

Protective Factors for Youth Exposed to Violence: Role of Developmental Assets in Building Emotional Resilience

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Abstract

There is compelling evidence that many youth exposed to community violence manage to adapt successfully over time. Developmental assets have been deemed salient for positive youth development, though limited longitudinal studies have examined their relevance for high-risk youth. Using the Developmental Assets framework, the authors test whether supportive relationships, high expectations, and opportunities build emotional resilience directly or indirectly via interaction with risk. Further, the authors examine the effect of neighborhood collective efficacy on resilience. The authors use multiwave data from 1,166 youth aged 11–16 years and data about their neighborhoods from the Project on Human Development in Chicago Neighborhoods (PHDCN). Generalized estimating equations (GEE) were used to examine whether baseline protective factors in subjects' home, peer, and neighborhood environments predicted log odds of emotional resilience at Waves 2 and 3 among youth ETV. Over 7 years, 60–85% were emotionally resilient. Positive peers and supportive relationships with parents and other adults had significant main effects. Positive peers and family support were particularly protective for witnesses and victims. Structured activities and collective efficacy influenced change in resilience differentially among ETV groups. Strengths-based policies and systems should focus on building developmental assets within the family, peer, and community environments for high-risk youth who have been exposed to violence (ETV).

Keywords

resilience, developmental assets, violence prevention, protective factors, mental health

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Introduction

Over the last three decades, a substantial body of research has focused on the increased risk of psychosocial problems or deviant behaviors among youth who grow up in violent communities. Indeed, exposure to community violence (ETV) increases one's risk of psychosocial, behavioral, and academic problems (Kliewer, Lepore, Oskin, & Johnson, 1998; Osofsky, 1995); however, it is not deterministic (Gorman-Smith & Tolan, 2003). In fact, the majority of youth witnesses and victims of violence subsequently develop into healthy, caring, and confident adults (Benard, 2004; Werner & Smith, 2001). The impetus of this multidisciplinary study was that there must be developmentally appropriate protective factors that youth are able to tap into, to tip the balance from vulnerability in favor of resilience. Few longitudinal studies have empirically examined the significance of developmental assets, that is, stage-salient protective factors that have shown to be fundamental for positive youth development, in building resilience among at or high-risk youth (Taylor et al., 2002; Werner, 2005).

Need for a "Resilience" Perspective to Combat Community Violence

Psychological health outcomes have been the most common sequelae of violence exposure observed, that is, posttraumatic stress disorder, depression, or anxiety (Gorman-Smith & Tolan, 1998; Lynch, 2003; Overstreet & Braun, 1999). A resilience perspective suggests that being resilient does not mean a person is invulnerable to stress, but rather that youth may bounce back, cope, and recover constructively toward "normal" health in a few years (Luthar, 1993). Resilience researchers have consistently shown that 50–70% of children under adverse conditions generally fare well (Benard, 2004; Rhodes & Brown, 1991; Vigil, 1990; Werner & Smith, 2001). Traditional deficit-focused research tends to focus on predicting negative outcomes, revealing that approximately 30% (20–49%) of the youth do not fare well (Rutter, 1987, 2000; Werner & Smith, 2001), rather than predicting positive outcomes among a greater percentage of youth who are "successful" (40–80%, Benard, 2004) within the same environment. A resilience perspective suggests a shift in perspective of the researcher to hone in on elements of positive development that also occurs over time among youth who may have been ETV. In fact, researchers have hypothesized that protective factors are more predictive of positive development than risks are to negative outcomes (Rutter, 1987; Werner & Smith, 2001). And the ecologically-based protective factors are equally amenable to intervention, as risk is, and may contribute to reducing risk exposure as well.

Selection of Protective Factors: Theoretical and Empirical Considerations

Since resilience researchers have generally been critiqued for testing a sundry list of protective factors (Luthar & Zelano, 2003), we explicitly identified the most robust factors that have been conceptually and empirically shown to be robust across disciplines for resilient and nonresilient youth. Also, we found that few studies have explored protective factors relevant to late adolescent through early adulthood years; hence, we also relied on developmental theory and youth development literature to guide our selection. Further, we focused on extrapolating factors at the ecological levels that are amenable to change.

Previous studies. Resilience research within the context of community violence is in its beginning stages. Although numerous longitudinal studies have been undertaken in the last 30 years to better understand resilient trajectories of children exposed to chronic poverty (Garmezy, 1985), parental psychopathology (Rutter, 1985; Werner & Smith, 1992), and child abuse and neglect (Garbarino, Dubrow, Kostelny, & Pardo, 1992), little has been done to document resilience in the face of community violence—despite its high prevalence, persistence, and magnitude.

Recently, several investigators have examined protective factors relevant for emotional and behavioral health in the face of community violence (Bowen & Chapman, 1996; Gorman-Smith, Henry, & Tolan, 2004; Hammack, Richards, Luo, Edlynn, & Roy, 2004; Kliewer et al., 2004; Lynch & Cicchetti, 1998). The majority have focused on different dimensions of family structure and functioning, finding that parental support (Bowen & Chapman, 1996; Kliewer et al., 1998; Kuther & Fisher, 1998), family cohesion (Gorman-Smith & Tolan, 1998; 2003), parental attachment (Lynch & Cicchetti, 1998), or simply presence of a parent (Fitzpatrick & Boldizar, 1993; Overstreet & Braun, 1999) are protective against adverse outcomes—suggesting that resilience-based interventions should focus on improving quality of parent–child relationships and other family-level factors.

However, growing evidence suggests that parents may not be able to compensate for the negative effects of ETV beyond a certain threshold level of risk (Hammack et al., 2004; Kliewer et al., 2004; Luthar & Goldstein, 2004; Sullivan, Kung, & Farrell, 2004), partly because family functioning may also be compromised in most dangerous neighborhoods or those exposed to high rates of community violence over time (Krenichyn, Saegert, & Evans, 2001; Osofsky, 1995; Richters & Martinez, 1993). Others have suggested that parent–adolescent relationships are generally at their worst during teen years and that families become of lesser importance as children develop into adolescents (O'Donnell, Schwab-Stone, & Mueeed, 2002). This suggests that other external sources of support and resources such as in schools, peer groups, and neighborhoods in parallel deserve greater consideration. However, scarce evidence exists documenting the salience of community, schools, and peers to mitigate the effects of violence (Schwartz & Proctor, 2000).

Studies that have examined protective factors for ETV have (a) lacked a clear conceptual framework to guide their selection of protective factors. For example, taking an ecological perspective, a focus solely on relationships would miss resources and opportunities in the schools and/or communities that may be equally relevant to overcome obstacles for at-risk youth; (b) focused largely on earlier development years absent consideration of expanding exposures postadolescence; (c) relied on cross-sectional or short longitudinal data, not measuring long-term impacts of protective factors; and (d) have not accounted for neighborhood-level differences in crime to explicitly account for the individual risk of ETV.

The Developmental Assets and Ecological Framework

This strengths-based study is guided by several interdisciplinary individual and ecological level frameworks. Many researchers concur that to fully examine the issues related to youth ETV, an ecological–transactional framework is required (Cicchetti & Lynch, 1993; Dawes & Donald, 2000), which places the developing child within the dynamic distal context of their families, communities, and societies at large. The Developmental Assets framework (Lerner, Taylor, & von Eye, 2002; Benson, Leffert, Scales, & Blyth, 1998; Leffert et al., 1998) from the youth development literature offers a promising conceptual model for the study of resilience. Going beyond the prevention of high-risk behaviors and into enhancement of resilience, assets reflect core developmental processes operating at multiple levels (Scales & Leffert, 1999). Search Institute highlights four external developmental assets including supportive relationships, empowerment, boundaries and expectations, and constructive use of time. They suggest that by means of positive experiences that meaningful opportunities and relationships with adults offer, reinforced by systems and policies, has tremendous benefits to protect youth from high-risk behaviors, and enhance positive developmental outcomes. The developmental assets framework is in sync with the ecological–transactional framework and has tremendous potential to complement, strengthen, and expand existing resilience research and practice.

Moreover, the growing youth development and positive psychology movement contends that there are external factors fundamental for positive development of all adolescents into adulthood,

including for at-risk youth (Luthar & Zelano, 2003; Masten, 2001). Focused on youth as assets who develop within the context of their families, school, and communities simultaneously, the youth development perspective (Lerner & Galambos, 1998; Pittman, Wilson-Ahlstrom, & Yohalem, 2003) offers great insight for the study of resilience. At-risk youth themselves have voiced the importance of having positive forces such as educational and job opportunities, connection with adults, and meaningful uses of their time as key for countering “the draw of the streets” (Ginburg, Alexander, Hunt, Sullivan, & Cnaan, 2002), and not just the absence of risk factors in their lives (Lerner, Taylor, & von Eye, 2002; Ungar, 2004).

Protective Factors and Resilience

Literature documenting the salience of developmental assets for an array of developmental outcomes is slowly accumulating (Benard, 1991, 2004; Lerner, Taylor, & von Eye, 2002; Benson et al., 1998). Presence of one caring adult whether in the community, home, or school (Luthar & Zelano, 2003; Werner & Smith, 2001) structured opportunities to participate in meaningful activities that provide leadership, sense of responsibility, and decision making, as well as high expectations from parents or other adults have shown to improve mental health for all youth (Benard, 2004; Larson, 2000; Resnick et al., 1997).

However, the relevance of developmental assets for high-risk youth has been rarely tested. Only one exploratory study to our knowledge (Taylor et al., 2002) has found a positive association between the number of assets and competencies among gang members. Considering only the numbers of assets (0–10, 11–20) however, and not specific association of each asset to an outcome (Price, Dake, & Ruthie, 2001), undermines the importance of the few assets available to the highest risk individuals. Moreover, asset studies have not methodologically accounted for the context of violence or other risks that assets inevitably interact with. Low reliability and validity of the Search Institute assets instrument among ethnically diverse inner-city youth has also hindered such investigations (Price et al., 2001; Price, Spence, Sheffield, & Donovan, 2002).

Simply having a set of protective factors does not ensure resilience over time particularly among youth disproportionately exposed to violence (Mazza & Overstreet, 2000). Youth exposed to violence may display average or better-than-expected functioning as a result of variation in “actual” risk exposure (Luthar, Cicchetti, & Becker, 2000), differences in individual characteristics including genetic variability, or differential exposure to assets in the environment. Benson (2002) found that youth under adversity who had higher numbers of assets were 7 times less likely to have high-risk behavior (33%) compared to those with an average number of assets (5%). They found that 40 assets explained 47–54% of the variance in thriving for all youth, over and above demographics; however, among youth with one or more risk factors, only 10% of “thriving” was explained.

Neighborhood-Level Collective Efficacy and Resilience

In a review, Wandersman and Nation (1998) noted that, “research associating resilience to neighborhood factors is sparse.” Growing evidence suggests that neighborhoods matter for adolescent development, though most have focused on examining negative effects of living in poor neighborhoods (Leventhal & Brooks-Gunn, 2000). Few studies have explored how communities may come together to build resilience (Garbarino, 1995). If neighborhoods, via institutional and social conditions, have the power to affect development negatively, similarly, they may have the power to influence positive development (Connell & Aber, 1995). This is in sync with others who recognize the importance of positive social processes within disordered neighborhoods such as collective efficacy (Jain, Buka, Subramanian, & Molnar, 2010; Molnar, Cerda, Roberts, & Buka, 2008; Molnar, Miller, Azrael, & Buka, 2004; Sampson, Morenoff, & Gannon-Rowley, 2002; Sampson,

Raudenbush, & Earls, 1997) and social networks (Garbarino et al., 1992) in preventing peer or parent-to-child violence.

The Present Study

The present strengths-based study enhances prior knowledge across disciplines by testing the relevance of theoretically and empirically based developmental assets for high-risk youth into early adulthood, controlling for individual and neighborhood-level risks. This study aims to (a) understand the main effects of protective factors on emotional resilience longitudinally, controlling for individual and neighborhood-level covariates; (b) determine whether protective factors moderate the association between exposure to violence and emotional resilience; and (c) examine whether neighborhood-level collective efficacy is associated with emotional resilience and whether it modifies the effect of assets on building resilience among youth exposed to violence.

Method

Study Design and the Sample

Data for this study come from the Project on Human Development in Chicago Neighborhoods (PHDCN), a community-based multilevel longitudinal study conducted in 1994–2002 of adolescents, their caregivers, and their neighborhoods. Sampling began by defining 343 neighborhood clusters (NCs) based on aggregated census tracts, representing every dwelling unit within the city. NCs were geographically sensible and homogenous in terms of race/ethnicity, socioeconomic status, family structure, and housing density. In 1994–1995, a community survey was conducted in which an independent sample of 8,872 residents (>18 years) were randomly sampled from the 343 NCs with a 75% response rate (PHDCN, 1998). A random sample of 6,226 children and youth within 6 months of ages 0 (in utero), 3, 6, 9, 12, 15, and 18 were also selected from a random sample of 80 NCs at baseline using a multistage probability design, for the Longitudinal Cohort Study (LCS). About 25 youth per NC were interviewed three times. A detailed description of the sampling procedures used in the PHDCN has been reported elsewhere (Earls & Buka, 1997). For the present study, the community survey, 1990 U.S. Census, and the LCS served as the primary data sources.

The final sample included subjects with nonmissing data at baseline, and assuming data were missing at random, the longitudinal models estimated values for the missing responses in subsequent waves. Values were imputed only if one wave was missing data. If more than one wave was missing data, then no imputation was done. Of the total 1,517 youth who participated in Cohorts 12 and 15 at Wave 1, 1,238 had complete data on ETV at Wave 2, 47 had missing data on outcome at either Wave 2 or 3, and 25 were missing data on at least one covariate. Thus, the final sample included 1,166 youth in 78 neighborhoods for analysis. Subjects dropped from the analysis ($n = 351$) were more likely to be Black, from single-parent families, and have fewer assets (family boundaries, collective efficacy, other adult support) but similar internalizing scores and ETV compared to the other respondents.

Measures

Primary dependent variable. Using a reduced 28-item versions of the Youth Self Report and Young Adult Self Report scales (Achenbach, 1991), a continuous internalizing problem score (0–53) was calculated. The scale included 15 items on *anxiety/depressive* symptoms that captured feelings of loneliness, worthlessness, unhappiness, or whether the subject cries or worries a lot; 9 items on *somatic* symptoms on feelings of dizziness/being overtired or having physical problems such as headache or nausea; and 4 items on *withdrawal symptoms* that captured whether the subject rather

be alone, is shy or secretive, or refuses to talk. If fewer than 6 items were missing, then 0, 1, 2 responses were averaged to create the three subscales that were then summed to create an internalizing scale. Coefficient α s ranged from .86 to .89 at each wave.

For the purposes of this study, we categorized the number of youth who met the criteria for *emotional resilience* versus not, as adequate positive adaptation in the context of risk. We considered positive adaptation to be better than or average mental health functioning but not exceptional functioning, since we are considering exposure to significant adversity, that is, witness or victim to violence (Luthar & Zelano, 2003). Hence, the internalizing scale score was dichotomized into 1 = *resilient youth with scores 0.50 standard deviation below the sample median* and 0 = *nonresilient youth with scores 0.50 standard deviation above the median*. We used gender-specific medians for all youth as the cutoffs versus *T*-scores to better classify emotional “well-being” as typically found in a nonclinical setting (Tedeschi & Kilmer, 2005).

Primary independent variables. Exposure to community violence. Subject’s exposure to 18 different violent events in the community in the past year was measured using the My ETV scale (Buka, Selner-O’Hagan, Kindlon, & Earls, 1997; Kindlon, Wright, Raudenbush, & Earls, 1996; Selner-O’Hagan, Buka, Kindlon, Raudenbush, & Earls, 1998) at Wave 2. This did not account for any violence the adolescent might be experiencing at home. Three subscales of (a) *witnessing* (7 items; $\alpha = .74$), (b) *victimization* (7 items; $\alpha = .57$), and (c) *heard of* (3 items, $\alpha = .37$) were developed, as a sum of yes/no responses (Brennan, Molnar, & Earls, 2007). The psychometric properties of these scales have been tested in diverse populations using item-response theory and Rasch modeling (Brennan et al., 2007; Selner-O’Hagan et al., 1998). Based on the continuous scales, a categorical *ETV group* variable was also created to allow group-specific comparisons with 0 = *nonexposed* group who scored 0 on witnessing and victimization scale but may have heard of violence (1 or more acts); a = *witness* group had witnessed at least one act of violence in the past year, b = *victim* group that had been a victim of at least one act of violence and had witnessed one act or not. The size of the “heard of” group was too small ($n < 20$) to stratify separately so they were grouped with the unexposed youth. Both continuous and categorical variables were tested, to account for the frequency and severity of violence (Buka, Stitchick, Birdthistle, & Earls, 2001).

Protective factors. Items from the PHDCN that corroborated with Search Institute external assets (Benson & Leffert, 1999), that is, support, opportunities, boundaries and expectations, and empowerment, and the California Healthy Kids Survey Resilience module (WestEd) were identified at all waves. Since only parts of reliable scales were available at Waves 2 and 3, baseline data were used. Under support, *family support* (6 items; $\alpha = .73$), *friend support* (8 items; $\alpha = .71$), and *other adult support* (4 items, $\alpha = .53$) emerged from the Provision of Social Relations instrument (Turner, Frankel, & Levin, 1983) per factor analysis and item deletion reliability tests. If more than half the items were not missing, then an average score was calculated based on very/somewhat/not true responses. Note, previously validated and reliable scales were used as much as possible and placed within the developmental assets theoretical domains. For measures where new scales were developed, extensive exploratory and confirmatory factor analysis, item deletion reliability tests, other psychometric analyses, and theory were used (unpublished to date). Under expectations and boundaries, *positive peer influence* (10 items from Deviance of Peers; Huizinga, Esbenson, & Weiher, 1991; $\alpha = .62$) captured whether friends model responsible behavior, for example, the number involved in sports/community/religious/family/after-school activities, considered good students or good citizens. *Family boundaries and expectations scale* (13 items from Home; Caldwell & Bradley, 1984; $\alpha = .63$) captured items on parental monitoring, and having clear rules and consequences at home. Under opportunities, sum of *time spent in structured activities* per week in school or after-school was calculated based on 2 items from the school questionnaire (Furstenburg, 1990). All scales were individually

standardized to have a mean of zero and standard deviation of one. Only significant interactions are shown in the results.

Neighborhood-level predictors. *Neighborhood social cohesion.* (Sampson et al., 1997; $\alpha = .80$) was a sum of 5 items from the community survey (*strongly disagree* to *strongly agree*) about residents' willingness to help, trust each other, get along, share the same values, and perceive the community as close-knit. *Neighborhood social control* (5 items from community survey; $\alpha = .80$; Sampson et al., 1997) captured perception of neighborhood boundaries, that is, neighbors will intervene if children are skipping school, hanging out on a street corner, or spray-painting graffiti. *Collective efficacy* (Sampson et al., 1997) was a sum of these two subscales based on aggregated independent resident responses from the community survey. Internal consistency of the scale was high, with Cronbach's coefficient α of .89; higher scores representing greater collective efficacy in a neighborhood. *Organizations and services* index included 8 items on the presence of various local organizations and programs such as parks, block group, neighborhood watch group, mental health center, and 6 items on youth services such as recreational programs, after-school programs, mentoring/counseling services.

Neighborhood-level confounders. *Concentrated poverty* was calculated using the first principal component of three U.S. Census items: percentage of persons unemployed, receiving public assistance, and living below the federal poverty line in 1990. *Perceived violence in the community* was a sum of 5 items on the community survey assessing how often the respondent had witnessed a robbery or mugging, a fight among neighbors, a fight with weapon, sexual assault or rape, or a gang fight in the last 6 months. The responses ranged from 1 = *often* to 4 = *never*; higher score representing greater perceived violence at baseline.

Individual-level confounders. Sociodemographics of youth included *age* (centered at the mean), *gender* (female = reference group), *family socioeconomic position* (composite of parental income, education and occupational code; maximum of either parent was used), *family structure* (two biological parents = reference, biological/one nonbiological, one biological, and other/ two nonbiological), and *race/ethnicity* (White, Asian/PI, and other race was the reference group, vs. Black and Hispanic groups). Continuous measures at individual and neighborhood levels were grand-mean centered for ease of interpretation. For missing responses to these covariates, the mean value was imputed and a variable indicating imputation was added to all models.

Data Analysis

All analyses were done using SAS version 8.0 (SAS Institute, 1999). First, among the final sample of 1,166 youth, differences in protective factors, individual, and neighborhood level characteristics were examined by ETV group. Chi-square tests and *t* tests were used to assess whether differences in categorical and continuous covariates between groups were significant. Bivariate Pearson correlations were examined to assess the magnitude and significance of the correlations between the primary outcome, risk of ETV, and protective factors. Systematic differences between respondents and nonrespondents were also examined.

Next, Generalized Estimating Equations (GEE) with a logit function were estimated regressing intercept at Wave 2 and change in log odds of emotional resilience between Waves 2 and 3 onto individual and neighborhood-level predictors at baseline (Bryk & Raudenbush, 1987; Liang & Zeger, 1986; Subramanian, Jones, & Duncan, 2003). Unstructured within-subject correlations of binary response between Waves 2 and 3 were modeled, partly to account for the temporal association between predictors and outcome, and to adjust for clustering. GEE was the preferred method of analysis as this technique provides a statistically robust model that adequately accounts for variation in the

outcome that exists at multiple levels, as well as adjustments for expected autocorrelation across time (within-subjects) and space (between subjects within neighborhoods; Fitzmaurice, Laird, & James, 2004). GEE further (a) accommodates missing data at various time points, (b) does not assume comparable growth across all subjects, (c) allows for inconsistent timing of data collection, and (d) in comparison to nlmixed, estimates group-specific parameters, not subject-specific parameters in relation to prototypical neighborhoods (Hanley, Negassa, Edwardes, & Forrester, 2003; SAS Institute, 1999; Wolfinger & Chang, 1998). First, a person-period data set was created in which each person had three records, one for each wave (Singer & Willett, 2003). Next, data were structured with 2,332 repeated observations at Level 1 nested within 1,166 individuals at Level 2, nested within 78 neighborhoods at Level 3. Depending on the covariates included in the model, the analytic sample varied.

To test specific hypotheses, multilevel models were sequentially built starting with the null model with no predictors, adding time (age), primary risk variable (ETV group), Level 2 controls (sex, race, socio-economic position [SEP], family structure), and Level 3 controls (neighborhood perceived violence and concentrated poverty). Victimization (continuous) was also kept in the models since it changed the coefficient of ETV group significantly, and remained significant ($p < .05$) even after inclusion of assets. To test for the main effects of assets on the log odds of emotional resilience at Wave 2 (intercept; Aim 1), individual assets were added to the fully conditional model; for the main effect of an asset on the rate of change between Waves 2 and 3 (slope), a two-way interaction asset \times age was included in the above model. To test for the interactive effect of each asset with ETV (Aim 2), a two-way interaction term between an asset and ETV was included in the intercept model above, and a three-way interaction term was included in the slope model above to assess the differential effects of assets on slopes by ETV groups. Interactive slope models also controlled for age \times ETV term but not age \times sex as slope did not vary by sex ($p > .05$). Note ETV was kept as two dummy variables with witness versus not and victim versus not to allow for comparisons across groups; and separate models were run for each asset. Age was centered at Wave 2 thus the intercept terms in the models estimated the log odds of emotional resilience at Wave 2 associated with a one standard deviation increase in the asset, controlling for covariates. Slope terms estimated the change in the log odds of emotional resilience between Waves 2 and 3 for each *SD* increase in an asset, controlling for covariates. Finally, the main and interactive effects of neighborhood-level collective efficacy and organizational services, separately with ETV and each asset, on emotional resilience were tested.

Results

Sample Characteristics

Table 1 presents the individual and neighborhood characteristics at baseline of 1,166 youth in 78 Chicago neighborhoods, stratified by ETV group, that is, unexposed ($n = 255$; 22%), witnesses ($n = 519$, 45%), and victims ($n = 392$, 34%). The average age of subjects in all three groups was 13.5 years (11–16) at Wave 1, 15.5 years (12–20) at Wave 2, and 18.1 years (15–22) at Wave 3. Blacks were overrepresented in the witness and victim groups, compared to the unexposed (37% and 41% vs. 21%, $p < .05$). Victims were more likely to be male (55%) and living in single family households (33%) compared to witnesses and unexposed. In terms of neighborhood characteristics, witnesses and victims lived in neighborhoods of higher mean concentrated poverty compared to the unexposed group ($p < .05$). In terms of the distribution of protective factors, the unexposed group had significantly higher levels of family support and positive peers compared to the other two groups; and victims reported significantly lower positive peer influence, family boundaries, and friend support than other ETV groups. Hours in structured activities, other adult support, neighborhood cohesion, and neighborhood control were similar across all ETV groups ($p > .05$).

Table 1. Selected Sample Characteristics by Exposure to Violence Group^a, *N* = 1,166 Youth in 78 Neighborhoods, PHDCN Cohorts 12 and 15.

| | Unexposed, <i>n</i> = 255 | Witness group, <i>n</i> = 519 | Victim group, <i>n</i> = 392 |
|---|------------------------------|----------------------------------|---------------------------------|
| Individual-Level Covariates | <i>M</i> (<i>SD</i>) | <i>M</i> (<i>SD</i>) | <i>M</i> (<i>SD</i>) |
| Age at baseline (range: 11–16) | 13.2 (1.4) | 13.5 (1.5) | 13.7 (1.5) |
| Socioeconomic position ^b (–3.0, 3.5) | –0.07 (1.4) | –0.18 (1.4) | –0.06 (1.5) |
| Sex | Percent (<i>N</i>) | Percent (<i>N</i>) | Percent (<i>N</i>) |
| Male | 40.4% (103) ² | 46.8% (243) ² | 55.2% (217) |
| Female | 59.6% (1532) ² | 53.2% (276) ² | 44.8% (175) |
| Race | | | |
| Black | 20.8% (53) ^{1,2} | 37.0% (192) | 41.1% (161) |
| Hispanic | 52.5% (134) | 46.6% (242) | 44.1% (173) |
| White and others ^c | 27.7% (68) ^{1,2} | 16.4% (85) | 14.8% (58) |
| Family structure | | | |
| Two biological parents | 56.9% (145) ^{1,2} | 46.4% (241) ² | 38.8% (152) |
| One biol—one nonbiol | 17.7% (45) ² | 17.2% (89) ² | 22.4% (88) |
| One biological parent | 21.6% (55) ^{1,2} | 28.9% (150) | 33.2% (130) |
| Two nonbiological parent | 3.9% (10) ¹ | 7.5% (39) | 5.6% (22) |
| Protective factors at baseline | | | |
| Support | <i>M</i> (<i>SD</i>) | <i>M</i> (<i>SD</i>) | <i>M</i> (<i>SD</i>) |
| Family support (–4.7, 0.9) | 0.20 (0.84) ^{1,2} | –0.00 (0.97) | –0.04 (1.03) |
| Friend support (–3.8, 1.3) | 0.04 (1.05) | 0.04 (0.96) | –0.02 (0.97) |
| Other adult support (–2.7, 1.3) | –0.03 (1.01) | 0.04 (0.97) | 0.03 (0.98) |
| Neighborhood cohesion (–2.2, 2.8) | –0.00 (1.03) | –0.06 (0.95) | 0.03 (1.03) |
| Opportunities | | | |
| Hrs structured activities (–0.9, 12.1) | –0.00 (1.04) | 0.01 (1.01) | –0.06 (0.88) |
| Expectations and boundaries | | | |
| Positive peer influence (–3.6, 3.3) | 0.13 (1.09) ² | 0.02 (0.96) | –0.06 (1.01) |
| Family boundaries (–5.3, 0.9) | 0.15 (0.91) ² | 0.05 (0.94) | –0.05 (1.00) |
| Neighborhood control (–2.6, 2.2) | –0.02 (1.06) | –0.01 (0.95) | –0.00 (1.01) |
| Neighborhood-level at baseline | | | |
| Collective efficacy (–1.9, 2.6) | –0.01 (1.06) | –0.04 (0.94) | 0.01 (1.03) |
| Organizational services (–.05, 0.5) | 0.17 (0.10) | 0.16 (0.09) | 0.17 (0.10) |
| Concentrated poverty ^b (–1.1–2.7) | –0.17 (0.72) ^{1,2} | 0.06 (0.76) | 0.03 (0.78) |
| Perceived violence (1.3–2.9) | –0.01 (0.37) | 0.01 (0.34) | –0.01 (0.35) |

Note. PHDCN = Project on Human Development in Chicago Neighborhoods; *SD* = standard deviation.

^aSample size is based on complete data for Cohorts 12 and 15 at Wave 2 for ETV, all covariates and nonmissings for both Waves 2 and 3 outcome. The witness group includes youth who had witnessed at least one act of violence in the past year (=1), victim group (=1) includes youth who had been a victim of at least 1 act of violence and had witnessed one act or not. The unexposed group had witnessed or been a victim of no act of violence in the past year.

^bSocioeconomic status is based on principal component of parental income, education, and occupation. Neighborhood concentrated poverty is principal component of % poverty, % unemployed, and % on public assistance.

^cOther race includes Asian, Pacific Islanders, and Native Americans.

¹*p* < .05 versus witness group. ²*p* < .05 versus victim group.

The percentage of youth who met the criteria for emotional resilience varied by the level of risk (ETV), ranging from 60% to 85% at any time point (see Table 2). Across time, 59% of all youth were resilient at both waves, 11% nonresilient at either wave, and 30% crossed-over, that is, nonresilient became resilient or resilient became nonresilient. Victims were least likely to be emotionally resilient at both waves (50%), followed by witnesses (62%). Emotional resilience dropped among the unexposed over time, whereas it increased among the witnesses and victims emulating the unexposed by Wave 3.

Table 2. Percent Youth Who Are Emotionally Resilient^a Across Waves by Exposure to Violence

| | Single Time Point | | Resilience Over Time | | | |
|---------------------------------|-------------------|-------------------|-----------------------|------------------|-----------------|------------------|
| | Wave 2 (%) | Wave 3 (%) | Resilient at Both (%) | Nonresilient (%) | R ≥ NR (%) | NR ≥ R (%) |
| No ETV (<i>n</i> = 264) | 85 ^{1,2} | 78 ^{1,2} | 69 ^{1,2} | 6 ² | 16 ² | 9 ^{1,2} |
| Witness group (<i>n</i> = 525) | 75 ² | 77 ² | 62 ² | 9 ² | 14 ² | 15 ² |
| Victim group (<i>n</i> = 406) | 60 | 74 | 50 | 17 | 10 | 23 |
| All youth (1,195) | 72 | 76 | 59 | 11 | 13 | 17 |

Note. ETV = exposed to community violence; R = resilience; NR = nonresilient.

^aPercent emotionally resilient is based on (a) risk and (b) adapted or not; Resilient youth (=1) are those with internalizing score less than .50 standard deviation of the sample median, nonresilient (=0) have internalizing scores greater than .50 standard deviation. Cutoffs are based on gender-specific medians for total sample at each wave.

¹*p* < .05 versus witness group.

²*p* < .05 versus victim group.

Multivariate correlations (see Table 3) revealed that internalizing scores at Waves 2 and 3 were significantly correlated ($p < .05$) with risk, that is, witnessing, victimization, as well as with several protective factors, that is, family support, friend support, other adult, positive peer influence, and family boundaries. Of all the protective factors, positive peers, family support, and family boundaries had significant correlations with both the outcome and the ETV variables. Collective efficacy was positively correlated with hours in activities, friend support, positive peers, and organizational services, but not with internalizing scores.

Multilevel Models

Developmental Assets and Emotional Resilience

Main effects of exposure to violence. Next, Tables 4 and 5 display the final conditional models of GEEs, showing the association between assets at baseline and the odds of emotional resilience at Wave 2 (intercept) and over time from Waves 2 to 3 (slope), controlling for individual and neighborhood-level confounders. Note, only the fixed effects are shown, as random effects are not estimated per marginal linear models. The unexposed group had the highest odds of emotional resilience at Wave 2, that is, 3.10 (95% CI [2.25, 4.26]), compared to 2.25 (95% CI [1.22, 4.15]) for witnesses, and 1.64 (95% CI [0.79, 3.41]) for victims, conditional on individual characteristics and perceived violence in the neighborhood and poverty. Hence, witnesses (OR = 0.70, 95% CI [0.54, 0.97]) and victims (OR = 0.55, 95% CI [0.35, 0.80]) had 30% and 45% lower odds of being emotionally resilient compared to the unexposed group ($p < .05$). Males had higher odds of emotional resilience, though sex did not interact with any of the assets; suggesting that all youth regardless of gender benefited similarly from access to assets.

Main effects of assets on emotional resilience at Wave 2. As shown in Table 4, four developmental assets had positive main effects on odds of emotional resilience, that is, they were protective for all youth regardless of violence exposure. Friend support, family support, other adult support, and positive peers increased the odds of emotional resilience significantly ($p < .01$), above and beyond individual and neighborhood-level confounders. For instance, an increase of 1 *SD* in positive peer influence increased the odds of emotional resilience by 22% (OR = 1.22, 95% CI [1.10, 1.36], $p < .001$) for the reference group. The intercept term remained significant even after inclusion of all assets, thus additional factors not considered in the study are likely contributing to emotional resilience.

Table 3. Multivariate Correlations Among Study Variables, PHDCN Cohorts 12 and 15

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------------------|----------|----------|----------|---------|---------|---------|---------|---------|---------|-------|---------|---------|---------|
| Resilient outcomes | | | | | | | | | | | | | |
| Internalizing score w2 | 1.00 | | | | | | | | | | | | |
| Internalizing score w3 | 0.55*** | 1.00 | | | | | | | | | | | |
| Risk | | | | | | | | | | | | | |
| Witnessing | 0.13*** | 0.08* | 1.00 | | | | | | | | | | |
| Victimization | 0.19*** | 0.13*** | 0.47*** | 1.00 | | | | | | | | | |
| Protective factors | | | | | | | | | | | | | |
| Family support | -0.26*** | -0.24*** | -0.12*** | -0.07* | 1.00 | | | | | | | | |
| Friend support | -0.05† | -0.08* | -0.01 | 0.02 | 0.28*** | 1.00 | | | | | | | |
| Other adult support | -0.07* | -0.10** | -0.02 | 0.02 | 0.34*** | 0.21*** | 1.00 | | | | | | |
| Neighborhood cohesion | -0.04 | 0.03 | -0.02 | 0.04 | 0.01 | 0.06† | 0.02 | 1.00 | | | | | |
| Positive peers | -0.12*** | -0.16*** | -0.12*** | -0.08** | 0.28*** | 0.25*** | 0.25*** | 0.08** | 1.00 | | | | |
| Family boundaries | -0.08* | -0.07* | -0.17*** | -0.07* | 0.12*** | 0.06† | 0.14*** | -0.00 | 0.12*** | 1.00 | | | |
| NC boundaries | -0.00 | 0.04 | -0.01 | 0.01 | 0.02 | 0.08** | -0.03 | 0.77*** | 0.08** | 0.01 | 1.00 | | |
| Hours in activities | -0.08* | -0.05 | 0.05† | 0.03 | 0.00 | 0.02 | 0.05† | 0.11*** | 0.11*** | 0.06* | 0.09** | 1.00 | |
| Collective efficacy | -0.02 | 0.03 | -0.02 | 0.02 | 0.02 | 0.07* | -0.01 | 0.93*** | 0.08** | 0.01 | 0.95*** | 0.11*** | 1.00 |
| Organizational services | -0.07* | -0.03 | -0.06† | 0.01 | 0.01 | -0.00 | -0.01 | 0.25*** | 0.07* | 0.05† | 0.25*** | 0.12*** | 0.26*** |

Note. PHDCN = Project on Human Development in Chicago Neighborhoods.

All measures are continuous so Pearson correlations were used to test significance. Internalizing scores are measured at Waves 2 and 3, ETY at Wave 2, and protective factors at baseline. All protective factors are standardized to a mean of 0 and standard deviation of 1.

†p < .10. *p < .05. **p < .01. ***p < .001.

Table 4. GEE Models^a Predicting Emotional Resilience at Wave 2 by Baseline Developmental Assets^b: Main and Interactive Effects PHDCN, 1, 166 Youth Nested in 78 Chicago Neighborhoods (OR and 95% CI)

| | Model A ^b | Model B ^c | Model C ^d |
|---|---|--|--|
| | Main Effect of Asset on Each Group + ETV/Controls | Main Effect of Asset on Each Group Witnesses | Interaction of Asset and ETV Difference Between Groups |
| Base model | | | |
| ETV | 0.72 [0.59, 0.89]** | | |
| ETV with dummies | — | 3.10 [2.25, 4.26] | 1.64 [0.79, 3.41]** |
| Supportive relationships | | | |
| Friend support | 1.28 [1.15, 1.41]** | 1.18 [0.97, 1.44]† | 1.30 [1.10, 1.55]** |
| Family support | 1.37 [1.23, 1.52]** | 1.66 [1.29, 2.13]** | 1.27 [1.09, 1.48]** |
| Other adult support | 1.14 [1.02, 1.27]** | 1.27 [1.00, 1.63]† | ns |
| Neighborhood cohesion | 1.03 [0.90, 1.19] | ns | ns |
| Boundaries and expectations | | | |
| Positive peers | 1.22 [1.10, 1.36]** | 1.44 [1.15, 1.79]** | 1.14 [0.96, 1.35] |
| Neighborhood control | 0.98 [0.86, 1.12] | 1.1 [0.90, 1.37] | 0.91 [0.76, 1.10] |
| Family boundaries | 1.09 [0.98, 1.22] | ns | ns |
| Opportunities for meaningful participation | | | |
| Hours in activities | 1.07 [0.94, 1.21] | 1.33 [1.01, 1.75]** | ns |
| Collective efficacy | 1.01 [0.87, 1.16] | ns | ns |
| Organizational services | 0.88 [0.28, 2.77] | ns | ns |

Note: OR = odds ratio; CI = confidence intervals; ETV = exposed to community violence; GEE = generalized estimating equations; ns = nonsignificant coefficient; PHDCN = Project on Human Development in Chicago Neighborhoods; SD = standard deviation.

^aAll assets are continuous measures at baseline standardized to a mean of 0 and standard deviation of 1. Dependent variable is the log odds of emotional resilience (proportion of youth with internalizing score within 0.50 SD above the sample median (=0) vs. ones above the 0.50 cutoff = 0). Log odds coefficients were converted to odds ratio and 95% confidence intervals by taking natural log of each coefficient.

^bThe odds ratio shown is an estimate of the odds of emotional resilience associated with 1 SD increase in the asset for the unexposed group, controlling for covariates. Model A controls for sex, race/ethnicity, family socioeconomic position, family structure, age (centered at Wave 2), ETV group (0, 1, 2), and frequency of victimization.

^cThe odds ratio shown is an estimate of the odds of emotional resilience associated with 1 SD increase in the asset within that group, controlling for covariates. Model B includes an interaction term between asset and categorical ETV with dummies witness or not; victim or not, without main effect of asset. The significant β values reflect that odds ratio changed significantly with the addition of asset for that group, compared to the odds ratio at base.

^dModel C includes the main effect of asset in the models, thereby providing estimates of whether the difference in the interactions is significant compared to the unexposed group.

† $p < .10$. ** $p < .05$. *** $p < .001$.

Interactive effects of assets with exposure to violence. Positive peers and family support had borderline interactive effects ($p < .10$) with being a victim (see Table 4). More positive peers resulted in 21% lower odds of emotional resilience for victims (OR = 0.79, 95% CI [0.60, 1.04]) compared to the unexposed. Family support was also marginally *less* protective for victims compared to the unexposed group (OR = 0.77, 95% CI [0.57, 1.03]). Notably though, when we look at significance of assets *within* each ETV group: for witnesses for instance, each unit increase in positive peers (OR = 1.21, 95% CI [1.02, 1.43]) and other adult support (OR = 1.15, 95% CI [0.98, 1.36]) significantly increased the odds of resilience. The nonsignificant interaction terms imply that these supports were equally likely to increase resilience for victims and witnesses compared to the unexposed group. Friend support was more beneficial for witnesses and victims, resulting in 30% higher odds of resilience with each unit increase in asset, compared to an 18% increase among the unexposed.

Main and interactive effect on rate of change in resilience. Besides examining the effect of assets on likelihood of resilience at a single time point, we further assessed whether assets predicted the rate of change in emotional resilience across time, as displayed in Table 5. Conditional on all covariates, emotional resilience increased marginally by Wave 3 in the base model (OR = 1.06, 95% CI [0.92, 1.13]). By Wave 3, emotional resilience decreased by 28% within the unexposed and 1% for witnesses yet increased by 27% among the victims. Thus, emotional resilience changed differentially by ETV group ($p < .05$), that is, compared to the unexposed group, emotional resilience increased significantly for witnesses (OR = 1.21, 95% CI [1.01, 1.46]) and victims (OR = 1.55, 95% CI [1.29, 1.86]).

Greater friend support, positive peers, and hours in structured activities alter the slope marginally differentially for ETV groups. For instance, friend support at baseline inversely affected the slope for witnesses versus unexposed (OR = 0.84, 95% CI [0.73, 0.99]), that is, each unit increase in friend support increased resilience 7% among the unexposed; yet, decreased the rate of resilience among witnesses by 8%.

Within the witness and victim groups, the level of family support, neighborhood cohesion, and control also changed the odds of resilience from Waves 2 to 3, similar to unexposed groups. Thus victims with greater family support had less of an increase in resilience from Waves 2 to 3 (OR = .91, 95% CI [0.83, 0.99]), compared to victims with no family support. Similarly, for witnesses, each unit increase in baseline neighborhood-level protective factors was associated with 15% lower emotional resilience by Wave 3 suggesting that lower ETV group may benefit more initially from higher neighborhood cohesion and control, but the protective effects do not last.

Collective Efficacy and Emotional Resilience

Main and interactive effects. Neighborhood collective efficacy at baseline did not influence the odds of emotional resilience at Waves 2 or 3, above and beyond inclusion of all individual and neighborhood-level confounders including ETV and individual-level assets (Table 4). Collective efficacy however was a significant predictor of the rate of change in emotional resilience for witnesses; the effect of collective efficacy on the slope was robust and significant even after inclusion of individual assets and ETV group; though the effect on rate of change was not significantly different by ETV groups (Table 5). The decrease in emotional resilience was greater for the unexposed (OR = 0.95 (95% CI [0.81, 1.11]) and witnesses (OR = 0.86 (95% CI [0.77, 0.95]) who had higher levels of collective efficacy at baseline, whereas the increase in resilience among victims (OR = 1.03 (95% CI [0.93, 1.12]) did not vary by collective efficacy.

None of the cross-level interactions between individual-level assets and collective efficacy were significant; in fact, the more proximal assets (those with main effects originally), remained significant in most cases above and beyond inclusion of collective efficacy and the neighborhood-level confounders. Organizations and services had no main or interactive effects.

Table 5. GEE Models^a Predicting Change in Emotional Resilience Between Waves 2 and 3 by Baseline Developmental Assets^a: Main and Interactive Effects PHDCN, 1,166 Youth Nested in 78 Chicago Neighborhoods (OR and 95% CI)

| | Model B ^b Main Effect of Asset on Each Group | | Model C ^c Interaction of Asset and ETV Difference Between Groups | |
|---|---|---------------------|--|--|
| | Unexposed | Witnesses | Victims | |
| Base model^d | | | | |
| Age | 1.06 [0.92, 1.13]† | | | |
| ETV × Age | 0.82 [0.70, 0.95]** | 0.99 [0.90, 0.91] | 1.27 [1.15, 1.40]** | Witness: OR = 1.21 [1.01, 1.46]* Victim: OR = 1.55 [1.29, 1.86]** |
| Supportive relationships | | | | |
| Friend support | 1.07 [0.95, 1.21] | 0.91 [0.82, 1.01]† | 0.97 [0.88, 1.07] | Witness OR = 0.84 [0.73, 0.99]* |
| Family support | 1.01 [0.84, 1.21] | 1.05 [0.96, 1.15] | 0.91 [0.83, 0.99]* | ns |
| Other adult support | 1.05 [0.91, 1.21] | ns | ns | ns |
| Neighborhood cohesion | 0.93 [0.80, 1.08]† | 0.85 [0.76, 0.95]** | 1.02 [0.93, 1.11] | ns |
| Boundaries and expectations | | | | |
| Positive peers | 1.14 [0.98, 1.32]† | 0.96 [0.86, 1.08] | 0.99 [0.90, 1.08]* | Witness OR = 0.84 [0.70, 1.02]† |
| Neighborhood control | 0.96 [0.83, 1.12] | 0.89 [0.80, 0.98]* | 1.02 [0.93, 1.12] | ns |
| Family boundaries | 1.09 [0.98, 1.22] | ns | ns | ns |
| Opportunities for meaningful participation | | | | |
| Hours in activities | 1.14 [0.92, 1.42] | 0.93 [0.84, 1.03] | 0.93 [0.84, 1.04] | Witness and victim: OR = 0.81 [0.64, 1.03]† |
| Collective efficacy | 0.95 [0.81, 1.11]† | 0.86 [0.77, 0.95]** | 1.03 [0.93, 1.12] | ns |
| Organizational services | 0.88 [0.28, 2.77] | ns | ns | ns |

Note. OR = odds ratio; CI = confidence intervals; ETV = exposed to community violence; GEE = generalized estimating equations; ns = nonsignificant coefficient; PHDCN = Project on Human Development in Chicago Neighborhoods; SD = standard deviation.

^aAll assets are continuous measures at baseline standardized to a mean of 0 and standard deviation of 1.

^bThe odds ratio shown is an estimate of the rate of change in emotional resilience associated with 1 SD increase in the protective factor within that group, controlling for covariates. All models include protective factor × age, ETV × age, and main protective factor × ETV interaction terms using dummy ETV variable. Model B includes three-way interaction term between protective factor × age × ETV, without the main effect of asset. Thus, the significant *p* values reflect that slope changed significantly with the addition of asset for that group, compared to the rate at base.

^cModel C includes the main effect of asset in the models, thereby providing estimates of whether the difference in the interactions is significant compared to the unexposed group.

^dBase model controls for sex, race/ethnicity, family socioeconomic position, family structure, age, ETV group (0, 1, 2), and frequency of victimization.

†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

Discussion

This longitudinal, strengths-based study explored whether multilevel protective factors build emotional resilience among an ethnically diverse sample of at-risk youth. Specifically, we examined whether developmental assets deemed salient for all adolescents, were protective for adolescents exposed to violence above and beyond individual and neighborhood confounders. Reliable and valid measures of assets tested among an ethnically diverse sample were used.

Supportive Relationships

Indeed, the role of supportive relationships in the positive development of children is well documented for health and mental health (Wight, Botticello, & Aneshenel, 2006) though for youth exposed to violence, evidence is limited. While family support was protective against Post-traumatic Stress Disorder (PTSD) in one study, (Ozer & Weinstein, 2004), the impact of support by friends was not in another and needs to be further examined (O'Donnell et al., 2002). In our sample, supportive relationships were particularly strong predictors of emotional resilience for all youth including witnesses and victims across time, beyond individual and neighborhood confounders (Gorman-Smith, Tolan, & Henry, 2000; Hammack et al., 2004; Kliewer et al., 2004; Krenichyn et al., 2001; O'Donnell et al., 2002).

Family support remained highly protective for all ETV groups at Wave 2 though less so for victims, as has been suggested (Kliewer et al., 2004). It remained equally protective over time for the lowest and highest ETV groups. Among victims for instance, family support seemed to stabilize emotional resilience, not enhance it, as has been suggested previously (Hammack et al., 2004; Ozer & Weinstein, 2004). This implies that support from family has strong and stable effects on emotional well-being even for victims, as has been documented for victims of physical abuse (Lansford et al., 2006). This contradicts with others who have found limited protective effects of family cohesion or caring relationships with a parent on internalizing symptoms (Kliewer et al., 2004). Although we accounted for both family structure and function and controlled for perceived violence in the neighborhood, it is possible that family and friends functioning is also compromised due to exposure to community violence (Lynch & Cicchetti, 2002). How violence impacts family functioning and peer interactions needs to be better understood.

As suggested by Bronfenbrenner (1979), the family and peer microsystems serve as highly influential factors for youth development. And per Cauce, Felner, and Primavera (1982) and O'Donnell, Schwab-Stone, and Muyeed (2002), the impact of support varies by the source of social support—so we looked at friend versus family versus other adult support separately. In our study, friend support was more protective for witnesses and victims than the unexposed group initially; though, positive effects of friends did not last across time for witnesses or victims (Schwartz & Proctor, 2000). In fact, having friend support at baseline, and becoming a witness to violence, seemed to have a negative effect on the mental health of the witness group. Interestingly, having “other” adult support and neighborhood support/cohesion at baseline did not influence emotional resilience in later years.

Opportunities for Meaningful Participation

Numerous investigators have noted the benefits of participating in meaningful activities such as sports, drama, arts on mental health and related outcomes (Bell & Suggs, 1998; McNeal, 1998); however, few have explored the benefits for at-risk youth longitudinally. We found that hours spent in structured activities during early adolescent years had a significant effect on building emotional resilience among the unexposed group only. Structured activities did not buffer the effects of being a witness or victim at Wave 2; but they did influence the rate of change in development of resilience differentially by ETV groups. Thus, victims who spent more hours per week in school-based or

after-school activities at baseline had a slower increase in emotional resilience after Wave 2 and unexposed had a slower decrease. Since the unexposed group had significantly higher odds of resilience at Wave 2, some tendency toward the “mean” is expected. However, it also suggests that having participated in structured activities at baseline does not buffer the effects of subsequently becoming a witness or a victim to violence. Future studies should consider the benefits of participation in activities after exposure to violence, accounting for the decrease in opportunities for 18- to 24-year-olds (Pittman et al., 2003), and cover a broader range of outcomes.

Boundaries and Expectations

Research shows that high expectations and boundaries set by parents, teachers, and peers can have both positive and negative effects on the child (Crosnoe, 2000; Leffert et al., 1998). In this study, we found that having positive peers increased the odds of emotional resilience for all youth, beyond individual and neighborhood risks. This finding is consistent with others that have shown the importance of having positive friends particularly during adolescent years (Crosnoe, 2000; Leffert et al., 1998).

The effects of positive peers on both emotional resilience at Wave 2 or across time varied by the ETV group such that victims with positive peers benefited less at baseline than the unexposed group. In terms of the rate of change, resilience dropped further for witnesses with each unit increase in positive peers, whereas the unexposed group had slower decline longitudinally. O’Donnell et al. (2002) also found that peer support surprisingly increased the odds of depression among witnesses. Indeed, it is possible that having positive peers who are good students, good citizens, and honest individuals, could have a negative psychological effect on youth who become witnesses to violence as they might feel relatively more anxiety and distress while trying to meet the expectations of “well-functioning” peers, especially in the context of a school and community which they now perceive to be violent. Another explanation may be that deviant friends (who may also have been exposed to violence) may provide more positive emotional support for at-risk youth.

We also found that victims benefited the most from having assets in their lives, for example, friend support. Given that youth with highest ETV (and generally other risks) also have the lowest average number of assets (Lerner, Taylor, & von Eye, 2002), it would be particularly useful to build external assets in families and peers for the highest risk youth as O’Donnell (2002) notes that “they not only need these services the most but also will benefit the most from them.”

There may be a number of mechanisms by which assets might translate into emotional resilience within the context of community violence (Rutter, 1987, 1995). For instance, assets might (a) reduce actual exposure to violence, for example, participating in sports would prevent ETV during after-school hours; (b) reduce the impact or trauma associated with violence or enhance coping, for example, talking to caring adults may provide a venue to disclose distress; (c) reduce the negative chain of events from ETV, for example, youth who have witnessed violence may not associate with deviant peers; or (d) enhance self-esteem via positive peer relations or access to meaningful opportunities, due to involvement in extracurricular activities or volunteer work.

Neighborhood-Level Collective Efficacy

Finally, neighborhood-level cohesion and control, individually or as a composite of collective efficacy (Sampson et al., 1997), did not influence emotional resilience at any single time point but increased resilience over time, especially for victims. Other longitudinal studies have found that neighborhood cohesion or quality does not protect against the effects of violence to influence adjustment among at-risk youth (Furstenburg & Hughes, 1995; Kliwer et al., 2004). Though slightly protective (2–8%) for all groups at Wave 2, by Wave 3 odds of emotional resilience dropped

significantly among witnesses and unexposed living in a cohesive community; whereas victims in a cohesive community continued to have increased odds of emotional resilience. This suggests that living in a caring community improves emotional well-being of a lower risk group initially, whereas trust and cohesion in a community protects victims against increase in vulnerability or embodiment of stress over time (Luthar et al., 2000). Given that limited factors have been found to be protective for the highest risk individuals, this study suggests that community capacity building efforts may be particularly useful interventions in sustaining emotional resilience for victims (Wolkow & Ferguson, 2001). This study furthers the robustness of the collective efficacy construct toward building resilience, an unexplored area of research deserving greater attention (Wandersman & Nation, 1998). Future neighborhood inquiries on resilience would benefit from capturing changes in collective efficacy at subsequent time points, and assessing positive developmental trajectories over a longer life span.

Moreover, despite widespread recognition that direct neighborhood effects are rather small and that they largely operate through proximal forces, little is known about the specific ways by which neighborhoods influence resilience. Many communities throughout the United States, in an attempt to combat violence, are turning to organizing residents and building cohesion, yet how a distal community process translates into resilience among its youth is largely unknown. Understanding how collective efficacy works through proximal forces would further the salience of this powerful construct.

Our study findings suggest that as youth in urban neighborhoods negotiate healthy development, within the context of violence and other risks, there are factors in the expanding social spheres such as support from family, friends, or other adults, having positive peers, neighborhood control, cohesion, and time spent in structured activities that may buffer the effects of violence and subsequently build emotional resilience. Peers and communities may become more important as youth age past adolescence. Family support also carries potential to protect against the effects of witnessing greater acts of violence longitudinally. Identifying interactive processes by which schools, families, and community together influence positive development also deserves greater attention.

Limitations and Strengths

This study has several limitations. First, protective factors were measured at baseline only, thus they do not account for changes in the neighborhoods, friends, or family over the length of the observation period. Future studies should consider additive effects of protective factors over time, and measuring all theoretically relevant assets if possible. Also, school-level factors were not considered partly due to limited availability of data. Next, ETV was measured comprehensively at Wave 2 only, limiting our ability to measure the benefits of protective factors after a youth was exposed to violence. An ideal study design would capture time-varying ETV and exclude abuse in the family. Third, all data regarding individuals, peers, and families were based on youth self-reports that may be subject to recall bias or social desirability (neighborhood measures came from an independent sample of adults). Future studies may consider triangulating the measures of protective factors with secondary sources of data from schools, and/or parental, peer, and teacher assessments. Next, the results are limited to urban youth in one city, thus may not be generalizable nationally or to suburban or rural areas.

The study's strengths include its multilevel design that allowed an ecological–developmental theory analysis. The use of longitudinal data allowed for accounting of some of the temporal ambiguity between exposure and outcomes. In most cases, standardized, conceptually relevant measures were used. Covariates were used at each level, including neighborhood-level risk.

Implications for Practice and Research

This prospective study identified multiple environmental factors associated with positive development for at-risk youth. Future studies should continue to combine knowledge from multiple disciplines to better conceptualize and test multidimensional competence particularly among victims, using a broader array of protective factors at multiple levels. Researchers should follow youth into adulthood, accounting for the dynamic changes in risk, protection, and resilient functioning over a longer life span. Modeling trajectories or person-focused analysis will possibly capture the process of recovery and adaptation from violence (Crockett, Moilanen, Raffaelli, & Randall, 2006; Masten, 2001; Obradovic, Burt, & Masten, 2006). Use of rigorous qualitative and quantitative methods to operationalize and measure positive stage-salient outcomes should be employed, and analyses should be stratified by race and gender to better represent population-specific exposures and outcomes.

In sum, researchers, practitioners, and society as a whole need to acknowledge the achievements and successes attained by most youth in urban neighborhoods who despite overwhelming adversities manage to develop into “caring, confident, and contributing adults” (Werner & Smith, 2001). There are indeed events, characteristics, and environments that can protect youth from harm and guide them toward positive development. In addition to prevention of underlying root causes of violence, public health interventions should focus on building assets in the schools, families, and communities in urban neighborhoods.

Authors' Note

S. Jain conceptualized and designed the study, led the data analysis, interpretation, and wrote the manuscript. Buka and Subramanian provided input on the study methodology, analytic plan and results, and reviewed earlier drafts of the manuscript. Molnar supervised all aspects of the study design, analysis, interpretation, and reviewed manuscript drafts. *Human Participant Protection*: The study was reviewed and approved by the institutional review board of the Harvard School of Public Health. A parent or guardian provided written consent before each assessment, and each young person assented as well.

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