Published in final edited form as:

Dev Psychopathol. 2013 August ; 25(3): 615–627. doi:10.1017/S0954579413000059.

Longitudinal Relations between Sectarian and non-Sectarian Community Violence and Child Adjustment in Northern Ireland

E. Mark Cummings,

University of Notre Dame

Christine E. Merrilees,

University of Notre Dame

Laura K. Taylor,

University of Notre Dame

Peter Shirlow,

Queens University, Belfast

Marcie C. Goeke-Morey, and

Catholic University of America

Ed Cairns

University of Ulster

Abstract

Although relations between political violence and child adjustment are well-documented, long-term longitudinal research is needed to adequately address the many questions remaining about the contexts and developmental trajectories underlying the effects on children in areas of political violence. The present study examined relations between sectarian and non-sectarian community violence and adolescent adjustment problems over four consecutive years for mother-child dyads (total $N = 1015$, 485 boys, 517 girls) living in socially deprived neighborhoods in a context of historical and ongoing political violence, that is, Belfast, Northern Ireland. Both sectarian and non-sectarian community violence predicted youth adjustment across four years, consistent with the hypothesis that both of these elements of the social ecology merit consideration with regard to children's well-being in contexts of political violence. The impact of sectarian community violence on adolescent adjustment was further accentuated in neighborhoods characterized by higher crime rates. Discussion considers the implications for evaluating social ecologies pertinent to the impact of political violence on children.

Keywords

Community violence; child maladjustment; longitudinal; sectarian conflict; inter-ethnic conflict

There is increasing concern worldwide with regard to the adjustment of children exposed to political violence (Feerick & Prinz, 2003). Research has documented the risk for adjustment problems in children growing up in contexts of political violence (Belsky, 2008; Garbarino & Kostelny, 1996; Sagi-Schwartz, 2008). Longitudinal research is rare with few studies systematically examining trajectories of relations over multiple time points. Addressing these gaps in research on relations between political violence and child adjustment, the present study examines relations between sectarian and non-sectarian community violence and adolescent adjustment over multiple time points, that is, four consecutive years, in Belfast, Northern Ireland, a community that has experienced protracted political violence.

A social ecological model calls attention to the importance of understanding the impact of the social context of political violence on children, including the effects of community violence on trajectories of child adjustment (Cummings, Goeke-Morey, Schermerhorn, Merrilees & Cairns, 2009; Dubow, Huessmann, & Boxer, 2009). In developmental research there has been a tendency to overlook the effects of neighborhoods and community contexts on child development (Shinn & Toohey, 2003). Yet, a growing body of research indicates that children's development is affected by neighborhood characteristics (Leventhal & Brooks-Gunn, 2000). Neighborhoods are geographically relatively small, bounded, and symbolically influenced spaces, meaningful to residents, and relatively stable over time (Ward, 2010). Moreover, the impact of neighborhood on adjustment is arguably more important for less mobile and higher risk groups (e.g., economically and socially deprived groups, the young and elderly) (Ward, 2010).

A social ecological model provides a framework for conceptualizing the effects of neighborhood crime and community violence on child adjustment (Bronfenbrenner, 1979; Cicchetti & Lynch, 1993; Elliot et al., 1996; Salzinger et al., 2002), specifying the multiple overlapping environments in which an individual develops. Developmental and family researchers have focused on the child's immediate environment, including the family system. Considerably less research has focused on the neighborhood, although emerging evidence suggests the importance of neighborhood characteristics. Neighborhood factors have been related to adolescent outcomes (Elliot et al., 1996; Parente & Mahoney, 2009; Sampson, Morenoff, & Raudenbush, 2005). In studies in the United States (US), community violence is linked with children's adjustment problems (Gorman-Smith & Tolan, 1998; Jaycox et al., 2002; Lynch & Cicchetti, 1998; 2002; Margolin & Gordis, 2000). Neighborhood violence has been linked with children's trajectories of aggression (Vanfossen, Brown, Kellam, Sokoloff, & Doering, 2010) and depressive symptoms (Wight, Botticello, & Aneshensel, 2006). Mayer and Jencks (1989) have argued that youth living in dangerous neighborhoods are at greater risk for adjustment problems because of contagion, from the influence of the crime that surrounds them, and a lack of social control that would minimize externalizing problems.

The social ecological approach has also been extended to settings of political violence, calling attention to the importance of the social context of political violence for children's adjustment, including community antisocial behavior and conflict (Cummings et al., 2009). Evidence is increasing that community violence and conflict negatively affect children's adjustment in contexts of political violence (Ajdukovic & Biruski, 2008; Barber, 2008;

Brook, Brook, & Whitman, 2007). For example, in South Africa, exposure to community violence has been linked to greater psychological distress, moderated in part by neighborhood factors (Barbarin, Richter, & deWet, 2001; Shields, Nadasen, & Pierce, 2008). In Israel, links are reported between exposure to severe political violence and psychopathological symptoms among 10-18 year old youth (Slone & Shechner, 2009), and in Palestine, neighborhood political violence and disorganization are associated with posttraumatic stress, aggressive behavior and adjustment problems (Barber, 2001; Dubow et al., 2010).

However, in these contexts, community violence is unlikely to be a homogenous element of the social ecological environment. That is, there are likely to be at least two different types of community violence that can be distinguished, sectarian community violence, which is associated with the political context of war and inter-community aggression, and nonsectarian community violence, which is “ordinary community violence”. Discriminating between these forms of community violence holds promise for advancing understanding of outcomes associated with political and non-political discord at the community level (Cummings et al., 2009; McAloney, McCrystal, Percy, & McCartan, 2009).

Although these distinctions are acknowledged, at least implicitly, in many places in the literature, few systematic investigations have assessed and distinguished these elements of contexts of political violence at the level of community or neighborhood conflict or violence (Dubow et al., 2010; Slone & Shechner, 2009). Addressing this gap, Cummings and colleagues recently advanced an approach towards delineating these contexts of community violence in areas of inter-ethnic conflict in Belfast. A first step was to determine the characteristic expressions of community violence in areas of historical political violence by means of focus groups, resulting in items reflecting community antisocial behavior that was either sectarian (SAB) or non-sectarian (NAB), respectively (Taylor, Merrilees, Cairns, & Cummings, 2009). In order to further revise and validate these scales, these items were tested as predictors of children's adjustment problems in another area of historical sectarian violence. Specifically, a two-wave pilot study was conducted with mothers in Derry/Londonderry Northern Ireland. Both scales were cross-sectional predictors of children's adjustment problems (Goeke-Morey et al., 2009). The presumption of these scales was that SAB primarily reflected community violence motivated by inter-sectarian hostility whereas NAB reflected intra-community violence that did not have political or inter-sectarian bases.

In Northern Ireland, sectarian community violence occurs at the community level between ethno-sectarian groups, specifically Catholics and Protestants (for a brief history of the sectarian conflict in Northern Ireland, see Cairns & Darby, 1998). Contemporary studies focus on the 30 year period of violence, from 1968 to 1998, colloquially known as the “Troubles”. After many attempts to achieve peaceful solutions, the Belfast/Good Friday Agreement was reached in 1998, eventually leading to inter-community power sharing, and the endorsement of cultural rights. Despite the signing of peace accords, substantial incidences of sectarian violence and conflict continue to be reported, especially in socially deprived communities in Belfast (e.g., Summary of the Statistics Relating to the Security Situation, 2006/2007), indicating continuing sectarian tensions and conflicts between the highly segregated Catholic and Protestant communities (MacGinty, Muldoon, & Ferguson,

2007; McGrellis, 2005; Shirlow & Murtagh, 2006). Many neighborhoods and most schools in Belfast remain highly segregated by religion (Cairns & Wilson, 1993). Moreover, as paramilitary organizations have disbanded and decommissioned, it has been evident that young people, unaffiliated with such organizations, have been at the forefront of sectarian rioting and crime (Haydon & Scraton, 2008; Shirlow & McEvoy, 2008). McAloney et al. (2009) recently reported that over three quarters of adolescents (15-16 year olds) in Belfast had experienced violence in their communities reflecting a social and psychological legacy of the Troubles. This is also likely the result of growth in intra-community antisocial behavior that emerged as policing and other forms of militarization were reduced in order to produce a form of civic as opposed to state security based on policing. This in particular led to significant growth in physical assault violence. The experience of political violence is strongly correlated with highly segregated and socially deprived neighborhoods in Belfast with some 78% of all deaths occurring in socially deprived and highly segregated communities (Shirlow & McEvoy, 2008).

Non-sectarian community violence refers to intra-group antisocial behavior that may occur in any community, regardless of political context, and is not specifically indicated between ethnic, racial or cultural groups. Socially deprived areas are also more likely to have higher rates of such ordinary crimes (Shirlow & McEvoy, 2008). Notably, non-sectarian community violence is increasing in Belfast, a phenomenon also observed in other parts of the world in post-accord periods (Darby, 2006). For example, the number of reported nonsectarian assaults across Belfast rose 150% between 2000 and 2008 (PSNI, 2010).

In Northern Ireland, based on the distinctions between SAB and NAB, recent studies have tested models for relations between sectarian and non-sectarian community violence and children's adjustment. This distinction is pertinent to identifying the particular effects on children of violence originating from inter-ethnic hostility at the community level, towards advancing theoretical models for the impact of social ecologies of political violence on children. (Cummings et al., 2009). Compared to NAB, SAB has more specifically been related to adjustment problems by elevating children's emotional insecurity about the community and family (Cummings, Merrilees et al., 2010, in press; Cummings, Schermerhorn et al., 2010). In contrast, NAB has been either directly related to children's adjustment problems or linked with adjustment problems through problems in parental monitoring and psychological control of youth's behavior (Cummings, Merrilees, et al., in press; Merrilees et al., 2010). The present study breaks new ground in identifying the role of SAB and NAB, as they relate to trajectories of children's adjustment over time in contexts of political violence.

However, an important question that has not been investigated is to compare trajectories of children's adjustment problems as a function of sectarian and non-sectarian community violence. That is, when both variables are explicitly included in the same model, do both SAB and NAB relate over multiple time points of assessment to children's adjustment problems? These questions are fundamental to the relative long-term significance of these elements of community violence in areas of political violence to children's adjustment. Building on the proposition that distinguishing between SAB and NAB is significant to the prediction of children's adjustment problems, the current paper examines the question of

whether both types of community violence factor into children's trajectories of adjustment problems over time in contexts of political violence.

The present study thus is focused on identifying children's trajectories of adjustment problems in association with SAB and NAB over a four year period based on yearly assessments of these variables. Systematically examining trajectories of children's adjustment over four time points in contexts of political violence is a pioneering direction, which is further advanced by distinguishing between these elements of community and neighborhood discord. The prediction is that both SAB and NAB will be related to the long-term prediction of children's adjustment problems, even when both factors are considered in the same statistical model, suggesting that each element is significant to understanding the impact of political violence on children. Notably, evidence is accumulating to suggest that SAB and NAB, respectively, influence children's adjustment by means of different process-oriented pathways, that is, relate to children's adjustment as a function of different family and psychological processes (Cummings, Merrilees et al., 2010, in press; Cummings, Schermerhorn, et al., 2010; Merrilees et al., 2010). Thus, it becomes necessary to examine whether both aspects of community violence are related to long-term adjustment, when considered as distinct predictors of developmental trajectories. The significance of the present question is to explore whether both types of community violence are independent predictors of children's adjustment problems, which would support that both merit attention and concern when considering children's adjustment in contexts of political violence. Notably, scant attention has been paid to the long-term longitudinal significance of community violence to children's adjustment in contexts of political violence, with this study breaking new ground in the number of specific time-points assessed longitudinally by examining trajectories over four waves of assessment.

Finally, the impact of SAB and NAB on children's adjustment might also be expected to vary as a function of the crime rates reported in specific community. Specifically, it might be expected that the impact of family members' reports of children's exposure to community violence on children would be accentuated in areas with higher rates of objectively reported crime. One hypothesis is that the impact of SAB on children's adjustment will be increased in higher crime areas, reflecting relations between SAB and children's emotional insecurity about community (see Cummings, Merrilees et al., in press, 2010), which might be expected to be accentuated in higher crime areas. That is, higher crime rates may further elevate children's security concerns about community, intensifying the impact of SAB on adjustment. An alternative hypothesis is that the impact of NAB on children's adjustment will be affected by neighborhood crime rates, since NAB is linked with parental behavioral and psychological control strategies, and higher crime rates may further increase the load on parental control strategies, including the occurrence of psychological control, thereby contributing to adjustment problems (Merrilees et al., 2010). Finally, a third hypothesis is that the impact of both SAB and NAB will be increased in high crime areas, reflecting a cumulative effects of these multiple indicators of contexts of violence and threat on children's adjustment.

Method

Participants

Participants included mothers and their children who participated in at least one wave of a longitudinal study on political violence and family processes in Belfast, Northern Ireland, with the children approximately evenly divided between girls and boys (total N = 1015 mother-child dyads; 485 boys and 517 girls). Of the original sample of 695 mother-child dyads at time 1, 85% returned at time 2 (N=597), and of the families from time 2, 77% (n=465) returned as longitudinal families at time 3. Following the original selection criteria, described below, a supplemental set of families, living in the original study area, was added to the longitudinal families at time 3 to bring the total sample to 773 mother/child dyads. Of this combined total 82% returned at time 4 (N=643).

At time 1, 43% of mothers were married or living as married (n=206, n=93) and 57% were in single-parent households (n=396). With the addition of the supplemental families at time 3, 39% (n=292) of families were married or living as married, and 61% (n=457) were separated, divorced, widowed, or never been married. Mother's mean age was 37.1 years ($SD=6.18$) at time 1, and with the supplemental families the mother's mean age was 38.42 years ($SD=6.46$) at time 3. Child's mean age was 12.14 ($SD=1.83$), 13.15 ($SD=1.81$), 13.61 ($SD=2.09$), and 14.77 years ($SD=1.96$), respectively, across the four time points.

No differences were found between families participating and not participating at times 1 and 2 for any of the study variables: sectarian and nonsectarian anti-social behavior, objective crime data, or children's total adjustment problems. Between times 2 and time 3, those families who did not return from the original sample were significantly more likely to be aware of sectarian and nonsectarian violence, and have more adjustment problems. No differences were found between families participating and not participating in times 3 and 4, including both original and supplemental families. Multiple attempts were made to locate families in this high risk sample at each time point. Only families that remained living within the initial study areas were included.

Procedures

The study was conducted in 24 wards in Belfast, Northern Ireland. Study areas were typically ethnically homogeneous (over 90% Catholic or Protestant) and often interfaced with communities from the other ethnic group. That is, these neighborhoods shared borders with neighborhoods predominantly populated by the other ethnic group. Interfaced areas were separated by "peace walls," major roads, or commercial zones. A representative balance of Catholic and Protestant neighborhoods was included, consistent with the overall population demographics of Northern Ireland (43% Catholic, 57% Protestant; Darby, 2001). Reflecting the population in Northern Ireland, all study participants were White. Controlling for socioeconomic differences, all study areas were socially deprived, working class neighborhoods.

Families were contacted using stratified random sampling within these specifically selected neighborhoods. To be eligible to participate, a child between the ages of 10 and 17 years old had to be living in the home. For families with two or more children within the indicated age

range, the youngest child interested was asked to participate. This age period was selected because children and adolescents in the target age range (a) have been shown to be aware of the social distinctions relevant to the study (Catholic / Protestant differences; Cairns, 1987) and (b) are likely to be informed about or exposed to sectarian and non-sectarian violence, as observers, victims, or participants. Supplemental families added at time 3 were identified and recruited following the same procedures.

Professional interviewers from an established market research firm conducted in-home surveys with mothers and children, which lasted approximately 1 hour, and 30 minutes, respectively. Before participating mothers and children provided consent and assent, respectively, and families received a modest financial compensation for their participation. Research protocol and measures were approved by the Institutional Review Boards at all participating universities.

Measures

Sectarian and Nonsectarian Antisocial Behavior (SAB and NAB)—These scales assessed child's awareness of sectarian and nonsectarian antisocial behaviors in their communities. The measures, developed specifically for the social ecological context of Belfast, reflect a culturally-relevant way to distinguish between political and everyday crime in contemporary Northern Ireland. Following focus groups with mothers living in Belfast that generated items for these scales, a pilot project with families in Derry/Londonderry established the psychometric properties of these measures (see Goeke-Morey et al., 2009, for report of instrument development, internal consistencies, and test-retest reliabilities). In the current analyses, child-report versions of both scales were used. The 12-item sectarian antisocial behavior scale (SAB) included items such as *stones or objects thrown over walls*, *name calling by people from the other community*, and *deaths or serious injury caused by the other community*. The 7-item nonsectarian antisocial behavior scale (NAB) included items such as *drunkenness*, *drugs being used or sold*, and *home break-ins* (see Cummings, Merrilees et al., 2010, for all scale items). Good internal consistencies for each scale were obtained across all four time points of the present study (Cronbach's α were .90, .95, .96, .98 for SAB and .73, .87, .84, .95 for the NAB for times 1, 2, 3, and 4, respectively).

Objective Crime—The Objective Crime data were calculated using the annual rates of crime and anti-social behavior that the Police Service of Northern Ireland (PSNI) collects for every ward in Northern Ireland. For the current analyses, criminal offenses across all four time points were collected for each of the 24 study wards. This assessment for each family was thus calculated as the sum of total offenses from May 2006 to April 2010 for their ward. Two caveats should be considered. First, violent criminal offenses included the threat of violence, not only actual violence, and the severity or degree of violence varied considerably. Second, due to historic mistrust of the police, particularly in socially deprived and working class areas of Belfast, which characterized the neighborhoods in the current study, under-reporting of crime is common, ranging from 40% to 70% (MacGinty, Muldoon, & Ferguson, 2007; Shirlow & Ellison, 2008). For example, the Police Federation alleges that the number of attacks on national security targets in the past year is over 300% greater than is reflected in public statements by the PSNI, reflecting an effort to make NI

“appear more normal than it actually is” (BBC News, December 10, 2010). A steady increase in reports of criminal offenses has occurred in Belfast since 2000; for example, 80% of participants surveyed in a similar community in Belfast reported that they had or would contact the police (PSNI, 2010; Shirlow & Ellison, 2009).

Adjustment Problems—Total adjustment problems were assessed with a composite of mother and child reports on the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). Psychometric properties of the SDQ are well established in UK samples and are preferable to the Child Behavior Checklist (CBCL; Achenbach, 1991) for community samples for predicting adjustment problems (Goodman & Scott, 1999). The Total Problems scale consists of 20 items, five questions for each of four subscales: Emotional Problems (*e.g., many worries, often seems worried*); Peer Problems (*e.g., often fights with other children or bullies them*); Hyperactivity (*e.g., restless, overactive, cannot stay still for long*); and Conduct Problems (*e.g., steals from home, school, or elsewhere*), respectively. The composite score included mother and child responses, with higher scores representing more adjustment problems. A composite variable was used for this outcome variable to reduce the possible confound of mono-reporter bias. Good internal consistency for this variable was established in each of the four waves (Cronbach's α were .85, .84, .82, and .88).

Results

Overview of Analyses

Means and standard deviations for all study variables at each age are shown in Table 1. All data were modeled using a multilevel modeling approach. Multilevel modeling is a preferred method of analyzing repeated measures data as it can accommodate the nesting of the data. More specifically, separate equations are specified for both the within (Level 1) and between person (Level 2) levels of the data. This approach allows for the study of inter-individual differences in intra-individual change. For the within person variables at Level 1, the outcome variable is regressed on within person predictors such as time and other time-varying factors in the data (*i.e.* time-varying covariates). The Level 1 parameters are then used as outcome variables regressed on Level 2 predictors. An additional advantage of multilevel modeling is that maximum likelihood estimation accurately estimates parameters with missing data. All analyses were conducted using Hierarchical Linear Modeling software (version 6.06; Raudenbush, Bryk, Cheong, & Congdon, 2004). The time variable (age) and the time varying-covariates were centered at the grand mean to enhance interpretability.

With four time points, the multilevel modeling approach allows for the examination of between person differences in mean levels (*i.e.* intercepts), linear change over time, and quadratic change over time. Multiple waves of data also allow for the examination of between person differences in other predictor variables that are also changing over time, such as exposure to sectarian and nonsectarian antisocial behavior. However, only three random effects can be estimated with four waves of data. The examination of change over time was first modeled, and time-varying covariates were added based on the remaining number of random effects that would be allowed. Thus, as a first step in assessing how

children's adjustment problems changed as children aged across the four time points, models with a random intercept (Model A1) were calculated. This model only allowed for random intercepts, or variability around mean levels without taking into account change over time. Values for within and between person variance estimated from this model were used to calculate the intraclass correlation (ICC). For total problems, the ICC was .42, which tells us that 42% of the variance in total problems is due to between child differences (Singer & Willett, 2003).

Next, a model with a random intercept and a random linear slope was fitted (Model A2). This model indicates that on average, children's adjustment problems decreased as they got older ($b = -.38$, $SE = .11$, $p < .001$). This model was also a significantly better fitting model compared to the random intercept model ($\text{diff } \chi^2(2) = 12.09$, $p = .003$). Inspecting the variance components of Model A2 indicated that there is significant variability in intercepts but not in amount of change over time. Thus, in the conditional models, time was treated as a fixed effect.

To further examine how children's adjustment problems changed as children aged, a model examining quadratic slope (Model A3) was assessed and compared with Model A2. Adding the quadratic time parameter (Model A3) did not significantly improve model fit ($\text{diff } \chi^2(3) = .83$, $p > .50$), thus time was modeled with a random intercept and a fixed linear slope in all subsequent models.

Because three random effects can be estimated with four waves of data, fixing the linear slope parameter across individuals and eliminating the quadratic slope parameter allowed us to add both SAB and NAB as time-varying covariates to the model to examine the effect of SAB and NAB on children's adjustment problems controlling for the change in adjustment problems over time (Model A4). The equations are below:

Level 1:

$$\text{Adjustment Problems} = \beta_{0i} + \beta_1(\text{Time}) + \beta_{2i}(\text{SAB}) + \beta_{3i}(\text{NAB}) + e_{ij}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \zeta_{0i}$$

$$\beta_{1i} = \gamma_{10}$$

$$\beta_{2i} = \gamma_{20} + \zeta_{2i}$$

$$\beta_{3i} = \gamma_{30} + \zeta_{3i}$$

Results from Model A4 reflected that on average child adjustment problems decreased over time ($b = -.46$, $SE = .10$, $p < .001$), and that SAB ($b = .19$, $SE = .04$, $p < .001$) and NAB ($b = .25$, $SE = .05$, $p < .001$) were significant time-varying covariates. In other words, controlling for the change in adjustment problems over time, at each age, *with both SAB and NAB included together in the same model, SAB and NAB were each related to higher levels of adjustment problems.*

The analysis of the random effects showed that there was significant between person variability in average levels of adjustment problems and the strength of the relationship between the time varying covariates and adjustment problems differed between children. This significant variability in intercepts and the time-varying covariates of SAB and NAB supported the inclusion of predictors of these parameters.

Thus, gender and community level crime rates were added to the model at level 2. For this model (Model A5), gender, and the objective crime data were included as predictors of the individual intercepts and the slopes relating SAB and NAB to children's adjustment problems. The equations for this model are given below:

Level 1:

$$\text{Adjustment Problems} = \beta_{0i} + \beta_1(\text{Time}) + \beta_{2i}(\text{SAB}) + \beta_{3i}(\text{NAB}) + e_{ij}$$

Level 2:

$$\begin{aligned}\beta_{0i} &= \gamma_{00} + \gamma_{01}(\text{gender}) + \gamma_{02}(\text{OBJECTIVE CRIME}) + \zeta_{0i} \\ \beta_1 &= \gamma_{10} \\ \beta_{2i} &= \gamma_{20} + \gamma_{21}(\text{gender}) + \gamma_{22}(\text{OBJECTIVE CRIME}) + \zeta_{2i} \\ \beta_{3i} &= \gamma_{30} + \gamma_{31}(\text{gender}) + \gamma_{32}(\text{OBJECTIVE CRIME}) + \zeta_{3i}\end{aligned}$$

The results from this model indicated that gender ($\gamma = -1.15$, $SE = .53$, $p = .029$) and objective crime ($\gamma = .00163$, $SE = .000066$, $p = .01$), predicted variability in intercepts, suggesting that (a) *boys had higher symptom levels*, and (b) *youth in areas with higher crime rates evidenced greater rates of symptoms*. Objective crime was also a significant predictor of variability in the time-varying covariate of SAB ($\gamma = .00002$, $SE = .000007$, $p = .006$). The positive sign again indicated that *the relation between SAB and total problems was stronger in areas with higher crime levels compared to areas of lower crime*. A graph of this interaction can be seen in Figure 1. The objective crime values reflect the total number of reported offenses over the course of the four years of the study, with 16,000 incidents as the value for the neighborhood with the highest crime rate. Neither gender nor the objective crime data were significant predictors of the variability in the relation between NAB and total problems.

Discussion

The current study further supports the significance of community violence on children's development in areas of political violence, in the context of a multi-wave, long-term longitudinal research design. This study thus uniquely advances the study of relations between community violence and child adjustment in cultural contexts characterized by political violence. That is, the great majority of studies of political violence and children are based on cross-sectional or retrospective research designs, leaving questions about trajectories of development. This study addresses this gap in the investigation of the impact

of social ecologies of political violence on youth over four time points, suggesting continuing effects over time of exposure to community violence on children's adjustment.

The present findings have implications for understanding the role of social ecologies of community violence and children's adjustment in promoting the prospects for long-term peace in contexts of inter-ethnic conflict and violence. Areas of political violence may backslide into renewed hostilities even years after accords are signed (Darby, 2006; McGinty, 2006). Moreover, an active role of youth is evident in ongoing community discord in Belfast and many other parts of the world (Baker, 1990; Blattman & Annan, 2009; Hammack, 2006; Humphreys & Weinstein, 2008; Shirlow & Murtagh, 2006). Children with elevated behavioral and adjustment problems are candidates for contributing to renewed violence in areas of inter-ethnic and sectarian conflict (Barber, 2008; Qouta, Punamaki, & Sarraj, 2008). In this context, the present study further supports (a) a social ecological model that recognizes the impact of neighborhood and community discord in contexts of political violence, and (b) a developmental model that factors youth into calculations regarding the continuation of peace versus the possibility of later escalation of inter-ethnic violence.

Moreover, the findings underscore that both sectarian and non-sectarian community violence may affect youth's adjustment in these contexts, consistent with the notion that both elements of the social ecology of community violence merit consideration. Notably, in Northern Ireland, as well as elsewhere (e.g., South Africa), increases in non-sectarian conflict may be a result of changes in social organizations and structures related to post-accord political processes. For example, the rise in community violence after the peace accord signed in 1998 may be due to two factors. Firstly, the Belfast Agreement was committed to a reduction in policing and the removal of the army's security role. Demilitarization led to a significant removal of security surveillance and state security presence in areas of high political violence. Secondly, paramilitary groups removed their use of punishment violence. In both instances demilitarization thus led to less surveillance and direct control over citizens and a distinct state and non-state policing vacuum (Monaghan & McLaughlin, 2006; Shirlow & Murtagh, 2006). In this sense, increases in non-sectarian community violence may sometimes constitute unintended consequences or aftermaths of peace accords, and therefore may also merit consideration in process-oriented models of outcomes.

Both sectarian and non-sectarian community violence were related to children's adjustment over time. The results support the hypothesis that both sectarian and non-sectarian community violence are related to child adjustment, even when both variables are included in the same model, highlighting the significance of each dimension of community violence. These results are also important to keep in mind when evaluating process models concerning the mediators and/or moderators of the effects of political violence. For example, the evidence thus far suggests that mediators and moderators of sectarian and non-sectarian community violence on child adjustment are somewhat different, with sectarian community violence more closely related to children's emotional security in multiple contexts of the social ecology (e.g., community, family relationships) (e.g., Cummings, Merrilees et al., 2010, in press; Cummings, Schermerhorn et al., 2010) whereas the effects of non-sectarian violence may involve other processes, including parental behavioral or psychological control

practices (Cummings, Merrilees et al., in press; Merrilees et al., 2010). However, despite this evidence regarding possibly different patterns of explanatory variables for outcomes, the present results underscore the importance of keeping in mind that exposure to both forms of community violence may be related to children's adjustment problems, and that these relations may differ by context. Research across multiple contexts of political violence is needed to examine similarities and differences in processes across cultures

The results also support the prediction that the impact of sectarian community violence is particularly accentuated by higher levels of crime in socially deprived neighborhoods in areas of inter-ethnic discord, consistent with the hypothesis that higher background crime rates may amplify negative processes associated with sectarian community violence, such as elevated emotional insecurity about the community (Cummings, Merrilees et al., in press). However, there are certainly many other possible explanations. Understanding these process links is an important goal for future research.

Gender and age effects also merit comment. The higher levels of boys' adjustment problems over time is troubling, given the greater likelihood that boys rather than girls will become involved in inter-ethnic conflict and violence (Ajdukovic & Corkalo-Biruski, 2008; Barber, 2008; Shirlow & Murtagh, 2006). The decline in adjustment problems over time for this age range is consistent with research in other contexts involving high risk environments, and may possibly reflect an artifact of the SDQ methodology for assessing adjustment across adolescence, or a substantive finding. For example, in urban areas of East London children's age has been found to be negatively correlated with SDQ scores on adjustment problems across an age range of 8 to 15 year-olds (Fagg et al., 2008). As another example, in a context of war and sectarian conflict in Sri Lanka, teachers reported more adjustment problems on the SDQ for younger than older adolescents (Panter-Brick et al., 2009). However, another possibility is there are declines in adjustment problems in these contexts over time, a topic which also warrants further study.

Certain limitations should be acknowledged. Most children ranged between 10 and 15 years of age, reflecting our interest in studying age groups at risk for becoming participants as well as observers of sectarian conflict. Future research should further examine age as a factor in contexts of sectarian conflict (Muldoon, 2003; Slone & Shechner, 2009). Additional sources of information about key constructs, for example, additional measures focused on adjustment problems in adolescence, would strengthen tests. Finally, culturally distinct forms of sectarian antisocial behavior may vary widely across societal contexts, so that the generalizability of these assessments to other cultures remains to be demonstrated. In each culture studied, it will be important to develop culturally appropriate measures, given that expressions of political violence may be context-specific (Cummings et al., 2009).

Nonetheless, the implications for advancing peace processes should be considered. Agreements between political leaders are only a start towards sustained peace processes because, as McGinty et al. (2007) have pointed out, "reaching a peace deal is not the same as reaching peace". Therefore it is critical to understand and address the effects of political strife on communities, families and children for any high likelihood of sustained peace because it is the children growing up today who will have to take the peace process forward

in the years to come. The present results indicate the significance of considering both sectarian and non-sectarian community violence when evaluating the impact of social ecologies of political violence on children's adjustment. The evidence for long-term effects is especially important and pertinent to developmental understanding of relations of social ecologies of political violence and children's adjustment. The study of conflict processes at multiple levels of analysis can provide bases for better understanding the impact of intergroup conflict and violence on children, with possible generalizability to sectarian and ethnic conflict in other regions. Given the many gaps in understanding the social ecology of political violence from the child's perspective, future research is needed in the many parts of the world with high levels of protracted sectarian conflict and violence.

Acknowledgments

This research was supported by NICHD grant R01 HD046933 to the first author.

References

- Achenbach, TM. Manual for the Child Behavior Checklist: 4-18 and 1991 Profile. Burlington, VT: University of Vermont Department of Psychiatry; 1991.
- Ajdukovic D, Biruski DC. Caught between the ethnic sides: Children growing up in a divided post-war community. *International Journal of Behavioral Development*. 2008; 32:337–347.
- Baker A. The psychological impact of the intifada on Palestinian children in the occupied West Bank and Gaza. *American Journal of Orthopsychiatry*. 1990; 60:496–505. [PubMed: 2248361]
- Barber BK. Political violence, social integration, and youth functioning: Palestinian youth from the Intifada. *Journal of Community Psychology*. 2001; 29:259–280.
- Barber, BK., editor. *Adolescents and war: How youth deal with political violence*. New York: Oxford University Press; 2008.
- Barbarin OA, Richter LM, de Wet T. Exposure to violence, coping resources, and psychological adjustment of South African children. *American journal of orthopsychiatry*. 2001; 71:16–25. [PubMed: 11271713]
- Belsky J. War, trauma and children's development: Observations from a modern evolutionary perspective. *International Journal of Behavioral Development*. 2008; 32:260–271.
- Blattman, C.; Annan, J. The consequences of child soldiering. 2009. Retrieved <http://www.chrisblattman.com/documents/research/2009.Consequences.RESTAT.pdf>
- Bronfenbrenner, U. *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA: Harvard University Press; 1979.
- Brook JS, Brook DW, Whiteman M. Growing up in a violent society: Longitudinal predictors of violence in Colombian adolescents. *American Journal of Community Psychology*. 2007; 40:82–95. [PubMed: 17562159]
- Cairns, E. *Caught in the crossfire: Children and the Northern Ireland conflict*. Belfast: Appletree Press; 1987.
- Cairns E, Darby J. The conflict in Northern Ireland: Causes, consequences, and controls. *American Psychologist*. 1998; 53:754–760.
- Cairns, E.; Wilson, R. Stress, coping, and political violence in Northern Ireland. In: Wilson, JP.; Raphael, B., editors. *International Handbook of Traumatic Stress Syndromes*. New York: Plenum Press; 1993.
- Cicchetti D, Lynch M. Toward an ecological/transactional model of community violence and child maltreatment: Consequences for children's development. *Psychiatry: Interpersonal and Biological Processes*. 1993; 56:96–118.
- Cummings EM, Goeke-Morey MC, Schermerhorn AC, Merrilees CE, Cairns E. Children and political violence from a social ecological perspective: Implications from research on children and families

- in Northern Ireland. *Clinical Child and Family Psychology Review*. 2009; 12:16–38. [PubMed: 19229611]
- Cummings EM, Merrilees CM, Schermerhorn AC, Goeke-Morey MC, Shirlow P, Cairns E. Testing a social ecological model for relations between political violence and child adjustment in Northern Ireland. *Development and Psychopathology*. 2010; 22:405–418. [PubMed: 20423550]
- Cummings E, Schermerhorn A, Merrilees C, Goeke-Morey M, Shirlow P, et al. Political violence and child adjustment in Northern Ireland: Testing pathways in a social-ecological model including single- and two-parent families. *Developmental Psychology*. 2010; 46:827–841. [PubMed: 20604605]
- Darby, J. *The effects of violence on peace processes*. Washington, DC: United States Institute of Peace Press; 2001.
- Darby, J. *Violence and reconstruction*. Notre Dame, IN: University of Notre Dame Press; 2006.
- Dubow E, Huesmann L, Boxer P. A social-cognitive-ecological framework for understanding the impact of exposure to persistent ethnic-political violence on children's psychosocial adjustment. *Clinical Child and Family Psychology Review*. 2009; 12:113–126. [PubMed: 19430904]
- Dubow E, Boxer P, Huesmann L, Shikaki K, Landau S, et al. Exposure to conflict and violence across contexts: Relations to adjustment among Palestinian children. *Journal of Clinical Child & Adolescent Psychology*. 2010; 39:103–116. [PubMed: 20390802]
- Elliott D, Wilson W, Huizinga D, Sampson R, Elliott A, et al. The effects of neighborhood disadvantage on adolescent development. *Journal of Research in Crime & Delinquency*. 1996; 33:389–426.
- Fagg J, Curtis S, Clark C, Congdon P, Stansfeld S. Neighbourhood perceptions among inner-city adolescents: Relationships with their individual characteristics and with independently assessed neighbourhood conditions. *Journal of Environmental Psychology*. 2008; 28:128–142.
- Feerick MM, Prinz RJ. Next steps in research on children exposed to community violence or war/terrorism. *Clinical Child and Family Psychology Review*. 2003; 6:303–305. [PubMed: 14719641]
- Garbarino J, Kostelny K. The effects of political violence on Palestinian children's behavior problems: A risk accumulation model. *Child Development*. 1996; 67:33–46. [PubMed: 8605832]
- Goeke-Morey MC, Cummings EM, Ellis K, Merrilees CE, Schermerhorn AC, Shirlow P, Cairns E. The differential impact on children of inter- and intra-community violence in Northern Ireland. *Peace and Conflict: Journal of Peace Psychology*. 2009; 15:367–383. [PubMed: 21637735]
- Goodman R. The strengths and difficulties questionnaire: A research note. *Journal of Child Psychology & Psychiatry & Allied Disciplines*. 1997; 38:581–586.
- Goodman R, Scott S. Comparing the Strengths and Difficulties Questionnaire and the Child Behavior Checklist: Is small beautiful? *Journal of Abnormal Child Psychology*. 1999; 27:17–24. [PubMed: 10197403]
- Gorman-Smith D, Tolan P. The role of exposure to community violence and developmental problems among inner-city youth. *Development and Psychopathology*. 1998; 10:101–116. [PubMed: 9524810]
- Hammack P. Identity, conflict, and coexistence: Life stories of Israeli and Palestinian adolescents. *Journal of Adolescent Research*. 2006; 21:323–369.
- Haydon D, Scraton P. Conflict, regulation and marginalization in the North of Ireland: The experiences of children and young people. *Current Issues in Criminal Justice, Special Issue*. 2008; 20:59–78.
- Humphreys M, Weinstein J. Who rebels? The determinants of participation in civil war. *American Journal of Political Science*. 2008; 52:436–455.
- Jaycox LH, Stein BD, Kataoka SH, Wong M, Fink A, Escudero P, Zaragoza C. Violence exposure, posttraumatic stress disorder, and depressive symptoms among recent immigrant schoolchildren. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2002; 41:1104–1110. [PubMed: 12218432]
- Leventhal T, Brooks-Gunn J. The neighborhoods they live in: The effects of *neighborhood* residence on child and adolescent outcomes. *Psychological Bulletin*. 2000; 126:309–337. [PubMed: 10748645]

- Lynch M, Cicchetti D. An ecological-transactional analysis of children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomatology. *Development and Psychopathology*. 1998; 10:235–257. [PubMed: 9635223]
- Lynch M, Cicchetti D. Links between community violence and the family system: Evidence from children's feelings of relatedness and perceptions of parent behavior. *Family Process*. 2002; 41:519–532. [PubMed: 12395572]
- Mac Ginty R, Muldoon OT, Ferguson N. No war, no peace: Northern Ireland after the Agreement. *Political Psychology*. 2007; 28:1–11.
- Margolin G, Gordis EB. The effects of family and community violence on children. *Annual Review of Psychology*. 2000; 51:445–479.
- McAloney K, McCrystal P, Percy A, McCartan C. Damaged youth: Prevalence of community violence exposure and implications for adolescent well-being in post-conflict Northern Ireland. *Journal of Community Psychology*. 2009; 37:635–648.
- McGrellis S. Pushing the boundaries in Northern Ireland: young people, violence and sectarianism. *Contemporary Politics*. 2005; 11:53–71.
- Merrilees CE, Cairns E, Goeke-Morey MC, Schermerhorn AC, Shirlow P, Cummings EM. The impact of mother's experience with the Troubles in Northern Ireland on mothers' and children's psychological functioning. Manuscript submitted for publication. 2010
- Monaghan R, McLaughlin S. Informal Justice in the City. *Source Space & Polity*. 2006; 10:171–186.
- Muldoon O. Perceptions of stressful life events in Northern Irish school children: A longitudinal study. *Journal of Child Psychology and Psychiatry and Allied Disciplines*. 2003; 44:193–201.
- Panther-Brick C, Eggerman M, Gonzalez V, Safdar S. Violence, suffering, and mental health in Afghanistan: A school-based survey. *The Lancet*. 2009; 374:807–816.
- Parente ME, Mahoney JL. Residential mobility and exposure to neighborhood crime: Risks for young children's aggression. *Journal of Community Psychology*. 2009; 37:559–578.
- Police Service of Northern Ireland. PSNI Annual Statistical Report. Report No. 5 Statistics relating to the security situation. 2010. Retrieved from http://www.psni.police.uk/5_statistics_relating_to_the_security_situation_200910_final.pdf
- Police Service of Northern Ireland, Central Statistics Branch, Operational Support Department. Statistics on the security situation: 1st April 2006–31st March 2007(PSNI Annual Statistical Report No. 6). 2006–2007. Retrieved from http://www.psni.police.uk/6_statistics_relating_to_the_security_situation.pdf
- Qouta S, Punamaki R, El Sarraj E. Child development and family mental health in war and military violence: The palestinian experience. *International Journal of Behavioral Development*. 2008; 32:310–321.
- Raudenbush, SW.; Bryk, AS.; Cheong, YF.; Congdon, RT. HLM 6: Hierarchical linear and nonlinear modeling. Chicago: Scientific Software International; 2004.
- Sagi-Schwartz A. The well being of children living in chronic war zones: The Palestinian-Israeli case. *International Journal of Behavioral Development*. 2008; 32:322–336.
- Salzinger S, Feldman RS, Stockhammer T, et al. An ecological framework for understanding risk for exposure to community violence and the effects of exposure on children and adolescents. *Aggression and Violent Behavior*. 2002; 7:423–451.
- Sampson RJ, Morenoff JD, Raudenbush S. Social anatomy of racial and ethnic disparities in violence. *American Journal of Public Health*. 2005; 35:224–232. [PubMed: 15671454]
- Shields N, Nadasen K, Pierce L. The effects of community violence on children in Cape Town, South Africa. *Child Abuse & Neglect*. 2008; 32:589–601. [PubMed: 18511114]
- Shinn M, Toohey SM. Community contexts of human welfare. *Annual Review of Psychology*. 2003; 54:427–259.
- Shirlow P, Ellison G. Community Attitudes to Crime, Anti-Social Behaviour and Policing in the Greater New Lodge. Unpublished Manuscript. 2008
- Shirlow, P.; McEvoy, K. Beyond the wire: Former prisoners and conflict transformation in Northern Ireland. London: Pluto Press; 2008.
- Shirlow, P.; Murtagh, B. Belfast: Segregation, Violence and the City. London: Pluto Press; 2006.

- Singer, JD.; Willett, JB. Applied Longitudinal Data Analysis: Methods for Studying Change and Event Occurrence. New York: Oxford University Press; 2003.
- Slone M, Shechner T. Psychiatric consequences for Israeli adolescents of protracted political violence: 1998-2004. *Journal of Child Psychology and Psychiatry*. 2009; 50:280–289. [PubMed: 18665881]
- Taylor, LK.; Merrilees, CE.; Cairns, E.; Cummings, EM. Qualitative assessment of mother's perceptions of community and sectarian violence in Northern Ireland: Implications for child security and adjustment. Paper presented at the Fifth International Congress of Qualitative Inquiry; Urbana, Illinois. May. 2009
- Terrorist activity 'played down' - Police Federation. BBC News. 2010 Dec 10. Retrieved from <http://www.bbc.co.uk/news/uk-northern-ireland-11973018>
- Vanfossen B, Brown C, Kellam S, Sokoloff N, Doering S. Neighborhood context and the development of aggression in boys and girls. *Journal of Community Psychology*. 2010; 38:329–349. [PubMed: 20689683]
- Ward, C. Neighbourhood indicators: monitoring child rights and well-being at a small area level. In: Dawes, A.; Bray, R.; Van Der Merwe, A., editors. *Monitoring child well-being: A South African Rights-based approach*. Cape Town: HSRC Press; 2010. p. 73-90.
- Wight R, Botticello A, Aneshensel C. Socioeconomic context, social support, and adolescent mental health: A multilevel investigation. *Journal of Youth & Adolescence*. 2006; 35:109–120.

Figure 1.
Relations between sectarian antisocial behavior (SAB) and children's adjustment problems at three levels of neighborhood crime.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1

Means and Standard Deviations for Study Variables at Each Age.

Age	N	SAB	NAB	Child Total	Mom Total
9	22	4.68 (10.76)	2.00 (3.73)	11.90 (7.05)	9.86 (6.17)
10	224	3.09 (6.19)	2.00 (3.59)	10.55 (5.37)	10.81 (5.94)
11	316	2.68 (6.07)	1.70 (2.96)	10.07 (5.71)	10.88 (5.71)
12	400	3.20 (7.03)	2.33 (4.01)	10.06 (5.69)	11.50 (6.13)
13	456	3.85 (7.92)	3.40 (5.34)	9.89 (5.26)	10.51 (5.57)
14	417	4.33 (8.02)	4.27 (5.90)	10.17 (5.44)	11.02 (6.02)
15	375	4.40 (8.44)	4.21 (5.79)	10.41 (5.32)	10.98 (6.00)
16	261	3.18 (6.70)	3.91 (4.83)	9.79 (5.00)	10.43 (5.98)
17	144	2.90 (6.37)	4.56 (5.56)	9.76 (4.90)	10.14 (5.64)
18	57	1.67 (4.22)	5.54 (6.63)	9.61 (4.86)	9.06 (5.44)

Table 2

Results and Statistical Parameters for Multilevel Models

	Coefficient	S.E.	t	p-value	Df
Model A1					
Intercept *	21.17	.26	83.00	<.001	999
Model A2					
Intercept *	21.09	.26	81.49	<.001	999
Linear Slope	-.39	.11	-3.64	<.001	999
Model A3					
Intercept *	21.10	.26	81.51	<.001	999
Linear slope	-.40	1.01	-.40	.68	999
Quadratic slope	.001	.04	.04	.97	999
Model A4					
Intercept *	20.95	.26	79.32	<.001	863
Age	-.49	.10	-4.59	<.001	2157
SAB *	.18	.04	4.38	<.001	863
NAB *	.18	.06	2.95	.004	863
Model A5					
Intercept *	21.57	.36	59.96	<.001	861
Objective Crime	.00016	.00007	2.20	.028	861
Gender	-1.15	.52	-2.19	.029	861
SAB *	.16	.05	2.94	.004	861
SAB × Objective Crime	.0002	.0000007	2.85	.005	861
SAB × Gender	-.002	.069	-.04	.97	861
NAB *	.21	.07	3.15	.002	861
NAB × Objective Crime	.000001	.000016	.05	.96	861
NAB × Gender	.10	.12	.79	.43	861
Age	-.49	.07	-4.48	<.001	2151

* indicates significant variance in random effect

Note

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript