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Trajectories of adolescent aggression and family cohesion: The potential to perpetuate or ameliorate political conflict

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Abstract

Objective—Correlations between intergroup violence and youth aggression are often reported. Yet, longitudinal research is needed to understand the developmental factors underlying this relation, including between-person differences in within-person change in aggression through the adolescent years.

Method—Multilevel modeling was used to explore developmental and contextual influences related to risk for youth aggression using four waves of a prospective, longitudinal study of adolescent/mother dyad reports ($N = 820$; 51% female; 10 to 20 years old) in Belfast, Northern Ireland, a setting of protracted political conflict.

Results—Experience with sectarian (i.e., intergroup) antisocial behavior predicted greater youth aggression; however, that effect declined with age and youth were buffered by a cohesive family environment. The trajectory of aggression (i.e., intercepts and linear slopes) related to more youth engagement in sectarian antisocial behavior; however, being female and having a more cohesive family were associated with lower levels of youth participation in sectarian acts.

Conclusions—The findings are discussed in terms of protective and risk factors for adolescent aggression, and more specifically, participation in sectarian antisocial behavior. The paper concludes with clinical and intervention implications which may decrease youth aggression and the perpetuation of intergroup violence in contexts of on-going conflict.

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During the past decade, more than two million youth have been killed and over six million disabled by internal conflict (United Nations, 2006). Youth “in war zones or in areas of violent conflict often live with constant upheaval, destruction, and violence. Some respond in kind” (Hesling, Kirlic, McMaster, & Sonnenschein, 2006, p. 213). When political violence threatens feelings of safety and security, emotional and behavioral responses, such as anger and aggression, may be activated (Cummings, Goeke-Morey, & Papp, 2004; Cummings et al., 2011). Yet, experience with political violence is not linked to aggression for youth in all cases (Barber, 1999; Macksoud & Aber, 1996). This raises the question of why some adolescents respond to political violence with increased aggression and others do not. Improving on past research on whether violence begets violence (Barber, 1999; Blattman & Annan, 2010; Kerestes, 2006; Macksoud & Aber, 1996; Qouta, Punamäki, Miller, El-Sarraj, 2008), this study utilized longitudinal data and analyses with multiple reporters to identify risk and protective factors related to between-person differences in within-person change in aggression for adolescents living in a setting of protracted conflict.

Adolescence is a key period for understanding relations among aggression, experience with political violence, and participation in the continuation of societal conflict (de Rivera, 2003; Punamäki, 2009; Qouta et al., 2008). In this paper, aggression is defined as “those acts that inflict bodily or mental harm on others” (Loeber & Stouthamer-Loeber, 1998, p. 242). This definition does not necessitate the aggressor's intent to harm and distinguishes aggression from other types of externalizing problems, such as hyperactivity or peer rejection, which may have different antecedents or trajectories in adolescence (Loeber & Hay, 1997; Tremblay, 2000). Aggressive behaviors in adolescence may be linked with short- and long-term costs, such as low academic performance, peer problems, and adult criminality (Salzinger, Feldman, Stockhammer, & Hood, 2002). Clinical-levels of violent and antisocial behavior, along with co-morbidity with other outcomes, such as delinquency, may also stem from this developmental period. In addition, adolescent aggression has societal implications; whether intentional or not, aggressive acts directed at out-group members may perpetuate political conflict (de Rivera, 2003; Jarman & O'Halloran, 2001).

How adolescents are affected by and act upon their social environments (Sameroff, 2000) are both key factors underlying variation in the development of aggression (Guerra & Huesmann, 2004; Moffit, 1993). For example, the social-cognitive information processing model describes the ecological transaction in which potential responses are recalled and selected based on the anticipated consequences of those behaviors (Crick & Dodge, 1994). In high-risk environments, aggression will be related to hostile cognitions of ambiguous situations, greater attention to threatening cues, less attention to overall social cues, and elevated beliefs in the legitimacy and usefulness of aggression (Andreas & Watson, 2009; Crick & Dodge, 1994; Huesmann, 1988; Lansford, Malone, Dodge, Pettit, & Bates, 2010). Moreover, adolescents often spend more time outside the home, which may put them at

greater risk of developing aggressive behaviors because of contagion, a lack of social control in dangerous neighborhoods, and association with deviant peers or gangs (Thornberry, Krohn, Lizotte, & Chard-Wierschern, 1993; Kuhn, 2004; Kurlychek, Krohn, Dong, Hall, & Lizotte, 2012; Maimon & Browning, 2012; Martino, Ellickson, Klein, McCaffrey, & Edelen, 2008). Yet, adolescence is also a developmental period in which youth improve in social skills, perspective-taking, and empathy (Tremblay, 2000). These changes, along with family cohesion and support, may facilitate a decrease in aggression in adolescence (Andreas & Watson, 2009). That is, adolescents might develop alternative normative standards about how to deal with conflict without using aggressive responses (Guerra & Huesmann, 2004). This pattern, however, requires personal, family, and community resources, which may be compromised in contexts of high-violence (Qouta et al., 2008).

These studies, developed in situations of community violence in the U.S., are useful as references given that the trajectory of adolescent aggression has not been investigated in situations of political conflict. Using longitudinal data, the current study investigated between-person differences in within-person change in aggression in the transition through adolescence in a context of political violence. Possible gender differences, as well as the buffering effects of family cohesion, were also explored.

Political Violence and Adolescent Aggression

There is substantial variation in the emerging literature on political violence on youth aggression. Consistent with the community violence research in the U.S., one set of studies has documented a positive link between exposure to political violence and adolescent aggression. Two cross-sectional studies during periods of relatively high and low political violence found that youth exposure to military violence in the Palestinian territories predicted aggression (Qouta et al., 2008). More recent studies in this setting replicated these results; witnessing ethno-political violence was related to greater youth aggression (Boxer et al., 2013; Dubow et al., 2009). In the Palestinian territories, older youth were also more likely to be exposed to political violence (Boxer et al., 2013). In post-war Croatia, greater war exposure also predicted higher aggression in youth (Kerestes, 2006). These studies suggested that political violence was related to aggressive behavior during periods of crisis and in post-conflict contexts.

However, other research reported weak or non-significant findings for the relation between political violence and adolescent aggression. Macksoud and Aber (1996) found that increased war exposure was related to more prosocial behavior among 10 to 16 year olds in Lebanon, but not to aggression. A retrospective study in Palestine found that personal experience of political violence in adolescence did not significantly relate to aggression (Barber, 1999). Blattmann and Annan (2010) found that compared to nonabductees in Uganda, formerly abducted child soldiers were slightly higher on aggressive behaviors, but no more likely to get into fights. One explanation of the difference in findings is that moderators, such as positive family characteristics or gender, may function as protective factors that foster adolescent resiliency.

Gender

In settings of community violence, there are fairly consistent findings that boys and older youth are more likely to report higher exposure to violence and aggressive behavior compared to girls and younger adolescents, respectively (Brookmeyer, Henrich, & Schwab-Stone, 2005; Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009). This trend holds in some studies of political violence in which boys were more likely to fight with others (Baker, 1990) and report greater aggression (Boxer et al., 2013; Dubow et al., 2009; Al-Krenawi & Graham, 2012) than girls. In post-accord Belfast, the link between current sectarian violence and youth aggression was also higher for boys (Merrilees et al., 2013). Yet, gender differences are not consistently found across settings of political violence. In both the Palestinian territories and post-war Croatia, previous research did not show gender differences in the link between political violence and adolescent aggression (Barber, 1999; Kerestes, 2006; Qouta et al., 2008). Therefore, the current study investigated the relation between gender and aggression for adolescents growing up amid political conflict.

Family cohesion

As the most proximal influence for youth in the social ecology (Bronfenbrenner, 1979), the family environment may both exacerbate and buffer the development of adolescent aggressive behaviors in a context of violence. For example, harsh parenting and discipline, high family conflict, and coercive family dynamics have all been shown to relate to greater aggression in young people (Andreas & Watson, 2009; Barber & Buehler, 1996; Boxer et al., 2013; Cummings et al., 2004; Sturge-Apple, Davies, & Cummings, 2010; Underwood, Beron, & Rosen, 2009; Van Ryzin & Dishion, 2013). On the other hand, family support and cohesion, which includes support and prosocial behaviors within the family unit (Moos & Moos, 1994), has been shown to protect youth from greater aggression in the face of community violence (Kliewer et al., 2006; Mazefsky & Farrell, 2005). A construct such as family cohesion can also accommodate complex family structures, including extended families and single-parents, both of which may be more common in settings of political conflict.

Family cohesion may mitigate the impact of exposure to violence on youth aggression in a number of ways (Plybon & Kliewer, 2001). A well-functioning family can provide young people with the emotional resources needed to process daily stress (Andreas & Watson, 2009; Brookmeyer et al., 2005). Positive family environments may also provide examples of prosocial behaviors and constructive social interactions (Bandura, 1973). Family cohesion and support may provide youth with the resources to develop more empathy and perspective-taking, which could buffer them from negative social contexts (Kliewer et al., 2006; Mazefsky & Farrell, 2005). In the Palestinian territories, a cohesive and well-functioning family buffered youth from greater aggression (Baker, 1990; Qouta et al., 2008).

Yet, a good family environment is not a panacea; in high-risk environments, supportive families and exceptional parenting do not always protect adolescents from engaging in more aggressive behavior (Gorman-Smith & Tolan, 1998; Gorman-Smith, Henry, & Tolan, 2004). That is, the severe risks or accumulative stressors in violence-affected communities may require additional means of support outside of the family (Watson, Fischer, Andreas, &

Smith, 2004). These findings suggest that family cohesion should moderate the negative impact of political violence on adolescent aggression; but whether this protective effect holds for youth exposed to greater levels of sectarian violence needs further research.

Protracted Political Conflict in Northern Ireland

Northern Ireland is a key area to study the psychosocial effects of political violence on children and adolescents (Cairns & Dawes, 1996). Historically, the conflict in Northern Ireland is a constitutional dispute between Catholics/Nationalists who want to join the rest of the island of Ireland and Protestants/Unionists who wish to remain part of the United Kingdom (Shirlow & Murtagh, 2006). The most recent episode of political or sectarian violence, known as the Troubles, was formally resolved through political power-sharing outlined in the 1998 Belfast Agreement; however, conflict is still part of the social ecology, leaving Northern Ireland in the precarious position of “no war, no peace” (MacGinty, 2006).

Youth and on-going sectarianism

Politically-motivated sectarian crime, defined as acts perpetrated because of the victims' perceived religion or political opinion (PSNI, 2013b), persists and is particularly harmful for youth (Jarman, 2005). In Northern Ireland, approximately 900 sectarian incidents were reported to the police in 2012 (PSNI, 2013a); these are generally the more serious crimes, such as pipe bombs or attacks on politically-affiliation institutions like Orange Halls or Gaelic Athletic Association buildings (Belfast Telegraph, 2012a; Belfast Telegraph, 2012b), “while `minor' forms of sectarianism, such as verbal abuse, harassment, visual displays, and graffiti are largely unrepresented” in police data (Jarman, 2005, p. 21). This suggests that the levels of sectarian antisocial behavior are higher than reflected in official crime reports and that youth in Northern Ireland are exposed to the “socialization” of sectarian violence (Cairns & Toner, 1993; Shirlow, Taylor, Merrilees, Goeke-Morey & Cummings, 2013). That is, although a formal peace accord has been signed by high-level leaders, sectarianism remains a reality for youth growing up in Belfast.

Youth in Northern Ireland are not merely passive victims of sectarianism, however. For example, young people engage in events around the annual marches in July (McEvoy-Levy, 2006) when protests frequently turn to rioting and violence (BBC News, 2011). One interpretation of these events describes a process of “recreational rioting” because of boredom and lack of facilities (Jarman & O'Halloran, 2001). Because this form of youth antisocial behavior occurs along interface lines, where Catholic and Protestant territories meet, it has the potential to feed wider sectarian violence. An alternative perspective found youth participating in the annual marches and riots were motivated by personal insecurity stemming from vulnerability to violence, political exclusion, and a lack of political voice (McEvoy-Levy, 2006). When looking for an outlet to assert agency and control over their lives, sectarian rioting is both readily available and socially-condoned (McEvoy-Levy, 2006). Although these two studies identified different motivations for youth rioting, both reached similar conclusions: regardless of the intent, by participating in these aggressive acts against the out-group, adolescents perpetuated sectarian conflict (Jarman & O'Halloran, 2001; McEvoy-Levy, 2006).

Current Study

This study utilized a longitudinal dataset with mothers and adolescents living in Belfast, Northern Ireland. Four related research questions informed analyses of individual and family factors to identify predictors and moderators of adolescent aggression and later participation in sectarian antisocial behavior. The first three questions related to *within-person change* in aggression were addressed using multilevel modeling. First, using a model building approach, analyses were conducted to determine the average shape of within-person change in aggression for adolescents in post-accord Belfast. Second, analyses investigated how experience with sectarian antisocial behavior related to aggression during the transition through adolescence, and relatedly, if this relation changed with age. Third, the impact of gender and family cohesion on within-person change in aggression was also examined. Finally, to assess how these within-person changes in aggression related to other outcomes, a multiple regression was used to analyze antecedents of later participation in sectarian antisocial behavior, controlling for relevant individual and family factors. Investigating these developmental and contextual factors addressed important areas of our understanding about between-person differences in within-person change that have not been examined in the political violence literature. The findings may generalize to other settings of protracted intergroup conflict.

Method

Participants and Procedures

Participants included adolescents and their mothers who participated in at least one of four annual waves of data collection in a longitudinal study on political violence and family processes in Belfast ($N = 820$ adolescent/mother dyads). Adolescents were evenly divided by gender (51% female, 49% male) and the mean ages were 13.61 ($SD = 1.99$), 14.66 ($SD = 1.96$), 15.75 ($SD = 1.97$), and 16.83 ($SD = 1.99$) years old across the four time points. At Time 1, mothers were 38.58 ($SD = 6.24$) years old on average; 38% were married or living as married, 59% were in single-parent households, and the remaining 3% did not report marital status. Consistent with the overall population demographics of Northern Ireland, 62% of families identified as Protestant, 37% as Catholic, 1% refused to select either affiliation, and all participants were White.

Between any two time points, 80% to 87% of the families returned. Eighty percent of the families from Time 1 participated at Time 2, 81% from Time 2 to Time 3, and 87% from Time 3 to Time 4. These rates are at the higher end of the range of retention with high-risk samples (e.g., Betancourt et al., 2010; Browning, Burrington, Leventhal, & Brooks-Gunn, 2008). Exploring some of the patterns of retention, of the families in the sample at Time 1, only families with lower cohesion scores were less likely to return at Time 2 ($t(750) = -2.62, p < .01$; retained: $M = 6.55, SD = 1.81$; attrited: $M = 6.11, SD = 1.88$). There were no significant differences at Time 2 between families that did and did not participate at Time 3. Families were less likely to participate in Time 4 if at Time 3 youth were exposed to more sectarian antisocial behavior ($t(573) = -3.67, p < .001$; retained: $M = 5.54, SD = 9.05$; attrited: $M = 2.47, SD = 6.31$), or if the adolescents were more aggressive ($t(587) = 5.78, p < .001$; retained: $M = 4.22, SD = 8.84$; attrited: $M = 1.14, SD = 3.19$).

An expert demographer identified neighborhoods that were ethnically homogenous (over 90% Catholic or Protestant; NINIS, 2011), socially-deprived, and had experienced different levels of historical and current politically-motivated violence in Belfast (Shirlow & Murtagh, 2006). The study areas were selected to obtain a representative sample of Catholics and Protestants and variation in levels of sectarian violence, while limiting socio-economic differences. All study areas were among the 25% most socially deprived electoral wards (Multiple Deprivation Rank; NISRA, 2011). Within these 25 targeted neighborhoods, approximately 35 families were contacted using stratified random sampling. Families with a child between the ages of 10 and 17 years were eligible. Youth in this age range may be more likely to experience sectarian violence as observers, victims, or participants (Jarman, 2005), and would have largely grown up in a post-1998 Belfast Agreement period. The youngest sibling interested was recruited in order to retain as many youth in the target age range during the course of the study.

Professional interviewers conducted in-home surveys with adolescents and mothers that lasted approximately 45 minutes and 1 hour, respectively. Participants provided consent and assent, and families received £40 at Times 1 and 2 and £50 at Times 3 and 4 to encourage retention. The study had IRB approval at all participating universities.

Measures

Sectarian antisocial behavior (expSAB)—The experience with sectarian antisocial behavior scale was developed in a culturally-informed manner through focus groups (Taylor et al., 2011) and a two-wave pilot test in Northern Ireland (Goeke-Morey et al., 2009). Discriminant (e.g., compared to non-sectarian antisocial behavior) and predictive validity of youth outcomes has been established (Goeke-Morey et al., 2009). This scale included youth exposure to politically-motivated events such as *name calling by people from the other community* and *stones or objects thrown over walls*. Youth reported on the frequency of exposure to 12 items over the past three months using a 5-point Likert scale from 0 = “*not in the last 3 months*” to 4 = “*every day*”. Internal consistency of this scale was excellent in the original sample ($\alpha = .94$) and the current study across the four time points ($\alpha = .96, .98, .94$, and $.91$).

Family cohesion (FES)—To reduce potential mono-reporter bias, mothers reported on the family cohesion subscale on the Family Environment Scale (FES; Moos & Moos, 1994). This subscale evaluates the strengths and weaknesses of the family unit, has content and face validity (Moos, 1990), and has been widely used internationally with adolescent samples (Boyd, Gullone, Needleman, & Burt, 1997; Charalampous, Kokkinos, & Panayiotou, 2013). Participants reported whether statements were 1 = “*true*” or 0 = “*false*” on a 9-item family cohesion subscale. Sample items include: *people in my family really help and support one another* and *people in my family really back each other up*. Given the stability of this construct overtime in the sample, composite scores summed mother reports within each time point and averaged across all available measurement occasions for the family. The internal consistency of the family cohesion scale combined over the four time points was acceptable (Kuder-Richardson $\alpha = .74$).

Aggression scale (AGR)—This scale was developed to measure overt and direct acts of physical and psychological aggression in early adolescence and showed high internal consistency and test-retest stability, properties that did not vary by gender, ethnicity, or grade level (Orpinas & Frankowski, 2001). Youth self-reports were positively correlated with other predictors of aggression, as well as with teachers' independent rating of student aggression (Orpinas & Frankowski, 2001). The scale has been used internationally and with high-risk populations in the U.S. (Kim, Orpinas, Kampaus, & Kelder, 2011; Lopez & Orpinas, 2012). The 11-item scale includes items such as *I encouraged other students to fight* and *I got into a physical fight because I was angry*. Participants indicated how many times those statements applied to them over the previous week on a 7-point Likert scale from 0 = “none” to 6 = “more than 6”. The internal consistency was good to excellent across the four time points (Cronbach's $\alpha = .90, .89, .89, \text{ and } .80$).

Participation in sectarian antisocial behavior (pSAB)—Adolescents completed 10 items indicating the frequency of their participation in sectarian (i.e., intergroup) antisocial behavior at the last time point. To develop this measure, a contextually-relevant list of possible sectarian acts was drawn from sources developed in Northern Ireland (Goekemorey et al., 2009; McCrystal, Percy, & Higgins, 2007; Taylor et al., 2011), including the Belfast Youth Development Survey (BYDS) which has been validated for a wide-range of constructs, such as youth delinquency (BYDS, 2013). For the pSAB scale, items were adapted to directly address perpetrating acts, as compared to witnessing or being the victims of such acts. A range of intensities of out-group acts were included because previous studies have suggested that low-level teasing or name-calling can escalate into stone throwing and even rioting (Jarman & O'Halloran, 2001). Past research also suggests that although base rates may be low, adolescents do report having committed delinquent and sectarian acts (McCrystal et al., 2007; Merrilees et al., 2013). For this scale, participants indicated how often in the past year they had done each of the target items to “get at someone from the other community.” Possible responses were on a 4-point Likert scale from 0 = “rarely” to 3 = “very often”. Sample items included wear a football jersey to taunt/provoke people from the other community and *throw stones or other objects over walls*. Adolescents reported on this scale at Time 4 with good internal consistency (Cronbach's $\alpha = .86$).

Data Analytic Plan

Multilevel modeling is a preferred method of analyzing longitudinal data because it accounts for the hierarchical structure of repeated measures (Raudenbush & Bryk, 2002). In multilevel modeling, change over time is conceptualized as each individual having a true underlying trajectory which can be measured using observed variables (Loehlin, 2004). The true trajectory can be estimated by individual growth parameters such as the intercept, linear slope, and quadratic slope. The hierarchical linear modeling (HLM) software (Raudenbush, Bryk, Cheong, & Congdon, 2004) employs full information maximum likelihood (FILM) estimation which accurately estimates parameters given that data are missing at random (Graham, 2009). The HLM software also produces robust standard errors, which can compensate for possible violations of the non-normality assumption of FILM in multilevel modeling (Newsom, 2013).

In HLM, all constructs are modeled as manifest variables, which is appropriate for frequency/count variables and scales with good internal consistencies. The Level 1 variables represent the within-person constructs; in this case, those that vary with age. The Level 2 equations represent the between-person elements. The coefficients from Level 1 are regressed onto the Level 2 predictors; this cross-level interaction examines if between-person factors affect differences in within-person change. That is, with longitudinal designs, the growth trajectory or within-person change, may interact with the participant's other characteristics, such as gender or family environment. A Monte Carlo simulation of a multilevel model with a moderate cross-level interaction found that HLM was more efficient at estimating these effects, even under non-normality, compared to a latent variable growth curve modeling approach (Zhang, 2007).

Model building—Nested models (i.e., when the full/more complex model is identical to the restricted/less complex model by constraining parameter values to 0) were compared using the chi-square difference test (Singer & Willet, 2003). The primary advantage of using a model building approach was to help identify if a more parsimonious structural growth model was appropriate for the data (e.g., that the linear change model fit as well as the quadratic growth model).

Proposed model tests—Addressing the first research question, a series of unconditional models were estimated to determine the most appropriate base model of change in aggression for youth in Belfast, with time modeled as age (10 to 20 years old). From the unconditional means or intercept-only model (Model A), we calculated the intra-class correlation coefficient (ICC) which provided a numerical assessment of the magnitude of the relative proportion of the between-person variation (σ_0^2) compared to the total variation (between + within, or $[\sigma_0^2 + \sigma_\epsilon^2]$). A large ICC, over .30 in small group and family research (Hox, 2002), indicates sufficient between-person variation to proceed to explore multilevel models. Next, the linear slope (Model B) and quadratic change (Model C) models were compared. To facilitate interpretation (Singer & Willet, 2003), age was centered on the grand mean; thus the growth parameters could be understood as the pattern of change for the average-aged adolescent. In these models, within-person change was represented by the growth parameters: an adolescent's expected level of aggression at the grand mean, or age 15 (intercept, β_0), change in aggression with age (linear slope, β_1), and curvature of change (quadratic slope, β_2).

Given the base growth model, substantive predictors were added as fixed effects at Level 1 to address the second research question (Singer & Willet, 2003). Experience with sectarian antisocial behavior was added as a time-varying covariate (Model D), which is recommended for variables that change with time, but not necessarily in a linear fashion. Centered on the individual's mean, this parameter was interpreted as the average strength of the relation between experience with sectarian antisocial behavior and aggression for a particular individual. Model D examines the concurrent impact of experiences with sectarian antisocial behavior on youth aggression. Next, to address if this relation changed with age, interaction term was added (Model E). The interaction term was calculated by the product

term of the individual-centered experience with sectarian antisocial behavior and age for each person in the study. Model E examines if the impact of experience with sectarian antisocial behavior on aggression changes with age.

To answer the third research question about the impact of between-person factors on trajectories of aggression, gender and family cohesion were included in a set of conditional models. At Level 2, these between-person factors were potential moderators of within-person changes in aggression through adolescence. In Model F, adolescent gender was added as a time-invariant predictor (male=0, female=1); that is, this model examined the potential gender differences in the within-person change in aggression. Finally, in Model G, mother's report of family cohesion was conceptualized as a stable ambient predictor; that is, as a construct that provides a consistent and steady context of support or risk. Skinner and colleagues (1998) describe how this approach is useful when concerned with "the influence of social contexts or social context transitions on individual development..." in particular, for situations in which a "favorable early environment is *not* sufficient to support a positive trajectory over time, unless the *environment continues to provide* at least a threshold level of subsequent support" (p. 31, emphasis added). That is, ambient support is distinguishable from a launch predictor, or one that is sufficient early on to promote positive development in the future. For example, in the current study a launch predictor would be modeled by including only the first time point of mother report of family cohesion. However, the stable ambient approach assumes that the protective factor, in this case a cohesive family environment, must be sustained over the course of development to have a positive effect on youth outcomes. This theoretical conceptualization was also supported empirically; the linear slope of FES was non-significant which suggested there was no average within-person change in family cohesion. Moreover, the between-person rankings in family cohesion were stable given the medium to high correlations over time ($r = .32$ to $.48$, all $p < .001$). Thus, family cohesion averaged across all time points was added at Level 2 (Model G).

To address the final research question, the results from the multilevel analyses were included in a separate multiple regression test in SPSS. HLM could not be used to assess relations with this outcome variable, because participation in sectarian antisocial behavior was only measured at the last time point. Therefore, using the residuals from the final model, the specific parameter estimates for each individual were computed by combining the overall estimates of the intercepts and slopes (i.e., average across all individuals in the study) with the ordinary least squares residuals for each person (i.e., his/her variation from the average estimate). This computation represents the person-specific estimate of the growth parameters. These estimates, along with the controls of gender, family cohesion, and experience with sectarian antisocial behavior, were entered as predictors of participation in sectarian antisocial behavior at Time 4. Thus, the multiple regression test examined the extent to which the within-person change in aggression (i.e., the intercepts and slopes) and between-person characteristics (i.e., gender and family cohesion) related to participation in sectarian antisocial behavior.

Results

Preliminary Analyses

Means, standard deviations, ranges and bivariate correlations for all study variables are included Table 1. A series of independent t-tests were conducted to compare study variables by gender; a Bonferroni correction for the 22 tests was set at $p < .002$. There were only three significant gender differences. Boys reported more aggression than girls at age 15 ($t(401) = -3.99, p < .001$; boys: $M = 3.94, SD = 6.73$; girls: $M = 1.66, SD = 4.60$) and age 16 ($t(373) = 3.75, p < .001$; boys: $M = 3.50, SD = 5.59$; girls: $M = 1.60, SD = 4.09$). Boys also reported significantly more participation in sectarian antisocial behavior compared to girls ($t(583) = 10.70, p < .001$; boys: $M = 4.65, SD = 5.54$; girls: $M = 0.98, SD = 2.06$). The overall lack of systematic gender differences should be noted.

To understand the relation between *experience* of and *participation* in sectarianism an exploratory factor analysis was conducted at Time 4. This analysis indicated that there were two distinct factors; that is, items from one scale only loaded on the primary construct and did not cross-load on the other factor. Given that these are two distinct constructs, the correlation between the two scales was examined at Time 4 ($r = .23, p < .01$) indicating a small to medium relation between experience of and participation in sectarianism.

Finally, the intra-class correlation coefficient (ICC) for the outcome variable of aggression was calculated: $ICC = \sigma_0^2 / [\sigma_0^2 + \sigma_\varepsilon^2] = 12.789 / (12.789 + 17.704) = .42$. This suggested that approximately 40% of the variance was due to between-person differences and justified multilevel models.

Unconditional Models

Following the first research question the intercept-only (Model A), linear (Model B) and quadratic (Model C) models were estimated to determine the most parsimonious growth model for aggression in adolescence. The linear slope (Model B), with random intercept and slope parameters, fit significantly better than the intercept-only model ($\chi^2(3) = 410.99, p < .05$, Table 2), and the quadratic model (Model C) did not fit significantly better ($\chi^2(4) = -599.57, ns$) than the linear model. Thus, Model B was retained. This linear slope model suggested the level of aggression decreased with age on average ($\beta_1 = -.58, p < .001$).

Addressing the second research question, substantive predictors were added to the linear model to test how person-level factors influenced youth aggression. In Model D, frequency of youth experience with sectarian antisocial behavior was added to Level 1. In Model E, youth experience with sectarian antisocial behavior and the interaction term with age were added at Level 1. Model E was the better fitting model compared to Models D ($\chi^2(1) = 11.03, p < .05$) and B ($\chi^2(2) = 139.91, p < .05$). Thus Model E was retained. The coefficients of Model E suggest a positive relation between experience with sectarian antisocial behavior and aggression within a given time point ($\beta_2 = 0.20, p < .001$), and that this effect weakened over time at the trend level ($\beta_3 = -0.02, p < .10$). That is, the impact of exposure to sectarian violence on adolescent aggression weakened as youth aged. This

significant interaction was depicted in Figure 1 with lines graphed at the average level of experience with sectarian antisocial behavior ($\pm 1 SD$).

Conditional Models

Related to the third research question, in Model E there remained significant variability in the intercepts ($\zeta_{0i} = 15.47, p < .001$) and slopes ($\zeta_{1i} = 0.90, p < .001$); therefore, variables were added to Level 2 to assess possible between-person differences in these parameters. Adolescent gender was added (Model F), which significantly improved model fit ($\chi^2(4) = 33.74, p < .05$). Adding gender to Level 2 suggests differences in intercepts between boys and girls ($\gamma_{01} = -1.45, p < .001$). Boys were higher in aggression compared to girls, but gender did not significantly predict differences in the other Level 1 factors such as exposure to sectarian violence or changes in aggression with age (Curran, Bauer, & Willoughby, 2006).

Family cohesion was also added as a Level 2 predictor (Model G) and fit significantly better than Model F ($\chi^2(4) = 18.59, p < .05$). In families with greater cohesion, there was a weaker relation between exposure to sectarian antisocial behavior and youth aggression ($\gamma_{22} = -0.08, p < .05$; Figure 2). Family cohesion did not significantly affect the other Level 1 predictors. In summary, Model G supported the overall decline in aggression on average for both boys and girls, despite higher levels for boys, and the buffering role of family cohesion on the link between experience with sectarian antisocial behavior and aggression (Table 2).¹

Model G:

$$\text{Level 1: } AGR_{ij} = \beta_{0i} + \beta_{1i} AGE_{ij} + \beta_{2i} expSAB_{ij} + \beta_{3i} expSAB_{ij} * AGE_{ij} + \varepsilon_{ij} \quad (9)$$

$$\text{Level 2: } \beta_{0i} = \gamma_{00} + \gamma_{01} GEN_i + \gamma_{02} FES_i + \zeta_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11} GEN_i + \gamma_{12} FES_i + \zeta_{1i}$$

$$\beta_{2i} = \gamma_{20} + \gamma_{21} GEN_i + \gamma_{22} FES_i$$

$$\beta_{3i} = \gamma_{30} + \gamma_{31} GEN_i + \gamma_{32} FES_i$$

Predicting Participation in Sectarian Antisocial Behavior

Investigating the final research question, a multiple regression test was conducted to predict participation in sectarian antisocial behavior ($F(4,562) = 34.08, p < .001$; Table 3). Greater

¹After adding the Level 2 predictors, the interaction term of experience with sectarian antisocial behavior by age on aggression became significant at the $p < .05$ level and the linear trajectory, or decline in aggression with age, became significant at the trend level.

family cohesion ($\beta = -.18, p < .001$) and being a girl ($\beta = -.38, p < .001$) were related to fewer self-reported incidents of acting out against the other group. On the other hand, experience with sectarian antisocial behavior was positively related to participation in sectarian acts ($\beta = .23, p < .001$). Moreover, changes in aggression, both the intercept ($\beta = .13, p < .01$) and the slope ($\beta = .13, p < .01$), predicted greater participation in sectarian antisocial behavior. That is, youth with higher intercepts of aggression, and those with either more positive slopes in aggression or less steep declines in aggression with age, participated in more violent or disruptive acts against the out-group. This analysis suggested that changes in adolescent aggression may have harmful effects on intergroup conflict.

Discussion

This paper investigated the conditions under which a violent environment produces violent youth, and how youth in turn may prolong intergroup conflict. Improving on previous work (Barber 2009; Blattmann & Annan, 2010; Kerestes, 2006; Qouta et al., 2008), the current study utilized a prospective, longitudinal dataset with multiple reporters; advanced statistical models explored new questions about between-person differences in within-person change in aggression for adolescents living in a setting of political conflict. Following calls for studies across developmental periods and measuring different levels of the social ecology (Fowler et al., 2009; Salzinger et al., 2002), this study investigated the relation between experience with sectarian violence and aggression in adolescence. It then considered how individual trajectories of aggression were influenced by different individual and family factors, and how the trajectories in turn related to youth participation in sectarian antisocial behaviors. The findings may be relevant to our broader understanding of the intersection of family environment, violence exposure, and adolescent aggression in contexts of protracted intergroup conflict.

The Violence-Aggression Link

With respect to the first and second research questions, experience with sectarian antisocial behavior related to greater aggression across adolescence. However, the impact of sectarian threat weakened with age, consistent with more recent studies on the link between witnessing ethno-political violence and youth aggression (Boxer et al., 2013). Although boys also had higher intercepts of aggression than girls, the average decline in aggression was the same across gender. This set of findings offers an optimistic outlook: with age, youth are better able to refrain from committing aggressive acts. Consistent with previous research (Guerra & Huesmann, 2004; Tremblay, 2000; Kim et al., 2011), increased social skills and regulatory behaviors acquired with age could be at work for young people in Belfast. Yet, as found in other studies, there was also significant variability around the linear slope (Underwood et al., 2009); that is, although aggression decreased with age on average, individuals in this study also had different trajectories across adolescence. This variability across individuals calls for further investigation on between-person factors that may influence the developmental processes related to aggression in adolescence.

A Protective Family Environment

The current study found that a cohesive family environment in which members support and care for one another mitigates the harmful impact of sectarian violence on youth aggression. Family cohesion may promote emotion regulation and cognitive skills youth need to cope with sectarian threat (Andreas & Watson, 2009; Brookmeyer et al., 2005). These findings are consistent with previous research that has found high-risk youth with more family cohesion and less conflict may be less likely to develop aggression (Andreas & Watson, 2009; Kliwer et al., 2006; Plybon & Kliwer, 2001). The findings suggest that the positive link between experience sectarian antisocial behavior and youth aggression is attenuated in strongly-knit and emotionally-supportive families.

Perpetuating Intergroup Conflict

The final outcome of interest was youth participation in sectarian antisocial behaviors that prolong intergroup conflict. Girls and youth living in a more cohesive family environment were less likely to act out against the 'other' community. Experience with sectarian antisocial behavior and changes in aggression predicted greater participation in sectarian antisocial behaviors. That is, reporting higher aggression (i.e., which could be directed at any target) was related to greater sectarian acts (i.e., directed specifically at out-group members) that could perpetuate intergroup conflict.

An advance of the current study was the explicit measurement of participation in out-group or sectarian antisocial behavior. Although there is increasing attention to the role of aggression among adolescents in settings of political violence (e.g., Boxer et al., 2013; Dubow et al., 2009; Qouta et al., 2008), few studies have explicitly measured hostility toward the out-group. Two notable exceptions include Merrilees and colleagues (2013), which found that stronger in-group identification increased the positive link between experiencing sectarian threat and acting out against the 'other' group in Northern Ireland, and McCouch's (2009) work in which youth exposed to political violence were more likely to participate in antisocial criminal acts in post-war Bosnia. Together with these studies, the current findings suggested that by participating in sectarian antisocial behaviors, intentionally or unintentionally, youth reproduced intergroup conflict (Jarman & O'Halloran, 2001; McEvoy-Levy, 2006).

Our results supported the line of research documenting personal-contextual transactions through development (Sameroff, 2000); that is, in which the individual also exerts influence over his/her social surroundings. These findings diverged from previous research that suggested that violence "seems more likely to be unidirectional from context to person" (Boxer et al., 2013, p. 12), perhaps in part, because the current study investigated not only aggression, but also specifically participation in antisocial behaviors against the out-group. This paper suggested that youth were not merely passive individuals being acted upon by external forces, but identified the destructive impact that young people may have on the world around them. These results may generalize to other settings of political conflict with large young populations.

Limitations and Future Research

Despite this paper's methodological and statistical advantages over past work, future research may address some of the current study's constraints and extend the findings in a number of important ways. First, youth participation in sectarian antisocial behavior was only asked at the final time point of measurement, which limits the ability to control for previous participation. Future research should also consider the relation between general aggression and acts directed at the out-group overtime. Second, because of the heterogeneity of developmental processes underlying different aspects of externalizing problems, future research could consider related outcomes such as delinquency, substance use, or criminality. Studying the co-morbidity of aggression along with other forms of psychopathology may have clinical implications for designing prevention and intervention programs.

Third, to complement the study of family cohesion, other family processes that may predict developing aggression problems should be included. Past research has found that parenting, such as behavioral control and warmth, marital conflict, parental aggression, harsh discipline, low monitoring, coercive family dynamics, and family enmeshment may all play a role in youth externalizing and broader adjustment problems (Andreas & Watson, 2009; Barber & Buehler, 1996; Boxer et al., 2013; Sturge-Apple et al., 2010; Underwood et al., 2009; Van Ryzin & Dishion, 2013). Family or parental ideology and history of activism or participation in sectarian antisocial behavior may also be a fruitful area of research (Kuhn, 2004). Future research should compare the impact of multiple family processes on the development of adolescent antisocial behavior.

Fourth, although two reporters were used in the model test, future research could look to replicate findings with teacher or peer reports. In adolescence, peer relations become increasingly important. The association with deviant peers and/or participation in gangs may further explain the changes in aggression during this key developmental period (Thornberry, et al., 1993; Kuhn, 2004; Kurlychek et al., 2012; Maimon & Browning, 2012; Martino et al., 2008). Moreover, future research should consider the dynamic interaction among family and peer relations in the link between adolescent aggression and violence and criminality in adulthood (Van Ryzin & Dishion, 2013).

Finally, future research should replicate this study in other situations of political violence. That is, the majority of the research on the relation between violence and the development of aggression has been examined in the U.S. (Fowler et al., 2009; Salzinger et al., 2002; for an exception see Broidy et al., 2003). However, past research has shown differential processes between community (i.e., nonsectarian) violence and political (i.e., sectarian) violence in settings of protracted intergroup conflict (Goeke-Morey et al., 2009; Cummings et al., 2011). Therefore, the extent to which protective and risk processes generalize to settings of political conflict, particularly from a developmental perspective, should continue to be explored.

Intervention Implications

This study was timely given the increase of political conflict around the globe (Harbom & Wallensteen, 2007), the expanding youth populations in these contexts (Nordas &

Davenport, 2011), and the growing literature on prevention and intervention programs aimed at decreasing adolescent aggression in the context of political violence (see Tol et al., 2010). Moreover, the current analyses extend previous findings from the community violence literature to settings of political conflict. This is an important step, because “for adolescents embroiled in conflict and emergency situations, a lack of peace and security exacerbates the difficulties of growing into adulthood;... there is simply insufficient data to adequately assess the circumstances of the world's children” (United Nations, 2011, p. 10).

Toward more targeted clinical interventions, the inclusion of between-person moderators helped to identify subgroups in the population that may be vulnerable to increased aggression problems in adolescence (Loeber & Stouthamer-Loeber, 1998). Boys and those from families with less cohesion may be at greater risk for aggression and more likely to participate in sectarian antisocial behavior. In addition, the time-varying covariate suggested there is a positive link between aggression and of experience with sectarian antisocial behavior; these forms of sectarian threat may be higher for youth living alongside interface zones or in neighborhoods that experienced high death rates during the Troubles (Shirlow & Murtagh, 2006). Initiatives could include more coordinated efforts to provide social services and facilities to youth (Jarman & O'Halloran, 2001) and to create opportunities for political voice and expression (McEvoy-Levy, 2006).

These findings support a more integrated intervention approach that includes strengthening families to help children and adolescents cope with stressors such as experience with sectarian antisocial behavior. Such family-focused studies have been shown to be a cost-effective form of violence prevention (Greenwood, 2004). Promoting family cohesion, or increased parental support (Slone & Shoshani, 2008), may help to buffer youth from political violence. The importance of finely tuning intervention programs for the most vulnerable young people also highlights the need to work in collaboration with community partners familiar with local dynamics (see Qouta & El-Sarraj, 2002). The findings from this study may inform future interventions with youth and their families that aim to reduce adolescent aggression, which in turn may prolong intergroup conflict, particularly in settings of political violence (de Rivera, 2003; Peltonen & Punamäki, 2010; Qouta et al., 2008).

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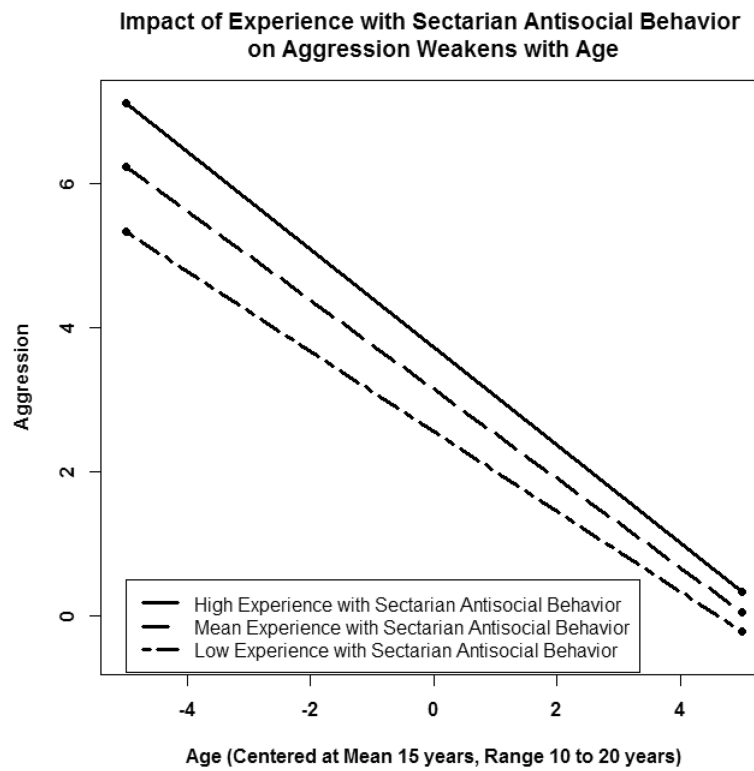


Figure 1.

Hierarchical linear modeling (HLM) two-way interaction plot of experience with sectarian antisocial behavior and age on youth aggression. On the X-axis, youth age was centered on the grand mean, 15 years old, and spanned from -5 (10 years old) to $+5$ (20 years old). Lines were plotted at the mean ($\pm 1 SD$) of experience with sectarian antisocial behavior. As youth aged, the positive association between experience with sectarian antisocial behavior and aggression weakened.

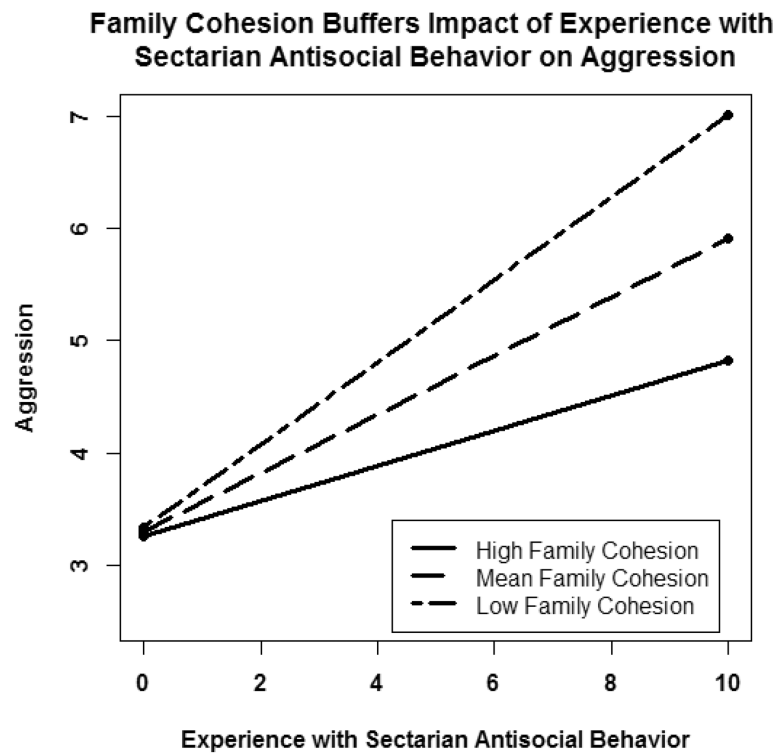


Figure 2. HLM two-way interaction plot of family cohesion and experience with sectarian antisocial behavior on youth aggression. Lines were plotted at the mean ($\pm 1 SD$) of family cohesion. Higher family cohesion buffered youth from the positive association between experience with sectarian antisocial behavior and aggression; that is, a more cohesive family protected adolescents from more aggression when they were exposed to higher levels of sectarian antisocial behavior.

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Table 1

Means, Standard Deviations, Ranges and Correlations (N=820)

Variables	M	SD	Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
1 Female																														
2 Catholic																														
3 FES ^m	6.61	1.39	1–9	.06	.30***	-																								
4 expSAB10	2.21	5.51	0–30	-.01	.14	-.11	-																							
5 expSAB11	4.26	8.85	0–37	.15	.23*	.12	.75***	-																						
6 expSAB12	4.12	8.44	0–43	-.03	.02	-.10	.88***	.76	-																					
7 expSAB13	4.31	8.69	0–45	-.11	.12*	-.01	.03	.64***	.26***	-																				
8 expSAB14	4.38	8.48	0–45	-.15*	.06	-.03	-	.07	.48***	.69***	-																			
9 expSAB15	3.87	7.61	0–36	-.07	.14**	.02	-	.12	.70***	.63***	-																			
10 expSAB16	3.77	7.57	0–48	-.10	.13*	.11*	-	-	.43***	.39***	.69***	-																		
11 expSAB17	2.32	5.88	0–34	-.15**	-.02	.07	-	-	.18	.31***	.40***	-																		
12 expSAB18	1.41	4.14	0–29	-.09	.07	.11	-	-	.50***	.47***	.50***	-																		
13 expSAB19	1.82	4.54	0–29	-.14	.16	.13	-	-	.27*	.34***	.47***	-																		
14 expSAB20	1.49	4.12	0–22	-.11	.29*	-.11	-	-	.36**	.25	.64***	-																		
15 AGR10	2.14	4.15	0–21	-.06	.05	.19	.12	-.07	-.10	.29	-	-																		
16 AGR11	2.84	6.47	0–32	.12	.06	-.09	-.05	.38***	.45***	.03	.03	-							.18	-										
17 AGR12	2.94	6.70	0–36	-.06	.07	-.12	-.09	.27*	.48***	.07	.16	-.05							-.12	.85***	-									
18 AGR13	2.69	5.33	0–33	-.16***	.23***	.01	-.06	-.01	.06	.40***	.31***	.33***	.13						.10	.49***	.47***	-								
19 AGR14	3.64	7.09	0–44	-.16***	.09	-.05	-	-.06	.09	.43***	.52***	.37***	.24***	.15					.27	.19*	.52***	-								
20 AGR15	2.75	5.83	0–48	-.20***	.08	.03	-	-	.00	.35***	.29***	.29***	.16**	-.05	.02				.06	.29***	.54***	-								
21 AGR16	2.56	4.99	0–38	.19***	.09	.00	-	-	-	-.04	.31***	.22***	.28***	.16*	.10	-.13			.40***	.65***	.01	.40***	.65***	-						
22 AGR17	1.01	3.19	0–33	-.14*	.07	.04	-	-	-	-	-.03	.05	.16*	.24***	.09	-.01	.32*		-	-	-	-.02	.10	.35***	-					
23 AGR18	.57	2.82	0–34	-.17**	.12	-.02	-	-	-	-	-	.20	.11	.06	.07	.01	.31*		-	-	-	-	.12	.11	.71***	-				
24 AGR19	.40	1.97	0–18	-.13	.02	-.12	-	-	-	-	-	-	.05	.18	.24**	.10	.14		-	-	-	-	-	.32***	.19*	-.04				
25 AGR20	.29	1.18	0–8	-.18	.18	-.19	-	-	-	-	-	-	.62***	-.07	.80***	.75***			-	-	-	-	-	.39**	.35*	-.05				

Variables	<i>M</i>	<i>SD</i>	<i>Range</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
26 pSAB	2.78	4.53	0-27	-.41***	-.14***	-.19***	-.09***	-.15	-.04	-.12	-.15*	-.03	.17***	.18***	.12	.04	-.11	-.07	-.09	.01	.05	.01	.26***	.37***	.05	.04	.03	-.11

Note:

* $p < .05$.

** $p < .01$.

*** $p < .001$.

M = mother report; all other adolescent report. FES = family cohesion; expSAB = experience with sectarian antisocial behavior; AGR = aggression; pSAB = participation in sectarian antisocial behavior. Two-digit numeric ending indicates adolescent age (e.g., expSAB10 = 10-year-old adolescent report of experience with sectarian antisocial behavior).

Table 2
 Estimates of Multilevel Models of Change in Aggression among Youth in Belfast (N=820)

Level 1 Parameter	Unconditional Models						Conditional Models		
	Level 2 Parameter	Model A Intercept-Only	Model B Linear Slope	Model C Quadratic	Model D expSAB	Model E expSAB * Age	Model F Gender	Model G Fam. Cohesion	
Initial Status (β_{0i})									
Intercept	γ_{00}	3.44***	2.541*** (0.160)	2.339*** (0.144)	2.545*** (0.163)	2.554*** (.164)	3.293*** (.232)	3.463*** (0.931)	
Female	γ_{01}						-1.454*** (.324)	-1.458*** (0.325)	
Cohesion	γ_{02}							0.026 (0.130)	
Rate of Change (β_{10})									
Intercept	γ_{10}		-0.582*** (0.054)	1.638** (0.552)	-0.544*** (0.051)	-0.554*** (0.052)	-0.605*** (0.080)	-0.444 ^I (0.258)	
Female	γ_{11}						0.112 (0.111)	0.128 (0.110)	
Cohesion	γ_{12}							-0.025 (0.041)	
Curvature of Change (β_{2a0})									
Intercept	γ_{2a0}			-0.068*** (0.017)					
Experience with sectarian antisocial behavior (expSAB) as Fixed-but-varying Covariate (β_2)									
Intercept	γ_{20}				0.209*** (.033)	0.195 (.032)	0.220*** (0.026)	.766** (0.231)	
Female	γ_{21}						-0.051 (0.038)	-0.070 (0.060)	
Cohesion	γ_{22}							-0.076* (0.060)	
Experience with sectarian antisocial behavior (expSAB) * Age Interaction (β_3)									
Intercept	γ_{30}					-0.021 ^I (.011)	-0.024* (.011)	0.041 (.061)	
Female	γ_{31}						0.003 (0.015)	0.007 (.022)	
Cohesion	γ_{32}							-0.010 (0.010)	
<i>Model Fit Comparisons</i>									
Deviance ^I		14,567.73	14,156.74	14,756.31	14,027.	86,14,016.83	13,983.09	13,964.50	
# of Parameters		3	6	10	7	8	12	16	

Note. β indicates a Level 1 parameter; γ indicates a Level 2 parameter; the subscript “i” indicates a random variable and all others are fixed. Standard errors reported in parenthesis under coefficient estimates.

^I Deviance (-2LL) calculated based on complete data.

.100' < .001.

p < .01;
**
'50' < p < .05;
*
'10' < p < .1

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Table 3

Multiple Regression Predicting Participation in Sectarian Antisocial Behavior (N = 552)

Variable	<i>B</i>	<i>SE B</i>	β
Constant	6.16	1.78	
Age	0.14	0.09	0.06
Gender	-3.43	.34	-.38***
Experience with Sectarian Antisocial Behavior	0.20	0.03	0.23***
Family Cohesion	-0.67	.14	-0.18***
Intercept of Aggression	0.10	0.03	0.13**
Linear Slope of Aggression	0.22	0.07	0.13**
R ²		0.27	
F		34.08***	

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

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