



Published in final edited form as:

*Violence Vict.* 2018 February 01; 33(1): 91–108. doi:10.1891/0886-6708.VV-D-16-00208.

## Organized Activity Participation and Relational Aggression: The Role of Positive Youth Development

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### Introduction

Aggressive behavior among adolescents is a pervasive problem that compromises the health and well-being of youth, and their families, schools and community (Youngstrom, Weist, & Albus, 2003). Aggression, defined as actual or implied use of force against an individual or group with the intent to do physical or psychological harm (Farrell & Flannery, 2006), remains a persistent problem among youth in the United States. Aggression is associated with long term consequences such as substance abuse and violent behavior in adulthood (Olofsson, Lindqvist, Shaw, & Danielsson, 2012). Aggressive behaviors may be physical or relational in nature. Physical aggression refers to the actual or implied physical force against others. Relational aggression is psychological in nature and refers to behaviors intended to harm personal relationships and create social isolation (e.g., spreading rumors) (Gladden, Vivolo-Kantor, Hamburger, & Lumpkin, 2013). Relational aggression is less well understood and more covert compared to physical aggression and continues to be a challenging problem among adolescents (Herrenkohl et al., 2007). Relational aggression tends to peak during early adolescence (Loeber & Hay, 1997) and may put youth at risk for later physical aggression and mental health disorders (Centers for Disease Control and Prevention (CDC), 2002). Consequently, efforts to understand factors that may help reduce the risk of relational aggression are critical to inform approaches to prevention.

Although traditional approaches to addressing aggression have been largely deficit-focused, many researchers have shifted to a more integrative, strength-based approach focused on promoting the positive development of youth to prevent problem behaviors such as aggression (Mueller, Phelps, et al., 2011). Strength-based approaches, including positive youth development (PYD), emphasize assets in young people's lives that support healthy developmental trajectories (Resnick, Ireland, & Borowsky, 2004). Developmental assets

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refer to attributes such as confidence, self-esteem, and beliefs about making positive contributions to their world. Assets also refer to external factors that support positive development such as adult mentors and positive peer influences. One critical way that youth may develop assets related to positive development is through organized activity participation.

### **Organized Activity Participation**

Organized activity participation plays a key role in positive development by providing youth with opportunities to build assets that promote PYD (Mueller, Lewin-bizan, & Urban, 2011). Organized activities, a broad-range of adult-sponsored activities outside the school curriculum, presents a unique opportunity for building assets related to positive development during out-of-school time (Bohnert, Fredricks, & Randall, 2010). Researchers have generally found support for the promotive effects of participation on youth development (Mcneely, Nonnemaker, & Blum, 2002), although some have found negative effects associated with certain types of activity participation, including sports (Barber, Eccles, & Stone, 2001). Understanding the mechanism by which organized activities influence youth outcomes (i.e., through building developmental assets) would enhance our understanding of this relationship and help inform approaches to prevention. Yet, most researchers investigating the effects of participation on youth have focused on outcomes, and the mechanism by which participation influences outcomes such as aggression has received limited attention (Mueller, Phelps, et al., 2011).

### **Positive Youth Development, Organized Activity Participation and Aggression**

Positive youth development (PYD) is a developmental systems-based model that emphasizes the positive potential within all youth, with a focus on factors that promote healthy development (Lerner, Lerner, & Benson, 2011). These developmental assets aid youth in acquiring the capacity necessary to successfully transition from childhood to adulthood and may help youth avoid detrimental behaviors such as relational aggression. Assets are a theoretically and empirically based set of experiences, opportunities and supports associated with promoting positive youth outcomes (e.g., school success) and reducing risk of negative outcomes (e.g., aggressive behavior) (Benson, Scales, & Syvertsen, 2011).

Using the PYD framework, developmental assets fall into broad categories, called the five C's: confidence, competence, connections, character and caring (Lerner, Lerner, & Benson, 2011). Young people who experience these assets will be positively engaged with their environment and exhibit the sixth C: contribution (Lerner, 2005). Although all the component C's are potentially vital influences on youth development, some may be more relevant than others for investigating PYD in the context of organized activities and its effects on relational aggression. Competence, peer connection and contribution may be especially important developmental assets developed within organized activities associated with relational aggression. Competence refers to the ability to manage social, academic, cognitive and vocational challenges, which can be essential for a healthy and productive transition to adulthood (Masten & Coatsworth, 1998). Researchers suggest that participation is associated with promoting competence across multiple domains including interpersonal and school-related competencies (Marsh & Kleitman, 2002; Mueller, Lewin-bizan, et al.,

2011). Researchers have also found that social and academic competence are associated with less physical aggression (Botvin, Griffin, & Nichols, 2006; Resnick et al., 2004). Fewer researchers have examined the relationship between competence and relational aggression, although both types of aggression may share similar risk, and perhaps protective factors (Herrenkohl et al., 2007). Consequently, competence may be an especially relevant component of PYD when examining the relationship between participation and relational aggression.

Peer connections includes prosocial connectedness with friends (Lerner et al., 2005; Lerner, Lerner, von Eye, Bowers, & Lewin-Bizan, 2011; Roth & Brooks-Gunn, 2003). Positive peer connectedness is an interpersonal resource that may be strengthened through organized activity participation. Peer groups become a primary focus during adolescence (Muuss, 1996; Youniss & Haynie, 1992); given the importance of peer influence during this time of life, social relationships fostered within organized activities are one way that participation may contribute to PYD (Linver, Roth, & Brooks-Gunn, 2009). Participation in organized activities is associated with connectedness to peers (Eccles, Barber, Stone, & Hunt, 2003; Fredricks & Eccles, 2006), and fewer associations with antisocial peers (Linver et al., 2009). In addition, connections to prosocial peers are associated with avoiding harmful behaviors such as relational aggression (Lerner et al., 2005; Resnick et al., 2004). Harmful peer interactions are the method by which youth engage in relational aggression (Card, Stucky, Sawalani, & Little, 2008). Thus, prosocial peer relationships may be a vital to reducing risk of relational aggression among youth. Taken together, these results suggest that organized activities foster prosocial peer connections, which may, in turn, reduce negative behaviors in adolescence such as relational aggression, but this has rarely been studied.

Contribution (to self, family and community) refers to mutually beneficial interactions between youth and their immediate environment (Mueller, Lewin-bizan, et al., 2011). Organized activity participation may help foster contribution among youth. Contribution is an important aspect of PYD related to youth acting as resources for their schools and the larger community (Mueller, Lewin-bizan, et al., 2011). When youth thrive, they make positive contributions and are better positioned to become healthy, productive adults who are more likely to participate socially and politically in adulthood (Eccles et al., 2003; Lerner, Lerner, von Eye, et al., 2011). Researchers have found that participation is generally associated with higher levels of contribution (Agans et al., 2014). Researchers also suggest that contribution may be an important factor in reducing negative outcomes among youth (Lerner, Lerner, & Benson, 2011), although few have investigated contribution in the context of PYD and relational aggression. Consequently, organized activity participation may foster contribution that could, in turn, reduce the risk of aggressive behavior, but contribution has rarely been investigated as a possible component of PYD mediating the relationship between participation and relational aggression.

### **PYD: An Integrated versus Decomposed Construct**

Lerner and colleagues have examined PYD as an overarching construct composed of the five C's, using data from the 4-H study of child development and found support for this model, but they also suggest that these models are still evolving (Mueller, Phelps, et al., 2011).

Contribution, for example, using Lerner's traditional model has generally been examined separately as an outcome of PYD (see Figure 1a, decomposed model; Mueller, Phelps, et al., 2011). In fact, most research regarding the 5 C's has considered each of them individually as depicted in Figure 1a. This decomposed model of PYD, for example, suggests that participation effects competence and peer connection independently, and these independently effect contribution.

An alternative way to conceptualize PYD is as an integrated construct composed of competence, peer connection, and contribution (see Figure 1b). Foundational concepts of PYD emphasize mutually influential, integrated person-context relations as the building block of human development (Lerner, 2005). Using the developmental-ecological framework, human development occurs through reciprocal interactions between the developing person and their environment (Bronfenbrenner & Morris, 2006). Thus, we might expect that youth will be shaped by the contexts in which they engage and that youth will, in turn, also act to influence these contexts. This perspective suggests that the connection between the 5 C's and the sixth C (contribution) would be one of close interconnectedness because of the feedback loop and reciprocal influences between them. Thus, a PYD construct may include all components as a single multidimensional and integrated variable (Figure 1b). Yet, few researchers have tested empirically if a single integrated PYD model (including all C's in one construct) is a more fitting representation of the PYD framework in the context of organized activity participation than a decomposed model that treats the PYD components separately.

### **Sociodemographic Factors, Participation and Aggression**

Researchers have found some differences in organized activity participation by sociodemographic characteristics. Youth from families with higher socioeconomic status (SES), for example, are more likely to participate in organized activities than those from lower SES families; youth from higher SES families likely experience fewer contextual barriers to participation, such as transportation challenges, financial limitations, and competing family obligations, than youth from lower SES families (Bartko & Eccles, 2003; Linver et al., 2009). Participation may also vary by sex. Some researchers examining potential sex differences suggest that females generally participate more than males (except sports) (Eccles et al., 2003), while others suggest no sex differences (Pedersen, 2005).

Relational aggression also varies by sociodemographic characteristics. Farrington and Baldry (2010) found that lower socioeconomic status (SES) was associated with more aggressive behaviors, but they did not examine relational aggression independently. Fewer researchers have examined correlates to relational as opposed to physical aggression, but researchers examining aggression broadly suggest that SES, assessed using measures such as parental education, may be associated with both relational and physical aggression (Farrell & Flannery, 2006; Merrell, Buchanan, & Tran, 2006). Aggressive behaviors may also vary by sex. Most researchers have found that males generally engage in more physical aggression and females in more relational aggression (Card et al., 2008; Herrenkohl et al., 2007; Nansel et al., 2001), but this is not universal. Other researchers have found that males and females have similar rates of both types of aggression (Galen & Underwood, 1997;

Masseti et al., 2011). Thus, aggression affects both males and females, and it is important to consider potential sex differences in relational aggressive behavior. Taken together, these results indicate that accounting for sociodemographic characteristics is critical when investigating the effects of participation on relational aggression.

## Current Study

In the current study, we test a hypothesis about the mechanism by which organized activity participation influences relational aggressive behavior within an economically and racially diverse population of early adolescents. We expect that the PYD components of competence, peer connectedness and contribution will mediate the relationship between participation and relational aggression. We will test two mediating models of PYD that will investigate a decomposed (Figure 1a) and integrated (Figure 1b) PYD construct. In the decomposed model, we hypothesize that participation improves connections and competence, which promote contribution to community and that, in turn, reduces relational aggression (Figure 1a). In the second model, peer connections, competence and contribution will serve as indicators for an integrated, latent PYD factor mediating the relationship between participation and relational aggression (Figure 1b). We expect breadth of organized activity participation to have a direct negative effect on relational aggressive behavior. Finally, we expect that these direct and mediating effects will be present after controlling for sociodemographic factors (i.e., parent education, sex).

The current study builds on previous research in several ways. First, we examine if PYD is a mechanism by which organized activity participation is associated with less relational aggression. Second, we explore integrated and decomposed models of PYD to test our mediating hypothesis. Third, we examine these relationships while accounting for relevant sociodemographic factors, including SES and sex, which may influence who does and does not participate.

## Method

### Participants

This study is based on data collected as part of a school-based survey focused on understanding risk and protective factors for youth aggressive behavior. Data were collected from an economically and racially diverse sample of 7<sup>th</sup> grade students (71% economically disadvantaged, 50% African American, 36% Caucasian and 14% Latino, Native American, Asian or mixed race) (Michigan Department of Education, 2017). This study was approved by the University of Michigan Institutional Review Board and a Certificate of Confidentiality was obtained from the National Institute of Health. Written parental consent and student assent was obtained prior to participation. Participation in the study was completely voluntary and no compensation was provided to participants.

Students were eligible to complete the questionnaire if they were present in the school health class the day of the survey and had signed parent consent. Students with lower reading levels or limited English proficiency (N=4) as identified by the teacher were read the survey aloud in a separate room. Approximately 60% of 7<sup>th</sup> grade students in the school participated in

the survey (mean age = 12.39 years; SD = .52; N = 196; 60% female). The sample consisted of 45% African American, 27% White, 21% Multiracial, and 7% Other.

## Measures

### Independent variables

**Organized activity participation.:** Organized activity participation was measured using breadth of involvement across a range of school sponsored and non-school sponsored activities. Students were asked if they participated in any of the following activities within the last month: sports, school clubs, arts programs, music programs, church/religious groups and afterschool programs. We computed breadth of participation as the sum of the total number of activities in which youth participated and could range from 0–6.

**Peer connections.:** Peer connections was measured by seven items from the Peer Connectedness Scale (Sieving et al., 2001). Students were asked about features of their relationships with peers, including items such as “My peers care about me,” “I can tell my peers about my problems and troubles” and “My peers listen to what I have to say.” Participants rated their agreement with these items, from 1 (strong yes) to 4 (strong no), alpha=.89.

**Competence.:** Competence included five items addressing academic and social competence. Items addressing academic competence included “I will graduate from high school” and “I will go to college” and “I will be able to handle my schoolwork.” Social competence items included “I will be able to handle the problems that might come up in my life” and “I will be able to stay out of trouble.” The latter three items are from a future expectations scale by Wyman, Cowen, Work and Kerley (1993). Students were asked to rate their agreement with the items from 1 “agree a lot” to 4 “disagree a lot,” alpha =0.70.

**Contribution.:** Contribution was measured by three items (Shamah, 2011). Students were asked to indicate their agreement from 1 (Agree a lot) to 4 (Disagree a lot) on how much they want to make a difference in the world, if they currently contribute to community and if they feel it’s important to contribute to community (alpha=0.64).

**Sociodemographics.:** We used the highest reported education level of their mother or father (from 1=completed grade school or less to 7=graduate or professional school after college) as a measure of family socioeconomic status. If only one parental education score was provided, we used that score in our analyses. Sex was coded 0 (female) and 1 (male).

### Dependent variable.

**Relational aggression.:** We examined relational aggression using nine items from the Multisite Violence Prevention Project survey (Horne, 2004). Students were asked how often in the past month they had engaged in aggressive behaviors from 1 (Never) to 6 (5 times or more). Relational aggression included items such as ruining someone’s stuff, spreading rumors or gossip about someone and picking on someone. Both graphical (histogram- not shown) and statistical (Kurtosis = 6.99) evidence suggested that this variable demonstrated



notable departure from normality. Consequently, we log transformed relational aggression for use in structural equation models ( $\alpha=0.82$ ).

### Data Analytic Strategy

We used structural equation modeling (SEM) to test a mediation model using latent factors and observed variables with MPlus version 7 (Muthén & Muthén, 2013). SEM is a comprehensive method for quantifying and testing models based on substantive theory (Raykov & Marcoulides, 2006). This approach is based on analysis of variance/covariance matrices, and analyzes measurement (unobserved factors and their respective indicators) and the structural regression (examining relationships between factors) models (Kline, 2011). SEM allows for examination of direct effects and mediation while adjusting for observed variable measurement error (Klem, 2000).

We first examined the measurement model for the latent factors using confirmatory factor analysis for both the decomposed and integrated models. Next, we examined the structural regression model investigating relationships between the factors for both models. We evaluated model fit indices using  $\chi^2$ , Comparative Fit Index (CFI) values and Standardized Root Mean-Square Error of Approximation (RMSEA) with the associated 90% confidence interval. We used Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) when comparing the non-nested models (decomposed and integrated). AIC and BIC are appropriate methods for comparing non-nested SEM models estimated from the same data (Dziak, Coffman, Lanza, & Li, 2012; Kline, 2011). Some researchers suggest that AIC may favor models that are more complex compared to BIC as BIC imposes a penalty for model complexity (Dziak et al., 2012; Wang & Wang, 2012). Consequently, we examine both AIC and BIC in model selection. We examined structural paths, direct, indirect and total effects of the model (decomposed or integrated) that best fit the data. A significant indirect effect would suggest that assets associated with PYD mediate the relationship between participation and aggressive behavior.

We utilized resampling with confidence intervals to assess the significance of model indirect effects. MacKinnon (2008) suggests that traditional methods of assessing mediation effects are subject to bias due to incorrect distributional assumptions of indirect effects and limited power (and thus less accurate confidence intervals to detect mediation effects). One solution to these limitations well supported in the statistical literature is bootstrapping with confidence intervals (Hayes, 2013; Jose, 2013). In order to improve the accuracy of indirect effect estimates given the relative small sample size ( $N=196$ ) and thus potential power for testing mediation effects in SEM (MacCallum, Browne, & Sugawara, 1996), we incorporated bias-corrected bootstrap. Bias-corrected bootstrap is a resampling method that adjusts each bootstrap sample for potential bias in parameter estimates (MacKinnon, 2008). Bias-corrected bootstrapping with confidence intervals account for irregularity in the sampling distribution of indirect effects and likely result in estimates that are more accurate than when more traditional approaches (e.g., Baron & Kenny, 1986) are used (Hayes, 2013; MacKinnon, 2008). Finally, we report model coefficients, direct, indirect and total effects in their unstandardized form as recommended by Hayes (2013) in order to better interpret effects in their original metrics.

## Missing Data

We used full information maximum likelihood (FIML) to address missing data for control variables (N=29). FIML (and similar methods) are preferable over deletion approaches or nonstochastic imputation methods to reduce potential bias in model estimates (e.g., mean imputation) (Enders, 2010; Schlomer, Bauman, & Card, 2010).

## Results

### Descriptive Statistics

Descriptive statistics including covariances, means and standard deviations for continuous, and proportions for categorical study variables are presented in Table 1. Organized activity participation descriptive results indicate that a high proportion of youth were involved in organized activities, with 90% participating in at least one activity and nearly 30% involved in four or more activities. The highest proportion of youth were involved in school-related activities (sports and clubs: 72% and 69%, respectively), but generally speaking, youth were broadly engaged across activity domains.

**Measurement model.**—Model building results are reported in Table 2. Other study variables were allowed to covary with latent variables when examining measurement models. Results suggest that both measurement models are a good fit with the data, but the AIC and BIC values favor the integrated model.

**Structural model.**—For Model 1, including all paths as shown in Figure 1a, model fit for relational aggression was moderate. Competence and peer connection were not associated with contribution (path results not shown). This may be consistent with an ecological approach suggesting that the reciprocal interaction between person and context contribute to positive development simultaneously rather than sequentially. We next ran Model 2, with all three PYD-related factors as indicators for a latent PYD construct and this mediated the relationship between participation and relational aggression (Figure 1b). We used mean scores for each scale (peer connection, competence and contribution) for the factor indicators. Sex and parent education were not associated with the outcomes and, given the relative small sample size to detect multiple mediation even with bootstrapping and CI's (Fritz & Mackinnon, 2007), we removed these paths; Chi-square difference statistic for both decomposed and integrated models favored the more parsimonious models (decomposed:  $X^2_D=0.48$ , integrated:  $X^2_D=0.70$ ; critical  $X^2_D=5.99$ ). AIC and BIC values for relational aggression Models 1 and 2 suggest that the less complex model is preferred. Thus, our results indicated that the integrated model is a better fit with the data.

Final model estimates for the integrated model are given in Table 3. Among individual paths, sex and parent education were associated with breadth of organized activity participation. Males participated less than females and higher parent education was associated with higher participation. More participation was associated with greater assets related to positive youth development (peer connection, competence and contribution). The path between PYD and relational aggression was not significant.



The bias-corrected bootstrap confidence interval for the total indirect effects indicate that PYD does partially mediate the relationship between participation and relational aggression based on 10,000 bootstrap samples; more participation was associated with more PYD-related factors, which, in turn, was associated with less relational aggression. Thus, although the individual path from PYD to relational aggression was not significant at the 0.05 level ( $p=0.09$ ), the total indirect effect from breadth to relational aggression incorporating this path was significant using the bias-corrected bootstrap confidence interval procedure.

Direct effect results indicated that more participation was associated with more relational aggression. Although the direct positive effects between participation and relational aggression were contrary to our a priori hypothesis, previous researchers have found that specific activities such as sports may contribute toward aggression (Barber et al., 2001; Eccles & Barber, 1999; Fraser-Thomas, Côté, & Deakin, 2005). Consequently, we conducted post-hoc analyses to examine mean differences in relational aggression by sports participation. We examined the sports-only, sports with other activities and no sports groups using Tukey-Kramer pairwise comparisons based on Studentized Range distribution (Kirk, 2013). Tukey-Kramer is an appropriate method for exploring possible mean differences with unequal sized groups (Hilton & Armstrong, 2006; Kirk, 2013). We found no differences in relational aggression between sports-only, sports with other activities and no sports groups. As the direct effects were positive and indirect effects were negative, the total effect of participation on relational aggression was not significant.

## Discussion

Our results provide support for the notion that youth benefit most from assets related to PYD when they operate collectively. This is consistent with a developmental-ecological approach, suggesting that the dynamic nature of human development includes mutually influential, reciprocal interactions between person and environment (Bronfenbrenner & Morris, 2006). These mutually beneficial relations may not be predictors and outcomes, but rather operate collectively as an important part of the process of PYD. Our results suggest that competence, peer connection and contribution may together be vital aspects of promoting PYD within organized activities among youth. Organized activity participation is a key way that youth build assets related to PYD during out-of-school time (Mueller, Lewin-bizan, et al., 2011). Yet, despite the important role organized activities play in supporting PYD, few researchers have examined PYD as a mechanism by which organized activities may reduce risk of negative behaviors such as relational aggression. In the current study, we tested empirically PYD as mechanism by which participation is associated with relational aggression, through the development of assets (Lerner, 2005).

### Direct and Indirect Pathways between Participation, PYD, and Aggression

**Direct Pathway**—The direct pathway indicating that greater breadth of participation was associated with more relational aggression was inconsistent with our a priori hypotheses. Other researchers, however, have found positive relationships between organized activity participation and aggression (Hansen, Larson, & Dworkin, 2003; Linville & Huebner, 2005). Higher levels of aggression in some activities, such as sports, may be due to group

dynamics, undesirable social norms within the activity context or perceived stress/anxiety related to the competitive aspects of the activity (Barber et al., 2001; Hansen et al., 2003). Yet, we did not find differences in relational aggression by sport participation group in our post-hoc analyses. This may suggest that social/contextual issues that contribute to relational aggression is common across a broad range of activities. In addition, organized activity involvement generally peaks during early compared to mid-to-late adolescence (Denault & Poulin, 2009; Quinn, 1999); consequently, a wider range of youth are involved in activities during the transition to middle-school compared to high school. This is compounded by the fact that relational aggression during early adolescence is also pervasive (Tremblay et al., 2004). Thus, it is possible that organized activities collectively reflect the social norms within the larger context. These results, however, need to be interpreted with caution because group sizes within the comparative analysis were small. Furthermore, although organized activities may help build important assets that promote healthy development, activities alone may not address other forces that shape behavior within the larger social context. Adults and professionals working with youth across a variety of organized activities may focus on helping adolescents create a social context that focuses on healthy group dynamics and developing prosocial norms to create an environment that supports PYD.

**Indirect Pathway**—Results of the total indirect effects indicated that PYD partially mediated the relationship between participation and relational aggression. These results support the role of organized activities in helping build assets related to PYD. Researchers have suggested that participation in organized activities plays a key role in positive youth development (Agans et al., 2014; Gardner, Roth, & Brooks-Gunn, 2008; Mueller, Phelps, et al., 2011). We investigated explicitly the notion that a mechanism by which participation may contribute to positive outcomes among youth is through its effects on assets related to PYD. Thus, our results build on past research by providing empirical support for PYD as a mediator between organized activity participation and relational aggression.

## Limitations

Several limitations of the current study should be noted. First, the analyses were cross-sectional so causal inferences about participation and relational aggression are not possible, but our results support previous work suggesting that organized activity participation can support positive youth development and prevent relational aggression. Moreover, our study is a vital initial step in investigating how organized activity participation may operate to reduce relational aggression. Our results suggest that future research examining the temporal relationship between participation and relational aggression would be a useful next step to strengthen our understanding of the role participation plays in reducing negative behaviors. Second, although we included several developmental assets that are part of PYD, two of Lerner's 5c's (Lerner, 2005; Scales, Leffert, & Lerner, 2004) were not included because our study was not originally designed to focus specifically on Lerner's conceptualization of PYD. This may be one reason that the results were limited in supporting the hypothesized relationships. Future work may focus on examining a broader range of assets as mediating factors between participation and aggression. Nevertheless, we did incorporate PYD components relevant to participation and reflecting the reciprocal interactions between individual and environment critical to shaping development. Third, the sample size may have

limited our ability to detect effects within the mediating model and precluded multi-group analyses to examine possible differences in the mediating effects of PYD. Yet, our results point to the potential of participation to build PYD that, in turn, helps prevent harmful behaviors among a diverse group of adolescents. These results provide support for additional research examining the mechanism by which organized activities may help prevent detrimental outcomes. Fourth, we were not able to include a range of factors (e.g., ability or motivation in addition to sociodemographic characteristics) related to selection bias beyond sociodemographics that may be important in terms of who does and does not participate. (Farb & Matjasko, 2012). Notably, however, a broad range of youth participate during early adolescence compared to mid- or late-adolescence so it is also possible that selection bias may not be as influential on outcomes during this developmental phase compared to older adolescents. In addition, youth living in socioeconomically challenged contexts likely face similar barriers to participation (e.g., resource constraints) that affect nearly all youth living in the community (Pedersen, 2005). Finally, our measure of participation included only breadth of involvement. Other types behavioral (i.e., intensity, duration) as well as psychological engagement (e.g., affective investment) may influence the relationship between participation and aggression (Bohnert et al., 2010). Consequently, future research would benefit from investigating this relationship using other measures of participation. Yet, researchers also suggest that during early adolescence, a diverse set of activities (i.e., breadth) may be key to fostering positive development (Denault & Poulin, 2009). Despite these limitations, our study provides insight about the relationship between organized activity participation and relational aggression and the mechanism by which activity participation may act to promote positive development and prevent negative outcomes.

### Implications for Prevention

Our results are useful in informing approaches to prevention. Researchers and practitioners working with youth have increasingly focused on ways to support positive youth development (PYD) as a way to reduce risk of detrimental behaviors (Bowers et al., 2011; Eccles & Templeton, 2002). Our finding that PYD fit better as an integrated versus decomposed construct suggests that interventions aimed at enhancing PYD may be most effective when providing an array of activities focused on building assets across multiple interconnected domains in order to reduce relational aggression. Such approaches to prevention may be more effective when working with youth from diverse backgrounds than approaches narrowly focused on enhancing discrete assets. Providing an opportunity to build an array of assets across multiple interconnected domains may be an effective strategy for supporting the health and well-being of youth from various social and economic contexts.

Our finding supporting PYD as a mechanism by which organized activities reduce risk of relational aggression may also have important implications for prevention. Efforts to reduce the risk and consequences of relational aggression may be enhanced by incorporating components designed to explicitly expand youth's positive peer relationships, competence and contributions to community into the organized activities across multiple domains in which youth are already participating. For example, adults working with youth participating in school clubs, art or music programs could incorporate activities that foster positive and supportive interactions among peers, support and reinforce academic and social competence,

and provide opportunities to make meaningful contributions to their school and community. The Youth Empowerment Solutions program is an example of an existing program that incorporates explicitly the mechanism examined in this study (Franzen, Morrel-Samuels, Reischl, & Zimmerman, 2009). The program focuses on helping youth develop the skills and resources necessary to participate in youth driven community change efforts (Reischl et al., 2011). The curriculum includes peer team building, leadership and skill development, and intergenerational support in service to a culminating experience of implementing a community project that the youth develop (Zimmerman, Stewart, Morrel-Samuels, Franzen, & Reischl, 2011). The youth have implemented community gardens, murals, fund raising efforts, and school improvement projects.

## Conclusions

Limitations notwithstanding, our results contribute to the literature in several key ways. First, the current study examines the mechanism by which participation may influence relational aggression through PYD. Relational aggression is a concerning problem among adolescents that compromises their health and well-being (Gladden et al., 2013; Youngstrom et al., 2003) so information that may inform prevention strategies is useful. Second, we compared models using a decomposed and integrated measure of PYD informed by developmental assets as described by Lerner (2005), but also incorporates a developmental-ecological approach (Bronfenbrenner & Morris, 2006). Third, we investigated these relationships with an economically and racially diverse sample during early adolescence when risk of aggressive behaviors is high while accounting for important sociodemographic factors. Few researchers have explicitly tested PYD as a mechanism by which organized activity participation influences relational aggression among early adolescents even though it is a pervasive problem that negatively influences their health and well-being (Youngstrom et al., 2003). Researchers, professionals and others working with youth to address different types of aggression generally use approaches that organized activity participation as a strategy to enhance healthy development and prevent negative outcomes. Our results support PYD as a mechanism by which organized activities may operate to reduce negative behaviors among youth. These results suggest that a promising approach to reducing relational aggression may be to facilitate engagement in organized activities that promote competence, positive peer relationships, and contribution. This study provides a unique examination of the mechanism by which participation may influence negative outcomes and how organized activities contribute to the health and well-being of youth.

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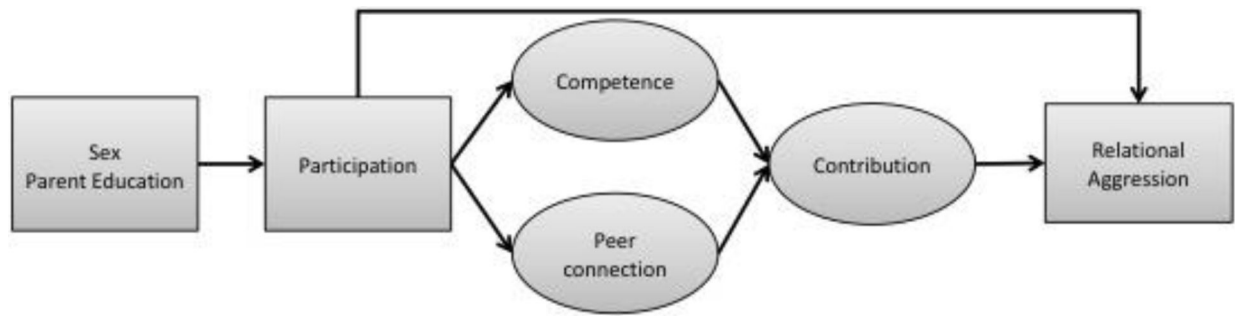
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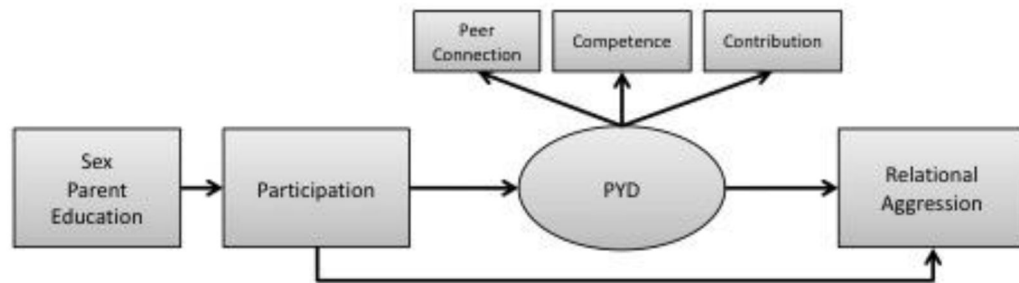


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(a) Decomposed model



(b) Integrated model

**Figure 1:**  
Decomposed and integrated models of PYD as mechanism to reduce relational aggression among youth.

**Table 1.**  
Covariances, means and standard deviations for continuous, proportions for categorical study variables

	1	2	3	4	5	6	7
1. Peer connection	.36						
2. Contribution	.08	.34					
3. Competence	.09	.08	.17				
4. Breadth of participation	.13	.17	.09	2.79			
5. Relational aggression	-.04	-.07	-.06	.03	.16		
6. Parent education	.04	.24	.13	.60	-.10	4.02	
7. Male	-.06	-.01	-.02	-.17	0	.14	.24
Mean(SD)/proportion	3.48(0.60)	3.26(0.59)	3.61(0.41)	2.55(1.67)	.49(0.41)	4.17(2.02)	.40

Table 2.

Decomposed and integrated PYD model results

Model results	X2, df	CFI	RMSEA (90% CI)	AIC	BIC
Measurement models					
Model 1: decomposed model	232.45, 130	0.88	0.063(0.050, 0.076)	6599.56	6792.97
Model 2: integrated model	27.39, 14	0.88	0.070(0.029, 0.108)	2774.17	2843.01
Structural models					
Model 1: decomposed model	276.35, 131	0.87	0.076(0.063, 0.088)	6266.27	6449.27
Model 2: integrated model	22.01, 13	0.92	0.060(0.000, 0.102)	2468.55	2533.91

**Table 3.**  
Final integrated model results for organized activity participation and relational aggression

	Estimate(SE)	
	Unstandardized	Standardized <sup>a</sup>
<b>Measurement model</b>		
Peer connections-> PYD	1	.45(.10) **
Competence-> PYD	1.16(.48)	.54(.10) **
Contribution-> PYD	1.01(.31)	.67(.10) **
<b>Structural model</b>		
Male->breadth	-.79(.23)	-.23(.06) **
Parent education-> breadth	.19(.07)	.23(.08) *
Breadth-> PYD	.04(.02)	.25(.09) *
PYD-> aggression	-.82(.48)	-.55(.11)
Breadth-> aggression	.04(.02)	.19(.08) *
<b>Direct, indirect and total effects</b>		
	Estimate (CI)	
Total	.01(-.02, .05)	.05(.02, .05)
Total indirect (breadth->PYD->aggression)	-.03(-.07, -.01)	-.14(-.08, -.01) *
Total direct (breadth->aggression)	.02(.01, .09)	.19(.01, .09) *

\*  
p 0.05

\*\*  
p 0.01

<sup>a</sup>Measurement and structural model estimates using ML without bootstrapping to obtain SE.