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Childhood Violence Exposure: Cumulative and Specific Effects on Adult Mental Health

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Abstract

Childhood exposure to violence and victimization is a significant public health problem, with potentially long-lasting, deleterious effects on adult mental health. Using a longitudinal study design, 123 young adults—identified in adolescence as at-risk for high school dropout—were examined for the effects of multi-domain childhood victimization on emotional distress and suicide risk, net of adolescent risk and protective factors, including family dysfunction. The hypothesis that higher levels of cumulative childhood victimization would be significantly associated with mental health maladjustment in young adulthood was confirmed by the analysis. However, the victimization predictors of adult emotional distress were different than the predictors of adult suicide risk. These findings indicate the need for prevention and intervention approaches that include thorough assessment, and focus on the childhood and adolescent problem areas that are most consequential for long-term psychological well-being.

Keywords

Young adult; Victimization; Emotional distress; Suicide

Childhood experiences of violence and victimization are implicated in significant psychosocial difficulties in young adulthood, including depression, anxiety, aggression, and suicide (Benjet et al. 2010; Brown et al. 2007a, b, c; Edwards et al. 2003; Schilling et al. 2008; Turner et al. 2006). Evidence for the profound impact of childhood adversity, particularly of victimization, on adult mental health is compelling and consistent—with recent research indicating that even events that occur in childhood but do not reoccur in adolescence have consequences for adult well-being (Benjet et al. 2010). As evidence for its impact has accumulated, further investigations are called for that examine the victimization experience in greater depth and track its effects in greater detail, particularly for young people whose circumstances have placed them at a higher risk of adversity (Hill et al. 2010;

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Thomas et al. 2011). The present study addresses this important research area with a comprehensive investigation of the developmental impact of childhood victimization from adolescence to young adulthood.

Compared to the substantial evidence that the effects of early victimization carry forward into adulthood, there has been less consensus, as well as less attention paid to explaining how they carry forward. Nonetheless, there is growing recognition that the impact of victimization is seldom explained by a single event, or type of event (Anda 2010; Fellitti et al. 1998; Finkelhor et al. 2005a; Finkelhor et al. 2009; Turner et al. 2006). Victimizations such as emotional, physical, and sexual abuse tend to co-occur in contexts characterized by other life adversities, such as poverty, family dysfunction and conflict, as well as other victimizations including peer abuse, property theft, and witnessing of violence (Finkelhor et al. 2009). While this perspective does not preclude a specific victimization event from being harmful, or from being related to a specific mental health outcome (Briere and Runtz 1990; Brodsky and Stanley 2008; Joiner et al. 2005), it highlights that the breadth of adversity constitutes what is most harmful to development and is thus responsible for its long-term effects (Richmond et al. 2009; Turner and Butler 2003; Turner et al. 2006). Furthermore, this recognition of “an ecology” of cumulative adversities shifts attention from specific victimizations to the contexts of those events (Anda 2010; Schilling et al. 2008), particularly to that of the family, where disorder and dysfunction may provide conditions conducive to multiple victimizations as well as compound their effects on development (Benjet et al. 2010; Repetti et al. 2002).

From Early Victimization to Adult Psychosocial Distress

We draw on emotion regulation theory and empirical studies of victimization to examine the potential processes involved in the long-term psychosocial effects of childhood victimization. Victimization experiences early in life are thought to disrupt development of emotion regulation skill. This disruption contributes to difficulties with negative emotions (Repetti et al. 2002; Turner and Butler 2003; Wickrama and Wickrama 2009) by eroding important coping resources such as self-worth and social support while at the same time dysregulating the response to stress (Henry et al. 1994; McEwen and Seeman 1999; Repetti et al. 2002), leading to an early onset of emotion regulation difficulties (Fergusson et al. 2005; Turner and Butler 2003). Early difficulties with emotion regulation place young people at substantial risk for later psychological difficulties, including suicide behavior (Johnson et al. 2002). Both depression and suicide behavior in adolescence, related to early victimization, predict adult depression, anxiety, anger as well as suicide behavior (Fergusson et al. 2003; Fergusson et al. 2005; Lewinsohn et al. 1996). Although these psychosocial problems are related, the majority of young people who develop disorders with emotional regulation do not exhibit suicide behaviors. This suggests somewhat separate etiologies for emotional distress and suicide behavior that include the possibility of different victimization backgrounds (Briere and Runtz 1990; Fergusson et al. 2003; Gladstone et al. 2004). For instance, physically painful or shame-inducing events, likely to be an aspect of sexual or severe physical abuse, have been specifically linked to later suicide behavior (Brodsky and Stanley 2008; Dube et al. 2001; Joiner et al. 2007). On the other hand, such research has typically not examined these more severe events in conjunction with other types of adversity in order to distinguish their specific from their combined or relative effects.

The impact of victimization is influenced by the personal resources available to the individual. Two key individual resources, self-esteem and family support, have been shown to ameliorate the impact of victimization, and hence provide protection from its effects (Browne and Winkelman 2007; Schumm et al. 2006). However, those resources are also likely to be negatively affected by the same victimization experiences (Briere and Runtz

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1990; Higgins and McCabe 2000; Vranceanu et al. 2007) and thus may be less available to those who were victimized. Self-esteem or self-worth, an evaluation of self derived partially from social comparison and therefore with roots in the social context, is vulnerable to early trauma, particularly from multi-domain victimization (Finkelhor et al. 2007; Turner and Butler 2003), and is linked to adult mental health as well (Hill et al. 2010; Turner and Kopiec 2006).

The family context can be both a source of protection and a source of mistreatment and distress. The positive effects of perceived family support on adolescent emotional well-being (Galambos et al. 2006), are documented for reducing adolescent suicide risk (Resnick et al. 1997) and enhancing adolescent self-esteem (Roberts and Bengston 1993), and for promoting young adult well-being (Holahan et al. 1994; Roberts and Bengston 1993). Conversely, family dysfunction such as conflict and disorder contribute to childhood as well as later adult emotional distress (Benjet et al. 2010; Higgins and McCabe 2000; Repetti et al. 2002; Turner and Butler 2003) and suicide risk (Johnson et al. 2002). Growing up in a family that is stressed and disorganized heightens the risk for victimization (Repetti et al. 2002) in addition to the negative effects of the stress itself. Poorly functioning families may not be able to provide essential support, safety or monitoring, thus failing to prevent or buffer maltreatment within a family system where other stressors related to poor functioning also impact the child's well being.

Finally, because most investigations of victimization have been limited to linear models, researchers may have overlooked important associations between victimization and some of its long-term sequelae. The influence of all victimizations on adult mental health may not be systematically incremental, but accelerate as frequency, type, or severity increase (Schilling et al. 2008). The stepping up of effects at moderate to high levels of victimization exposure, along with more minimal or indistinguishable effects at lower levels, has been noted in studies of general adversities and harsh parenting as well as victimization (Deater-Deckard and Dodge 1997; Hammen et al. 2000). In addition, as with mental health outcomes, the effects of victimization on identified protective factors may be also nonlinear (Kessler et al. 1997; Nurius et al. 2009; Schilling et al. 2008; Schumm et al. 2006). For instance, the value of personal resources such as self-esteem in offsetting the effects of victimization on later mental health may be most, or only, evident at the higher levels of victimization.

Hypotheses

Based on research related to the co-occurrence of school difficulties, mental health problems, and victimization experiences (Masten et al. 2005; Nurius et al. 2009), we specifically drew the study sample from a population that was expected to yield a higher than typical prevalence of exposure to early victimization. The sample was drawn from a population of young adults who during adolescence had been identified with school performance problems. As expected, this sample provided a sufficient number of participants with victimization histories as well as family dysfunction. Using a longitudinal design spanning from adolescence to early adulthood, we examined the influence of childhood multi-domain victimization on young adult mental health, relative to adolescent mental health indicators, family dysfunction, and protective resources.

We posited that greater childhood multi-domain victimization would predict poorer mental health (i.e., emotional distress and suicide behaviors) in young adulthood (H_1). We tested three additional hypotheses: that early victimization would predict lower protective resources (H_2) as well as higher risk at adolescence (H_3), and that the effects of childhood victimization would be moderated by positive resources available in adolescence (H_4). We

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also systematically explored for nonlinear effects of victimization on mental health outcomes and positive resources.

Method

Sample and Procedures

The study sample (n=298) was drawn from a longitudinal study (n=849) (Hooven et al. 2011), which followed youth from high school (mean age 16) into young adulthood (involving four adult assessments, mean ages 21 to 24). The original study included youth from 11 public and 1 private high school, half urban and half suburban, in the states of Washington and New Mexico. Using a validated sampling approach (Eggert et al. 1994), youth in the original study had been identified as at-risk for school failure and/or dropout based on school record data (e.g., GPA, credits, absenteeism). In high school, these youth had completed an in-depth assessment asking five general questions about victimization experiences, with 78 % endorsing some level of exposure.

Sixty seven percent of the original 849 participated in at least one young adult interview. However, the study sample (n=298) included only those who had completed all four adult assessments. Missing assessments in the original study represent both design and timing issues: by study design, only a randomly selected subgroup had been invited to one of the assessments; in addition, some participants were forwarded to a next assessment before completing a previous one. Few differences were observed on outcome and demographics between the 298 and the original sample. The sample of 298 included proportionately fewer Native Americans and slightly higher victimization. Of the 298, 80 % reported some form of victimization compared to 77 % of those not included in this sample; they also reported an average of 1.9 victimization forms versus 1.72.

Funding for the present project provided for interviews with 125 respondents drawn from this sub-sample of 298 (mean age 28 years). Before approaching study participants, all research procedures were reviewed and approved by the University Institutional Review Board. The current study was conducted in a narrow timeframe, thus access to participants was limited to those for whom we had current home addresses and telephone numbers (n=167). We conducted interviews with the first eligible 125 individuals, or about 75 % of this subsample. Survey interviews were conducted via telephone by experienced, trained research staff. Two surveys (one incomplete, one with questionable responses) were removed, yielding a final sample of 123 that included 66 males and 57 females. Slightly less than half (46 %) identified as European American, 21 % as Latino/Hispanic, 13 % African American, 8 % Asian American, 5 % Native American, and 7 % mixed ethnicity. With one exception (fewer African Americans, 13 %, versus 17 % in the 298), comparisons between the original 298 and current 123 showed no differences on any demographic or study variable (predictors or dependent variables), including the general levels of victimization reported at adolescence.

Measures

Survey measures were derived from standard measures or constructed specifically for the Reconnecting Youth (RY) Prevention Research Program to assess a range of risk and protective factors with minimal respondent burden. Analyses in prior work have shown the scales to have good reliability as well as construct and predictive validity across multiple independent samples (Eggert et al. 1994; Eggert et al. 1995). Scale items were scored using a 7-point scale (e.g., 0 [*never*] to 6 [*always*]) unless otherwise indicated (Hooven et al. 2010). Adolescence refers to the high school assessment and adulthood refers to the 5 year follow-up assessment. For the present study, retrospective assessment of victimization was

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the only data gathered from the most recent contact. Means and standard deviations for measures are provided in Table 1.

Mental Health Risk—Emotional distress and suicide behaviors were measured with identical items at adolescence and adulthood. *Emotional distress* was a composite variable capturing depression, anger, and anxiety. A composite variable was selected as a strong indicator of general psychological maladjustment, the outcome of interest in this non-clinical sample, and in line with both the measurement approaches (Hill et al. 2010) and the frequently observed psychosocial difficulties reported in the victimization literature (Schilling et al. 2008; Turner et al. 2006). The coefficient alpha for internal consistency was .86. *Depression* was derived from the Center for Epidemiological Studies Depression Scale (Radloff 1977) using six items (α=.88, e.g., "I feel depressed" and "I feel lonely"). *Anger control problems* (Spielberger et al. 1983), utilized a four-item scale (α=.77), e.g. "feeling out of control when angry" and "getting easily angered." The *anxiety* measure consisted of four items (α=.80, e.g., physical anxiousness, recurrent frightening thoughts, and feelings of uneasiness). *Suicide-risk behaviors* were measured using five indicators, including frequency of suicidal thoughts (two items), indirect threats, direct threats, and number of prior suicide attempts (α=.81; Thompson and Eggert 1999).

Family Dysfunction—Negative family functioning, or *family dysfunction*, is an index of serious family function difficulties, i.e. parental alcohol or drug use, serious conflicts with parents, and thoughts of running away. An index was created because the indicators contribute additively, but are not necessarily or systematically related to one other (DeVellis 2012).

Adolescent Protective Resources—Protective resources measured at adolescence were self-esteem and family support. *Self-esteem*, a sense of self worth (e.g., "I feel I have a number of good qualities" and "I take a positive attitude toward myself"), included four items (α=.89) (Rosenberg 1965). *Family support* was assessed with the Family APGAR (Smilkstein et al. 1982), a five-item measure of support satisfaction (α=.90), reflecting the degree of satisfaction with family support (e.g., satisfied with how "share problems" and "can talk to").

Victimization—The Juvenile Victimization Questionnaire (JVQ), widely used for retrospective assessment of childhood victimization exposure among both youth and adult samples, has been found to have satisfactory psychometric properties across multiple samples (Finkelhor et al. 2005b). The JVQ-R (reduced item version) taps the five victimization domains: property victimization (one item), witnessing violence (three items), physical assault (four items), emotional maltreatment (two items), and sexual victimization (three items). The victimization measured by the JVQ-R included adult as well as peer assailants, except for sexual victimization, for which the JVQ-R had only included adults. Thus, one JVQ peer item was added to the sexual victimization domain to render it comparable to the other domains.

Each item was first assessed as to whether it had ever happened during a specified time period. Yes responses were followed by a query as to number of times within this time period, using measurement scales to capture quantity of occurrences. The assessment of exposure distinguished between childhood (up to high school, age 14) and adolescent events (high school entrance to graduation). Two types of scales were constructed based on victimization items: domain sums and multi-domain exposure.

Domain sums are a count of the total number of yes responses to victimization items *within* each of the five domains. Ranges per domains are: property victimization (0–1), witnessing

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violence (0–3), physical assault (0–4), emotional maltreatment (0–2), and sexual victimization (0– 3). *Multi-domain exposure* is a count of the number of the five victimization domains to which a respondent was exposed during childhood, irrespective of the number of exposures or exposure types within a domain (range=0–5).

Demographics—Demographic measures include age, gender, and ethnicity. Ethnicities reported are European American, Latino/Hispanic, African American, Asian American, Native American, and mixed ethnicity.

Analysis

We conducted descriptive analyses of the distributions of victimization experiences. Two linear regression models were used to examine the relative contribution of childhood multi-domain victimization in predicting adult emotional distress and adult suicide behaviors. In preparation for these analyses, we examined separate regressions run for the three scales (depression, anxiety, and anger) used to create the emotional distress measure, and findings were highly comparable to that of the aggregate measure. Thus we retained the emotional distress variable.

First, block linear regression analyses were used to test the influence of the multiform (referred to here as multi-domain) measure of childhood victimization on adult mental health (H_1). Predictor variables were entered sequentially in four blocks: (a) adolescent scores on mental health (emotional distress and suicidal behavior) serving as controls, followed by (b) a measure of family context, defined in terms of family dysfunction, and then (c) two indicators of resources—adolescent, self-esteem, and family support—theorized to carry protective functions relative to adult distress. In the final step (d) the measure of childhood victimization was entered. Regression analyses were initially run controlling for demographic variables (age, sex, and ethnicity). However, because the demographic block did not provide significant contributions at any step, to conserve statistical power the demographic block was eliminated from the final analyses.

Second, we examined the effects of childhood victimization on the adolescent risk and protective factors using separate regressions (H_2, H_3). Third, to test for potential moderating effects of adolescent risk and protective factors, we entered in separate regressions, a term representing the interaction of childhood victimization and each of the resource variables (H_4). Finally, given recent research on how the effects of adverse experiences, such as victimization, may become apparent only at higher levels of those experiences (Schilling et al. 2008), we conducted exploratory analyses to determine whether the hypothesized relationships between childhood victimization and adolescent and adult variables were apparent in non-linear analysis by using a quadratic function (i.e., squaring the childhood multi-domain predictor variable).

Results

Victimization and Sample Characteristics

The sample reported a high level of childhood victimization exposure (Table 2), with only 6.5 % reporting no exposure prior to high school, 12.2 % reporting exposure in only one of the five domains, and 81.3 % reporting early life exposure in two or more separate domains. Of five domains, the average number of domain exposures was 2.8 for the overall sample and 3.5 for those exposed to multiple domains (two or more). In general (Table 3), except for sexual victimization, most victimization types show similar distribution patterns for each level of multi-domain exposure. That is, the rows show reasonably similar increasing proportions for each of the five victimization domains, albeit with emotional victimization

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reported most frequently. For example, of the 90 persons who experienced emotional victimization, 36 % are in multi-domain level 4 as are 39 % of persons who experienced physical victimization and 38 % who reported indirect victimization through witnessing violence as a child.

Sexual victimization stands in contrast. The proportion of the overall sample exposed to sexual victimization was lower relative to the other four domains. Moreover, the distribution of sexual victimization does not reflect the same pattern seen for other victimization domains in that it occurs more frequently with higher levels of exposures. For example, 41 % of those who experienced any sexual maltreatment were persons who also experienced exposures to the four other domains (i.e., had experienced five different forms of victimization). For other victimization types the rates of those with a multi-domain exposure of five types hover between 13 % and 15 %.

There were no significant differences on the basis of sex, age, or ethnicity in childhood multi-domain exposure and few differences within each of the individual domains. Males, however, were significantly more likely to report exposure to property assault (χ^2=18.99, p<.0001) and witnessing violence (χ^2=4.48, p<.03).

Predicting Adult Emotional Distress

Bivariate relationships between all predictors and young adult emotional distress were statistically significant (Table 4). Block regression analyses (Table 5) revealed that family dysfunction and childhood multi-domain victimization were unique and significant predictors of young adult emotional distress.[1] Neither adolescent self-esteem nor adolescent family support were significant predictors in the full multivariate model, although both were related to adult emotional distress in the bivariate analysis.

A compelling question inherent in these analyses is whether the assessment of multi-domain childhood victimization exposure, compared to measures of single domain exposure, provides stronger predictive utility. We thus conducted five additional block regression analyses, in which we entered multi-domain childhood victimization plus one of the five domain sums, controlling for the other study predictors. Although all five domain sums were related to adult emotional distress in the bivariate analysis (Table 6), no single domain sum proved to be a significant predictor when childhood multi-domain victimization was also in the equation. Childhood multi-domain victimization, however, remained significant in these models. Thus, the multi-domain measure appeared to be the more robust measure of victimization.

Childhood Victimization and Adolescent Risk and Protective Resources

We examined the effects of multi-domain childhood victimization on the adolescent risk (H_3) and resource (H_2) variables. We also examined the potential moderating effect of adolescent resources (H_4).

Direct Influence on Adolescent Resources—Contrary to our hypotheses (H_2), childhood multi-domain victimization was not significantly related to either adolescent self-esteem or adolescent family support in the bivariate or initial regression analyses. On the other hand, childhood victimization was associated with adolescent family dysfunction (b=.17, p <.024) and adolescent emotional distress (b=.16, p<.025) as predicted in (H_3). Also,

[1]An additional analysis was conducted, adding adolescent victimization to the equation to test that effects on adulthood were not due to later exposures. With childhood victimization in the equation, adolescent multi-domain victimization did not add significantly to the prediction of emotional distress, and childhood victimization remained significant.

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family dysfunction (but not adolescent emotional distress) remained a significant predictor of adult emotional distress in the final model. Therefore, it appears that family dysfunction both co-occurs with and adds to the effect of childhood victimization on adult emotional distress.

Moderating Effects of Protective Factors—The interaction effects of childhood multi-domain victimization with self-esteem and family support were examined. The interaction of family support and victimization on adult emotional distress approached significance (b=−.42, p<.06), indicating that high support in adolescence might ameliorate the impact of childhood victimization on longer-term emotional distress. The interaction of victimization and self-esteem, however, was not significant.

Nonlinear Effects of Victimization—We explored the hypothesis that childhood victimization may involve a "tippingpoint"—where a higher level of multi-domain exposure is essential for its impact to be evident. We tested for nonlinear effects of childhood victimization on adult emotional distress, adolescent self-esteem, and adolescent family support by regressing each on the quadratic function for childhood victimization. There were no significant effects for the quadratic function on adult emotional distress or adolescent family support, indicating that it did not improve predictions made by the linear model. The effect of childhood victimization on self-esteem, on the other hand, was significant (β=−.80, p<.002), indicating that the relationship between adolescent self-esteem and childhood victimization was nonlinear, with effects more pronounced at higher levels of victimization.

To explore further for buffering effects associated with the protective factors, we dichotomized childhood victimization into low (0–3 domain) versus high (4–5 domain) exposure. This essentially split the observed non-linear pattern at the upper turning point, and allowed us to test separately for interaction effects on emotional distress associated with the protective factors (self-esteem and family support) while controlling for covariates included in the earlier analyses (Table 5). Consonant with the moderating analyses described earlier, no moderating effect was found for self-esteem (β=−.14, *ns*) however, the interaction of childhood victimization and family support was strong and significant (β=−.42, p<.02). Hence it is at higher levels of multi-domain victimization that family support buffered the effects of victimization of adult distress.

Predicting Adult Suicide Risk

Also central to this research was whether multi-domain victimization would have extended effects on adult suicide behaviors, an indicator of mental health problems. Correlations indicated a weaker pattern of bivariate relationships among the posited predictors and adult suicide behaviors compared to adult emotional distress (Table 4). Regression analyses, directly paralleling those conducted for adult emotional distress, revealed a different pattern of findings with no statistically significant block of variables. In a follow-up analysis to examine for the effects of specific types of victimization on suicide risk behavior, the addition of childhood sexual victimization (Table 7) to the equation was significant (F(5,116)=3.05); this relationship was significant even with multi-domain victimization in the equation (not shown). Also, adolescent suicide risk and family dysfunction predicted adult suicide risk in earlier steps, but these relationships disappeared when childhood sexual victimization was added to the equation.

Most participants reported neither sexual victimization nor adult suicide behaviors, and furthermore the number of study participants reporting *both* childhood sexual maltreatment and adult suicide behavior (n=10) was low. However, the link from the early victimization experience to later suicide behavior is notable: of the 26 who reported childhood sexual

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victimization, 38 % reported suicide behaviors as young adults, compared to only 16 % of those who did not experience childhood sexual victimization.

Paralleling analyses done for adult emotional distress, we found no moderator effects for family support. There was, however, a significant interaction between self-esteem and childhood sexual victimization on adult suicide risk behavior. In this unexpected finding, there were greater effects on suicide behaviors for those with higher self-esteem. There were no nonlinear effects of sexual victimization on young adult suicide risk behavior.

Discussion

This study demonstrates the power of early victimization, in particular multi-domain victimization, to influence the course of mental health into young adulthood. Consonant with the central hypothesis, multi-domain victimization predicted adult emotional distress, over and above other predictors including measures of specific types of victimization. However and contrary to the study hypothesis, young adult suicide behaviors were predicted only by a specific type of victimization, sexual victimization.

Characteristics of Victimization Exposure in an At-Risk Sample

Substantial exposure to childhood victimization was reported. As predicted for this vulnerable sample, victimization was higher than reports from community samples, with 94 % of the sample endorsing at least one victimization event before high school (typically age 14 or earlier), and over 80 % experiencing multi-domain exposure to victimization. Studies using somewhat similar retrospective reports of adversities and victimization report a much lower 50 to 74 % experiencing one or more adversities by age 18 (Dube et al. 2001; Fellitti et al. 1998).

Predicting Adult Emotional Distress

Adult emotional distress was predicted directly by the level of multi-domain victimization exposure, net of other predictors, including the impact of any specific *type* of early victimization. The superiority of the multi-domain measure suggests something important about how victimization impacts development—that a key aspect of the experience may be its “spillover” or pervasiveness in the early environment, when adversity crosses boundaries of victimization type. When victimization is pervasive, a child has less respite from the efforts of coping, less sense of control, and less ability to avoid situations that are likely to negatively impact development. High levels of multi-domain victimization are likely to be experienced as a “climate of victimization and adversity” rather than as discrete events; in such situations, children are more likely to internalize the victimization experience and carry effects forward as an entrenched negative view of both oneself and what the future holds (Finkelhor et al. 2007).

Other than victimization, family dysfunction was the only variable to additionally contribute to adult emotional distress in the full model. Family dysfunction appears to be a pivotal variable, related to all other measures of adolescent function, as well as compounding the effects of victimization on adult distress. Its effects on adulthood overrode those of adolescent emotional distress, suggesting that the negative family context might be a more powerful “sustainer” of the impact of early victimization, even more powerful than the individual’s earlier emotional distress. The importance of family processes demonstrated by these findings has been apparent in other studies that point to negative family environments as conducive to both victimization experiences and to deleterious adult outcomes (Higgins and McCabe 2000; Repetti et al. 2002). It is plausible that a disorganized family context provides a set of conditions wherein violence is more likely, or more easily activated and

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escalated than in less disorganized and less volatile homes. A dysregulated family environment in which exposure to both victimization and stressful adversities are more likely is also one in which the effects of such stressors may be less recognized, acknowledged, or effectively managed.

We hypothesized that the "protective resources," self-esteem and family support, as measured in adolescence, would both be affected by earlier victimization and would contribute to the moderation of its effects on adult mental health. We found partial support for these hypotheses. First, neither resource appeared to be negatively impacted by childhood victimization. We were puzzled by the lack of relationship between self-esteem and multi-domain victimization in particular, given the weight of research support for negative self-attributions as a mechanism for the persistence of victimization effects (Browne and Winkelman 2007; Finkelhor et al. 2007). However, we reasoned that the protective functions of these resources may be more germane at the higher levels of risk exposure; that is, higher levels of multi-domain victimization. Indeed, in examining for the influence of non-linear relationships of childhood victimization, this expectation was confirmed. Adolescent self-esteem was affected at higher levels of victimization only, appearing subject to a threshold effect. These findings argue for deeper exploration of how victimization impacts self-esteem—including the possibility that a global measure of self-esteem, such as we used in this study, may be less incrementally responsive to victimization effects than measures of self-esteem that tap processes more explicitly linked to victimization, such as guilt or self-blame (Briere and Runtz 1990). Furthermore, recent research reports that globally measured self-esteem is on the rise for youth and young adults in general, with interesting links to poor adjustment (Twenge 2011; Twenge and Campbell 2008), may offer insight into the moderating role for high self-esteem on later suicide risk.

Unlike self-esteem, we found that when family support was available at adolescence, it moderated the effect of earlier victimization on adult distress—particularly, and almost uniquely, for those with the higher levels of victimization. While the overall study finding is for an enduring effect of early multi-domain victimization, those reporting higher family support experienced a reduced impact. For those with both higher victimization and higher family support, we saw a limited influence of childhood victimization on adult distress.

While this examination indicates that a number of factors are implicated in adult distress, multi-domain victimization is not only the primary contributor, but for the most part it is a direct contributor—which suggests that there may be other processes, not examined in this paper, that are implicated in the long-lasting effects of childhood victimization. For instance, multiple, chronic stressors may have profound effects on biological development, adding to the mechanisms by which early adversity is carried forward. Our findings for pervasive victimization exposure bring to mind research on the chronic activation of neurobiological stress processes, which are posited to wear away neuroendrocrine regulatory systems in ways that may not be evident until later in adulthood (McEwen and Seeman 1999).

Predicting Adult Suicide Risk

Suicidal behaviors in adulthood represent special cases. While the overall trend in the general population is one of "aging out" of overt suicide risk behavior in the transition from adolescence, for those who do not follow this trend, the risk of suicide increases during this period (Centers for Disease Control and Prevention 2008). Sexual abuse in childhood is more likely to be perpetrated by family members or people in other trusted relationships as opposed to stranger victimization, undermining a child's fundamental sense of safety and hopefulness, and conveying unique causal risk for suicide ideation and attempts (Brodsky and Stanley 2008; Joiner et al. 2007). Given that childhood sexual victimization was often accompanied by exposure to multiple forms of victimization (e.g., 62 % of those sexually

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victimized reported four or all five forms), most of these youth carried compounded risk. Thus, in this research, sexual victimization had a role in the prediction of both adult emotional distress and adult suicide behavior—making it a key contributor to a potent combination of stressors at young adulthood. This finding is consistent with Benjet and colleagues (2010) who reported that sexual abuse was a significant predictor of psychiatric conditions in childhood, adolescence, and adulthood, with this association increasing in strength across these life stages. Our findings join those of others in suggesting that sexual abuse has a separate causal link to suicide risk (Gladstone et al. 2004; Mitchell et al. 2004).

Implications

These findings reinforce recent calls to move away from single form-only victimization assessment to reveal experiences of multiple exposures (e.g., Finkelhor et al. 2007; Richmond et al. 2009). Although 50 to 80 % of adults report experiencing at least one form of serious exposure by age 18 (Dube et al. 2001; Finkelhor et al. 2009, 2005b; Kessler et al. 1997), many of these experiences go undetected in childhood when the victimization events are not only more likely to happen, but when the developmental course is most susceptible to the effects of those events (Benjet et al. 2010; Macmillan 2001).

In the current climate of constrained resources, where universal prevention programs may become increasingly rare, study findings have implications for the efficient use of available dollars—suggesting we both select the youth most in need of intervention, and that we address the processes impacted by victimization. In this study, youth selected on the basis of readily accessible information about academic achievement (grades, missed days, and teacher reports) were also a group who reported high levels of victimization and distress. Many had never disclosed their victimization experiences. The Response to Intervention national educational framework and Positive Behavioral Support infrastructure in public schools provide venues for universal interventions, such as identifying safe adults to talk to about experiences (Wyman et al. 2010) and for specifying interventions for those with early signs of risk (Casey and Nurius in press; Hooven et al. 2012).

Findings have implication for family interventions, particularly for interventions that target emotion management skills. For instance, training parents and youth to be more aware of their conflict and negative emotion patterns, and to increase regulation skills, has shown positive short- and long-term effects for vulnerable youth (Hooven et al. 2012). Approaches that include mindfulness-based stress reduction activities have been particularly suited to those with adverse backgrounds, demonstrating increases in participant ability to withstand adversity and internal states of discomfort, to regulate emotion (Marlatt and Gordon 1985), and to decrease physiological reactivity (Chiesa and Serretti 2010).

Study Limitations

In this study, reports of victimization experienced during youth were obtained retrospectively at adulthood. Overall, detected bias in retrospective assessment tends to be in the direction of underreporting (Williams 1997). Investigations of retrospective self-report of violent victimization (e.g., matching corroborating and self-reports) show that patterns of linear associations (between victimization and psychological statuses) involving self-report and corroborating report data are comparable, and that estimates of risk of psychological maladjustment conditional on abuse are robust in regard to reporting bias—indicating adequate reliability of self-report of victimization for etiological purposes (Brown et al. 2007a, b; Henry et al. 1994; Higgins and McCabe 2001; Hulme 2004). The behavioral specificity of the JVQ is an asset to reliability and the measure has demonstrated satisfactory psychometric support in previous retrospective assessment with adults (Richmond et al. 2009).

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The sampling pool was derived from a longitudinal study, relying on participants who had completed a full set of surveys; hence issues related to attrition may have introduced bias into the sample. However, while we saw slightly higher rates of victimization in the study sample versus the original high school sample, there was little other difference. Furthermore, while the higher prevalence of victimization in this group may be somewhat attributable to greater retention of youth with higher victimization, which is interesting in itself, given how much higher the rates are than those for community samples cited we conclude that they are primarily a function of the initial at-risk pool. Finally, while it is not clear how fully the findings generalize, findings of associative trends were consistent with general population findings, albeit with a higher prevalence of multi-domain victimization in this selected population.

The sample size limited analytic options, being insufficient, for example, to test theorized pathways, including modeling across subgroups. However, no significant differences emerged on the basis of age, ethnicity, or sex relative to level of multi-domain victimization or as predictors of adult outcomes, thus indicating no need for subgroup analyses. In addition, the limits of available data prevent a direct test of additional childhood factors that would logically contribute to adult distress, such as poverty and other forms of crime exposure. However, recent findings indicate that that family dysfunction and violence exposure—both of which we include—stand out among assessments of adversity in the prediction of later psychopathologies (Benjet et al. 2010).

Conclusion

We found evidence of high levels of victimization occurring in a sample identified as at-risk during adolescence, as well as support for a cumulative model of victimization exposure that contributes to young adult distress. These findings, and evidence that the impact of victimization persists well into adulthood, call attention to the need for screening, prevention and intervention strategies that target early adverse experiences and their mental health consequences. Assessing and addressing multi-domain victimization in particular, and understanding its impact on development, is vital to effective preventive and remedial responding.

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Table 1

Means and standard deviations of primary variables in adolescence and young adulthood

Primary study variables	Mean	Standard deviation	Range
Adolescence			
Emotional distress	5.40	3.02	0–13.5
Suicide behavior	0.5	0.99	1–5.8
Family dysfunction	1.36	1.15	0–5.33
Adolescent self-esteem	4.27	1.17	0.25–6
Adolescent family support	2.96	1.56	0–6
Young Adulthood			
Emotional distress	4.04	2.33	0–10.95
Suicide behavior	0.16	0.42	0–2.8

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Table 2

Number of individuals at each multi-domain exposure level

Counts of victimization domains experienced during childhood							
# of domains	0	1	2	3	4	5	Total
Individuals at each level	8 (6.5 %)	15 (12.2 %)	21 (17.1 %)	35 (28.5 %)	32 (25.6 %)	12 (9.8 %)	123 (100 %)

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Table 3

Distribution of specific exposure types across multi-domain exposure levels (Number of individuals who experienced each domain-reported by multi-domain level)

	1	2	3	4	5	Total[2]
Emotional	8	13	25	32	12	90 (73.17 %)
	(53.3)[3]	(61.9)	(71.4)	(100)	(100)	
	(8.9)[4]	(14.4)	(27.8)	(35.6)	(13.3)	χ^2=21.96***
Sexual	1	1	8	4	12	26 (21.14 %)
	(6.7)	(4.8)	(7.77)	(12.5)	(100)	
	(3.8)	(3.8)	(30.8)	(15.4)	(41.2)	χ^2=48.95***
Physical	1	10	26	31	12	80 (65.04 %)
	(6.7)	(47.6)	(22.9)	(96.9)	(100)	
	(1.3)	(12.5)	(32.5)	(38.8)	(15.0)	χ^2=49.70***
Witnessing	2	9	26	30	12	79 (64.23 %)
	(13.3)	(40.0)	(74.3)	(93.8)	(100)	
	(2.2)	(11.4)	(32.9)	(38.0)	(15.2)	χ^2=43.22***
Property	3	9	20	31	12	75 (60.98 %)
	(20.0)	(40.0)	(57.1)	(96.9)	(100)	
	(4.0)	(12.0)	(22.2)	(34.4)	(13.3)	χ^2=39.69***
Total exposures [1]	15	42	105	128	60	350

[1] Number of individuals within each multi-domain level X number of exposures for that level (e.g., 21×2=42)

[2] Chi-square test of distribution types by multi-domain levels

[3] This row represents % of cases in each level with exposure to indicated domain (i.e., 20 % of Level 1 cases report exposure to property victimization)

[4] This row represents % of all cases with exposure to indicated domain for each multi-domain level (i.e., of all exposures to property, 4 % occur in Level 1)

*** $p \leq .001$

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Table 4

Correlations among study variables

	1	2	3	4	5	6	7
Multi-domain childhood victimization	–						
Adolescent emotional distress	0.27**						
Adolescent suicide risk	0.10	0.53***					
Adolescent family dysfunction	0.26**	0.47***	0.20*				
Adolescent self-esteem	−0.09	−0.57***	−0.50***	−0.33***			
Adolescent family support	−0.04	−0.41***	−0.31***	−0.55***	0.45***		
Young adult suicide behaviors	0.15~	0.16~	0.21*	0.22*	−0.15	−0.18	
Young adult emotional distress	0.42***	0.36***	0.23*	0 40***	−0.22*	−0.24**	0.42***

~ $p \leq .10$

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$

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Table 5

Block regression analysis for predictors of young adult emotional distress

Predictors	Block 1 β	Block 2 β	Block 3 β	Block 4 β
Adolescent emotional distress	0.36***	0.22 *	0.23 *	0.15
Family context				
Adolescent family dysfunction		0.29 **	0.30 **	0.22 *
Protective Factors				
Adolescent self-esteem			0.01	−0.04
Adolescent family support			0.01	−0.01
Violence exposure				
Childhood multi-domain victimization				0.32 **
R^2 Δ		07 **	0.00	0.09 **
Total R^2	0.13***	20***	.20***	0 28***

~ $p \leq .10$

* $p \leq .05$

** $p \leq .01$

$p \leq .001$

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Table 6

Correlations among victimization domains and adolescent and young adult variables

Count	Adolescent				Adult	
	Emotional distress	Family dysfunction	Self-esteem	Family support	Emotional distress	Suicide behavior
1. Emotional victimization	0.34***	0.39***	−0.13	−0.27**	0.41***	0.09
2. Sexual victimization	0.11	0.16~	−0.09	0.07	0.23**	0.22*
3. Physical victimization	0.21*	0.18*	−0.14	−0.10	0.24**	0.15*
4. Witnessing	0.14	0.19*	0.00	−0.06	0.16~	0.20*
5. Property theft	0.19*	0.09	−0.05	0.11	0.34***	0.07

~ $p \leq .10$

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$

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Table 7

Block regression analysis for predictors of young adult suicide risk behaviors

Predictors	Block 1 β	Block 2 β	Block 3 β	Block 4 β
Adolescent suicide risk	0.21*	0.17~	0.16	0.15
Family context				
Adolescent family dysfunction		0.18*	0.16	0.11
Protective resources				
Adolescent self-esteem			−0.03	0.01
Adolescent family support			−0.01	−0.09
Violence exposure				
Childhood sexual victimization				0.21*
R^2 Δ		0.03*	0.001	0.04*
Total R^2	0.04*	0.08**	0.08*	0.12**

~ $p \leq .10$

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$