independent of self-reports of agreeableness and conscientiousness; when entered in the same model, similar levels of unique variance in externalizing problems were ascribed to prosocial behavior and personality. It is important to note that the analyses do not indicate causal pathways such that changes in a predictor variable cause changes in a mediator variable which cause changes in an outcome variable. Instead, the analyses were designed to identify unique associations by including control and predictor variables on separate steps, then reversing the process in subsequent analyses. The results indicate that personality and prosocial behavior are distinct predictors of externalizing problems for boys and overlapping predictors of externalizing problems for girls.

Some might interpret the findings as evidence that prosocial behavior is more firmly grounded in agreeableness and conscientiousness for girls than for boys. This could arise from gender differences in the evolved origins of altruistic tendencies (Sober & Wilson, 1998) or it could arise from gender differences in social contexts that proffer opportunities for personality to influence prosocial behavior (Zakriski, Wright, & Underwood, 2005). Both suggest that personality has a greater influence over the behavior of girls than it does over the behavior of boys. Others might interpret the findings as evidence that personality is a more salient feature in perceptions of girls' prosocial behavior than in perceptions of boys' prosocial behavior. For girls, empathic behaviors may be inseparable from agreeableness and conscientiousness, because all are stereotypically feminine attributes (Eisenberg et al., 2006). As a consequence, gender differences may arise in the extent to which perceptions of prosocial behavior are confounded with perceptions of personality. Asked to nominate prosocial peers, children may identify boys who exhibit prosocial behaviors and girls who have personality traits consistent with these behaviors. Finally, some might interpret the findings as evidence of a measurement confound. Assessments of prosocial behavior include a disproportionate number of sex-biased items favoring girls (Zarbatany, Hartmann, Gelfand, & Vinciguerra, 1985). Gender differences in shared variance may indicate that some items used to measure agreeableness and conscientiousness overlap with items that pull for prosocial behaviors that are more prevalent among girls than among boys.

The implications of these findings vary according to their interpretation. If one subscribes to the notion that personality plays a greater role in the interpersonal behavior of girls than of boys, then one may accept at face value findings indicating that the antecedents and correlates of aggression and delinquency vary for boys and girls. If one subscribes to the notion that personality is more salient to perceptions of girls' prosocial behavior than to perceptions of boys' prosocial behavior, then one must acknowledge the possibility that peer nominations are biased sources. Whether objective measures of prosocial behavior similarly differ in their overlap with personality is an empirical question, but the answer will matter little if associations with externalizing problems are driven more by perceptions than reality. Finally, if one subscribes to the notion that gender differences in patterns of association reflect biased assessments of prosocial behavior, then one should expect gender neutral measures to eliminate these differences. Gender equivalence in assessments should render boys more similar to girls in the extent to which prosocial behavior and personality share associations with externalizing behaviors, but it is not clear if this will increase or decrease the unique predictive power of these variables.

This study is not without limitations. Aggression and delinquency were composite variables derived from maternal and adolescent reports. As a consequence, shared reporter variance may have inflated associations with adolescent reports of personality. Unfortunately, when maternal and adolescent reports are disaggregated, some internal reliabilities are unacceptably low ($\alpha < .65$). Analyses of these disaggregated reports indicate that correlations with personality variables are somewhat higher for self-reports ($r = -.23$ to $-.61$, $M = -.45$) than for maternal reports ($r = -.12$ to $-.42$, $M = -.30$), and that mediation effects are somewhat greater for self-reports than for maternal reports. Broadband externalizing scores that combine aggression and delinquency have adequate internal reliability for both maternal and self-reports ($\alpha = .76$ to $.81$). Correlations with personality variables are somewhat higher for self-reports of externalizing ($r = -.44$ to $-.57$) than for maternal reports ($r = -.30$ to $-.36$); personality fully mediates associations with self-reports of externalizing, whereas those with maternal reports are only partially mediated. It is important to note that results for boys and girls did not differ as a function of reporter. Thus, shared reporter variance may have elevated the magnitude of some of the mediated associations but it did not contribute to the overall pattern of gender differences.

Additional limitations should be noted. First, the cross-sectional nature of the data precludes conclusions about the direction of influence. The fact that prosocial behavior did not mediate associations between personality and adjustment problems does not mean that antecedent personality traits have no bearing on subsequent peer relations. Second, the more affluent were better represented in the sample than the less affluent, and this homogeneity may have limited the variance in behavior problem scores, reducing the magnitude of associations. Third, the sample size was relatively small, which may have prevented modest associations from reaching statistical significance. This could have been a factor in the nonsignificant paths between boys' prosocial behavior and personality, but it was not responsible for the fact that there was no decrease in associations between boys' prosocial behavior and externalizing when personality variables were added to the model.

This study is one of the first to examine the interplay between personality, peer relations, and adolescent adjustment. As such, it serves as a reminder that little is known about how peer perceptions of behavior shape and are shaped by individual personality. The finding that agreeableness and conscientiousness overlap with perceptions of girls' prosocial behavior but not boys' prosocial behavior implies gender differences in attributions of helpfulness. Prosocial behavior is apparently viewed as evidence of an agreeable, conscientious personality when performed by girls but not when performed by boys, giving rise to the counterintuitive finding that perceptions of prosociability uniquely predict externalizing problems for boys but not girls. We close with the provocative proposition that the relative scarcity of externalizing problems among girls may foster a tendency among peers to ascribe adjustment difficulties to characterological shortcomings.

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Figure 1. Direct and Indirect Associations from Prosocial Behavior and Personality to Aggression
Note. Final standardized regression weights and r^2 are reported, with initial standardized regression weights and r^2 in parentheses. * $p < .05$. ** $p < .01$

Figure 2. Direct and Indirect Associations from Prosocial Behavior and Personality to Delinquency

Note. Final standardized regression weights and r^2 are reported, with initial standardized regression weights and r^2 in parentheses. $^*p < .05$. $^{**}p < .01$

Table 1
Intercorrelations, Means, Standard Deviations, and Ranges

Variable	1	2	3	4	5	6	7	M	Female Adolescent (SD)	Min	Max	M	Male Adolescent (SD)	Min	Max
Social Functioning															
1. Prosocial Behavior	--							0.06	(0.73)	-1.09	1.94	0.16	(0.87)	-0.86	4.73
Personality															
2. Agreeableness	.25**	--						4.02	(0.61)	1.89	5.00	3.86	(0.58)	2.22	5.00
3. Conscientiousness	.18**	.55**	--					3.47	(0.66)	1.44	4.89	3.36	(0.65)	1.78	4.89
4. Extraversion	.04	.28**	.26**	--				3.86	(0.73)	1.00	5.00	3.65	(0.68)	2.00	5.00
5. Neuroticism	-.04	-.42**	-.35**	-.24**	--			2.74	(0.78)	1.00	5.00	2.50	(0.73)	1.00	5.00
6. Openness	.06	.29**	.30**	.22**	-.15*	--		3.75	(0.56)	2.00	5.00	3.68	(0.54)	2.00	5.00
Behavior Problems															
7. Aggression	-.28**	-.57**	-.43**	.01	.41**	-.11	--	0.05	(0.89)	-1.19	2.59	-0.01	(0.84)	-1.19	2.69
8. Delinquency	-.26**	-.45**	-.39**	-.09	.25**	-.14*	.69**	-0.04	(0.89)	-0.98	3.53	0.08	(0.78)	-0.98	2.55

Note. $N = 231$. Prosocial behavior represents the total number of classmate nominations, standardized by gender and class. Personality scores ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Behavior problem scores represent the sum of standardized maternal and self-report scores.

*
 $p < .05$.

**
 $p < .01$.