Published in final edited form as:

J Youth Adolesc. 2012 December ; 41(12): 1600–1612. doi:10.1007/s10964-012-9778-3.

Stressors in Multiple Life-Domains and the Risk for Externalizing and Internalizing Behaviors Among African Americans During Emerging Adulthood

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Abstract

Behavioral and mental health outcomes have long been associated with experiencing high levels of stress. Yet, little is known about the link between the nature of stressors, their accumulation over time, and the risk for externalizing and internalizing outcomes. African Americans are exposed to a disproportionate number of stressors beginning earlier in life compared to the general population. Incorporating Agnew's General Strain Theory into the study of stress, this study examined whether different kinds of stressors are equally salient in the risk for violent behaviors and depressive symptoms among African Americans transitioning into young adulthood. It further examined the effects of the accumulation of stressors in different life domains and their effect on risks. This study utilized data from an African American subsample of an ongoing longitudinal study that followed a panel of 604 adolescents (53% females) from 9th grade into adulthood. Multilevel growth curve models were used to examine how changes in four life-domain stressors related to violent behaviors and depressive symptoms. We found that continued exposure to perceived daily stress and racial discrimination stress increased the risk for violent behaviors during young adulthood, and exhibited a nonlinear relationship between the accumulation of stressors and risk for violence. Moreover, we found that exposure to perceived daily stress, financial stress, neighborhood stress, and racial discrimination stress increased the risk of depressive symptoms and led to a linear relationship between the accumulation of stressors and risk for depressive symptoms. Findings suggest identifiable stressors that can persist over time to influence risks at young adulthood.

Keywords

Stressors; Emerging Adulthood; African Americans; Violence; Depression

Introduction

The developmental stage between 18 and 25 years of age often is referred to as *emerging adulthood* (Arnett, 2005). It is a period developmentally distinct from adolescence or adulthood, when youth achieve a gradual independence from parents, while not necessarily taking on the full responsibilities of adulthood (Arnett, 2000). Evidence points to opportunity structures, values and norms as key factors in the timing of transitions into adult roles during this period. These factors differ widely across sex, racial/ethnic, and socioeconomic groups. In particular, females, African Americans and people in lower socioeconomic statuses (SES) transition into adult roles at earlier ages than males, Whites and those in higher SES positions (Berzin & DeMarco, 2009; Cohen, Kasen, Chen, Hartmark, & Gordon, 2003; George, 1993). Although many African American youth face adverse economic and environmental hardships while growing up, less is known about the types and influences of stressors on their well-being as they transition into adulthood. Most transition studies that include African American youth focus on identifying correlates of early transitions with little attempt to understand varying trajectories on observable outcomes. The purpose of this study is to examine stressors associated with multiple life domains during the period of emerging adulthood with implications for externalizing and internalizing behaviors among African American youth. The role of individual as well as cumulative stressors in the adult transition process is examined in an effort to provide useful information for developing interventions to reduce risk factors and increase support for the successful transition into adulthood for these youth.

Correlates of the Timing of Adult Transitions

Researchers have found that differences in the timing of transitions across demographic groups are dependent on the specific life domains under investigation. In a study of a cohort of young adults born between 1967 and 1973, Cohen and colleagues (2003) found that females, especially those in lower SES groups, were more likely than males to transition into parenthood and stable romantic relationships at earlier ages. They also found that African American youth were more likely to have earlier transitions into parenthood while experiencing longer delays in leaving home and in establishing stable romantic relationships than Whites, which suggests that studies that examine within group differences may be necessary. Yet, those who did not become parents as teenagers delayed parenthood and stable romantic relationships until after the transition to adulthood (i.e., post-25 years of age). Importantly, Entwisle and colleagues (2000) found that, although African American youth begin to search for jobs at the same age as White youth, and apply for more jobs, they were less likely to be called back for interviews or hired, leading to a later entry into stable labor markets and financial independence. Several researchers have documented that poor African Americans transition earlier into parenthood, but later into marriage, and residential and financial independence than non-poor African Americans or other racial/ethnic groups (Berzin & DeMarco, 2010; Haynie, Weiss, & Piquero, 2008; Entwisle, Alexander, & Olson, 2000; Cohen et al., 2003; Rinelli & Brown, 2010; Burton, 2007). Thus, examining factors *within* the African American population may be necessary to understand more fully the differential timing of parenthood, stable relationships, entry into the labor market, and independent living arrangements for them.

Stressors among African Americans

Researchers have found that an individual's perceptions of their ability to handle daily hassles and feelings about being in control of their lives affects their overall feelings of stress, which can have important influences on their risk for negative externalizing and internalizing outcomes (Copeland-Linder, Lambert, Chen, & Ialongo, 2011). African Americans are at increased risk for exposure to different types and a higher magnitude of

stressors than the general population (Grote, Bledsoe, Wellman, & Brown, 2007; Berzin & DeMarco, 2010; Bellair & McNulty, 2005; Caldwell, Kohn-Wood, Schmeelk-Cone, Chavous, & Zimmerman, 2004; Brody et al., 2006). This pattern of risk may be due to increased financial strain, inability to cover healthcare costs, increasing housing costs (i.e., spending more than 30% of household income on housing), and higher rates of unemployment and underemployment among African Americans (Wheary, Meschede, & Shapiro, 2009; US Bureau of Labor Statistics, 2011). For example, as early as 2000, the financial picture for middle-class African Americans began to decline rapidly. By 2006, 94% of African American middle-class families did not have enough financial assets to cover three-fourths of their essential expenses if a job loss was experienced (Wheary et al., 2009). Such economic insecurity contributes to increased stress levels and negatively affects behavioral and mental health outcomes among African Americans, especially among youth attempting to transition into new adult roles (Hardaway & McLloyd, 2009).

African Americans also have reported high levels of neighborhood-related stressors (Grote et al., 2007; Myers & Sanders-Thompson, 2000; Sampson, Morenoff & Raudenbush 2005), including fear of violence in their neighborhoods (Bellair & McNulty, 2005; Copeland-Linder et al., 2011), low levels of collective efficacy (Morenoff, Sampson, & Raudenbush, 2001; Sampson, 2003), trust and social cohesion (Sampson, Raudenbush, & Earls, 1997; Sampson, 2003), and fewer institutional resources (Haynie, Silver, & Teasdale, 2006; Williams, Mohammed, Leavell, & Collins, 2010). Several researchers have found these neighborhood characteristics to be related to risk for violence (Haynie et al., 2006; Rasmussen, Aber, & Bhana, 2004; Ostrowsky & Messner, 2005; Lambert, Ialongo, Boyd, & Cooley, 2005), depression (Lambert et al, 2005; Taylor & Turner, 2002), and overall well-being (Sampson, 2003). Personal and institutional racial discrimination both inside and outside the work place have been identified as additional sources of stress for African Americans. These sources of discrimination can contribute to negative mental health outcomes during the transition into adult roles (Agnew, 2001; Brody et al., 2006). African Americans experience stress from multiple sources simultaneously, and although results from these studies support the link between each of these sources of stress and externalizing and internalizing outcomes, little is known about the relative contribution of stress stemming from each of these life domains.

Theoretical Framework for Stress and Externalizing and Internalizing Outcomes

Agnew's General Strain Theory (GST) posits that stressors result in strain, which increases the risk for negative behavioral and emotional responses (Agnew, 1992, 2001; Agnew & Brody, 1997). The magnitude of a stressor is directly affected by the duration, frequency, and recency of exposures. Experiencing highly stressful circumstances may overwhelm coping mechanisms, which may be viewed as ineffective or too difficult to engage in. Based on GST's proposition that higher levels of negative outcomes are a function of exposure to stressors, racial/ethnic differences in the risk for negative outcomes may be due to differential exposure to stressors (Agnew, 1992; Aseltine, Gore, & Gordon, 2000; Eitle & Turner, 2002). A critical element in understanding pathways to negative outcomes among specific demographic groups is to determine the types of strains and length of exposure they experience (Agnew, 2001). Furthermore, it is possible that the continued and cumulative presence of stressors across the life course effects the development of negative externalizing and internalizing outcomes. Yet, few researchers simultaneously compare stressors in different life domains or their accumulation over time and their relationship to both engaging in violent behaviors and experiencing depression.

Studies of violent and depressive outcomes suggest that stressors that stem from specific life domains or contexts may be more relevant than others. Exposure to violence and feeling unsafe in one's neighborhood, for example, have been linked consistently to higher risk for

violent behaviors and depression (Agnew, Brezina, Wright, & Cullen, 2002; Copeland-Linder et al., 2011). Similarly experiences with discrimination and prejudice (Agnew, 2001; Brody et al., 2006; Caldwell et al., 2004) and financial strain (Haynie et al., 2008) have been found to increase risks for both outcomes. Other evidence suggests that caregiver stress (e.g., parenting stress) reduces the risk for engaging in violent behaviors (Agnew, 2001; Marcus, 2009), but may increase the risk for depression (Phillips, Gallagher, Hunt, Der, & Carroll, 2009). Exposure to stressors generally is significantly higher among African Americans than the general population (Grote et al., 2007; Bellair & McNulty, 2005; Haynie et al., 2008) and are often associated with depression (Brody et al., 2006; Grote et al., 2007; Hurd & Zimmerman, 2010; Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). Moreover, sex and SES differences in both violent behaviors and depression (Mason et al., 2004; Marcus, 2009; Liu & Kaplan, 2004) and the effect of stressors on these outcomes (Meadows, Brown, & Elder, 2006) have been documented, with males and low SES groups having higher risk for violence and females and low SES groups having higher risk for depression. Despite these findings, little empirical evidence exists on the effects that changes in stressors in different life domains may have on risk trajectories for African Americans during the period of emerging adulthood.

The Current Study

Given the limited evidence on the influence of specific stressors on externalizing and internalizing outcomes and the greater exposure to different types of stressors among African Americans, this study examined the role of stressors stemming from different life domains (i.e., financial, parenting, neighborhood, and racial discrimination stress) on the risk for violent behaviors and depressive symptoms among African Americans during the period of emerging adulthood. Based on GST, we first examined the relative contribution of financial stress, parenting stress, neighborhood stress, and racial discrimination stress on the risk for violent behaviors and depressive symptoms over time, over and above the effect of perceived daily stress. We hypothesized that experiencing high levels of financial, neighborhood, and racial discrimination stressors will increase the risk for violent behaviors and depressive symptoms as youth transition into adulthood after controlling for perceived daily stress. We also hypothesized that parenting stress will decrease the risk for violent behaviors, but increase the risk for depressive symptoms over time. Secondly, we examined the relationship between the accumulation of stressors over time and the risk for violent behaviors and depressive symptoms, respectively. We hypothesized that youth who consistently experience more stress will be more likely to engage in violent behaviors and experience more depressive symptoms as they transition into young adulthood. Finally, we analyzed sex and SES effects on these longitudinal relationships. Based on previous studies, we expected males to have higher rates of violent behaviors compared to females, and females to have higher rates of depressive symptoms compared to males. We also expected that individuals with higher SES to have lower levels of risk for violent behaviors and depressive symptoms compared to those with lower SES.

Methods

Study Design and Sample

This study utilized data from the Flint Adolescent Study (FAS; Zimmerman, Salem, & Notaro, 2000), a longitudinal study that followed a cohort of 850 participants from mid-adolescence at the beginning of 9th grade (Wave 1: 1994) into adulthood (Wave 11: 2011). Face-to-face, self-administered paper-and-pencil interviews were conducted at one-year intervals from 1994 to 1997. Data were not collected in 1998, thus waves 5 through 8 correspond to the 1999–2003 calendar years. The study had a 68% response rate across the eight waves of available data. We utilized data from Waves 1 and 5 through 8 for the current

study to examine the effects of stressors in different life domains on externalizing and internalizing behaviors as participants' transition into adulthood. These years represent right after the 12th grade school year for most youth, at 19–22 years old (Wave 5) through 22–25 years old (Wave 8).

Participants in the first wave of data collection (i.e., freshman year of high school) came from four public high schools in Flint, Michigan. Wave 1 had a 92% response rate of all eligible participants. The original study inclusion criteria included having a GPA below 3.0, and not be diagnosed with any emotional or developmental disability according to school records. Adolescents who self-reported being African American at Wave 1 (N=681, 80% of Wave 1) were eligible for this study. A total of 77 participants were excluded from the analysis because they did not have data on the outcome measures at any of the waves that correspond to young adulthood. Excluded respondents were more likely to be male, $\chi^2(1) = 9.5, p < .001$, but did not differ in age, family structure or parents' marital status at Wave 1, the probability of being parents at Waves 5 or 8, or the probability of having finished high school by Waves 5 or 8.

Sample Description

Of the 604 youth in the final sample, 47% were male and, on average, 14.8 ($SD = .64$) years of age at Wave 1. At that time, 25.5% of the sample had married parents, 28% had parents who had separated or divorced, and 46.5% had parents who had never married. Similarly, 43% of adolescents lived in households headed by their mothers, while 57% lived in other household compositions. A year after their expected graduation date (Wave 5), 24% of study participants had not completed high school, 45% had completed high school or a GED, and another 31% had enrolled in college. Four years after their expected graduation date (Wave 8), 13% had still not completed high school. The number of participants who had children during young adulthood and who were married or living with a partner increased during each wave of data collection. At Wave 5, 33% of respondents reported having any children, while at Wave 8, 50% had children; at Wave 5, 10.5% of respondents reported being married or living with a partner, increasing to 20% by Wave 8. As shown in Table 1, participants averaged 20 years of age (range 19–22) at Wave 5, and 23 (range 22–25) by Wave 8.

Measures

Table 1 presents the distribution and reliability scores for outcome variables and all time-varying variables at each wave of data collection.

Dependent Variables

Violent behaviors—Respondents were asked the frequency in which they had gotten into a fight, engaged in a group fight, injured someone bad enough to need medical assistance, used a knife or a gun to steal from someone, carried a knife or a razor, and/or carried a gun during the previous 12 months. Response categories ranged from *never* (1) to *4 times or more times* (5). The original scale indicated the mean of violent behaviors, but had a highly skewed distribution across all waves; thus, we used the natural log transformation in the multivariate analysis.

Depressive symptoms—Using six items from the Brief Symptom Inventory (Derogatis & Spencer, 1982), we assessed the frequency in which participants felt lonely, sad, hopeless, worthless, lacked interest in things, and thought of suicide during the previous week. Response options on a Likert scale ranged from *never* (1) to *very often* (5).

Time-Varying Independent Variables

Age—Participants reported their month and year of birth (DOB) at baseline (Wave 1). Their age at each wave was calculated by subtracting their DOB from the date of interview.

Perceived daily stress—Using the 13-item Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), we assessed how often respondents felt they could manage hassles in their daily life during the previous month. Responses ranged from *never* (1) to *very often* (5). This measure has shown high validity and reliability scores among African Americans (Cole, 1999; Sharp, Kimmel, Kee, Saltoun, & Chang, 2007).

Financial stress—Participants were asked to rate whether, compared to other people, they had enough money to pay for the food, clothing, and medical care they needed. Response categories were *more than enough* (1), *just enough* (2), and *not enough* (3). Items were summed, where higher scores indicate more financial shortage (range = 3 – 9). The financial stress items were not asked during Wave 5. For analytic purposes, we repeated the scores reported at Wave 6 for Wave 5 (Repetto, Zimmerman, & Caldwell, 2008).

Parenting stress—Using the Parenting Stress Index Short Form (Abadin, 1990), participants who reported having a biological, step, or adopted child(ren) were asked about their role as caregivers (2 items) and feelings of responsibility about parenting (4 items) using 5-point Likert scales. Sample items included: “Being a parent/caregiver is harder than I thought it would be”, “I feel trapped by the responsibilities as a parent/caregiver”, “I find that taking care of my child(ren) is much more work than pleasure”. Response categories ranged from *strongly disagree* (1) to *strongly agree* (5), where higher scores indicate more stress. In order to maximize the data, people without children were included as having no parenting stress (i.e., scores of 1 across all questions).

Neighborhood stress—Respondents were asked about their attitudes towards their neighborhood and neighbors (5-items) and their fear of violence in the neighborhood (2-items), using 4-point Likert scales. Sample items include: “I believe my neighbors would help me in an emergency” and “I am afraid of the violence in my neighborhood”. After reverse-coding positively worded items, the neighborhood stress scale assessed negative feelings about their current neighborhood. Response categories ranged from *strongly disagree* (1) to *strongly agree* (4). The items included are modified versions of Sampson and Wooldredge’s (1987) measure of social cohesion and trust.

Racial discrimination stress—Using the 20-item Daily Life-Experiences Subscale (Harrell, 1997), respondents were asked whether they had experienced racism-related life events or microstressors (Harrell, 2000) in the past year and how much each event bothered them. Sample items included: “Being ignored, overlooked, or not given service (in a restaurant, store, etc.)”, “Your ideas or opinions being minimized, ignored, or devalued”, and “Not being hired for a job”. Response categories ranged from *never happened to me* (0) to *bothers me extremely* (5), where higher scores represent more racial discrimination stress.

Accumulation of stressors—A binary version of each stressor was used to construct a continuous accumulation of stressors variable that indicated the number of stressors experienced at each wave. We used theoretically meaningful or distribution-based cut-offs to create each binary version. The lowest median score across waves was used to establish the cut-off points for perceived daily stress ($Mdn = 2.38$) and financial stress ($Mdn = 5$). Cut-off points for the rest of the stressor variables were based on each scale’s response categories. The cut-off point for parenting stress was the midpoint (i.e., 2.5) of the response categories’ original range (i.e., 1 – 5). The cut-off point for neighborhood stress was 2.5

(original range 1 – 4), which indicated agreement to at least one stressful item. Finally, the cut-off point for racial discrimination stress (original range 0 – 5) was based on participants' indication of a race-related discrimination experience that “*bothered me a little*” (i.e., 2) or more. Less stressful experiences were coded as 0 for each measure. Scores were summed across the five binary versions to create a final accumulation of stressors measure at each wave that ranged from 0 to 5 stressors.

Demographic Variables

During Wave 1, participants were asked to self-identify their sex (male or female), as well as the number of people living in their household and their relationship to each person; they also identified their parents' marital status, and highest level of education and the type of employment (if any) of each parent in the household. Respondents were classified as living in single or two parent households. We measured parental occupation with the Occupational Prestige Score (Nakao & Treas, 1990), which factors in parental level of education and type of employment. For this study, we obtained an average prestige score for each of the 20 major occupational categories listed by Nakao and Treas (1990). We then assigned the occupation given by respondents to one of those 20 major classifications, and we used the average prestige score for that group. The majority of participants' parents held positions as operators/mechanics/production inspectors (47%), while the remaining were service workers (16%), in managerial and/or professional occupations (16%) and in sales and/or administrative positions (16%). The highest occupational group received a score of 64.38 (equivalent to professional/specialty) and the lowest group received a score of 27.84 (equivalent to private household work). Participants identified their highest level of schooling completed, and – among those who had dropped out - the month and year they stopped attending high school at Wave 5. This was used to construct a measure that indicated whether participants had dropped out or completed high school on time (i.e., by Wave 5).

Analytic Strategy

Growth Curve Models (GCM)

GCM were created using HLM 7 to assess individuals' change in violent behaviors and depressive symptoms from Wave 5 to Wave 8, and examine if these trajectories varied by sociodemographic characteristics (Curran, Obeidat, & Losardo, 2010). As an extension of multilevel models, multiple observations of an individual are nested within a person (Raudenbush & Bryk, 2002). Following the recommendation by Raudenbush & Bryk (2002), we modeled the outcome over time before any time covariates of interest were included in a GCM. Age of the participant at each wave was used to examine variations over time in both violent behaviors and depressive symptoms.

First, we ran fully unconditional models for both violent behaviors and depressive symptoms. These models allow the calculation of the intraclass correlation coefficient (ICC) for each outcome, which indicates the proportion of the variance that may be attributed to participants' growth trajectories for an outcome (within-individual variation) and the differences between participants' trajectories (between-individual variation) (Raudenbush & Bryk, 2002; Bauermeister, Zimmerman, Gee, Caldwell & Xue, 2009). Second, we included linear, quadratic, and cubic age indicators centered at 19 years of age (minimum age reported at Wave 5) to describe the change over time for these two outcomes. We also included sex, family structure, parental occupational prestige scores Wave 1 and level of education at Wave 5 as fixed-effects control factors to assess the shape of change that best fits each outcome and whether individuals varied in these growth patterns (random effects) (Bauermeister et al., 2009). Cubic age transformations, family structure and parental

occupational prestige score at Wave 1 did not have any effect on the risk for either outcome over time, thus they were dropped from subsequent analyses.

In order to examine the relative contribution of stressors in each life domain on violent behaviors and depressive symptoms, the full models included perceived daily stress as a covariate and all four domain specific stressors as time-varying predictors. All time-varying stressor variables were standardized and grand mean centered for ease of interpretation in our results. We tested for problems of multicollinearity using a linear model across the key independent variables, and found none as indicated by VIF scores > 1 and high tolerance values (all were $.8$). The financial stress items were not asked during Wave 5. In keeping with the research question that modeled stressors simultaneously across all four waves, we repeated the scores reported at Wave 6 for Wave 5, thus assuming no change in this variable (Repetto, Zimmerman, & Caldwell, 2008).

In order to examine the relationship between the accumulation of stressors over time and each outcome, we estimated models that assessed whether changes in violent behavior and depressive symptoms were proportional to increases in accumulated stressors across waves. In order to do so, we added accumulated number of stressors as dummy variables (ranged from one to five), testing their difference against participants who reported no stressors. We conducted post-hoc pairwise contrasts to test for differences between any of the levels of accumulated stress. Similar to prior analyses, we also examined whether the association between our outcomes of interest and the accumulated stressors during emerging adulthood varied by sex and education.

Results

Descriptive Findings

As indicated in Table 1, the frequency of violent behaviors and depressive symptoms remained low from waves 5 through 8. At Wave 5, 42.3% of participants had engaged in at least one violent behavior in the previous 12 months, decreasing to 35.5% at Wave 8. Although most participants did not engage in any violent behaviors, 10.7% reported engaging in violent behaviors at *all* waves. The average frequency of depressive symptoms was consistently low across all waves, with most participants reporting “almost never” feeling any of the depressive symptoms included in the measure. The majority of participants scored under the mean level of depressive symptoms at Wave 5 ($M = 1.8$; 56%) and at Wave 8 ($M = 1.7$; 59%). Similarly, the average score for each stressor remained stable across waves; however, the accumulation of stressors increased over time. While only 5.5% of participants reported experiencing 3 or more stressors at Wave 5, the prevalence of 3 or more stressors increased to over 25% by Wave 8. Males had higher levels of violent behaviors than females at all time points, while the opposite was true for depressive symptoms.

Modeling Violent Behaviors and Depressive Symptoms over Time

Results from the unconditional model indicated variability in the average change in violent behaviors between waves 5 and 8, (X^2 (df = 603) = 2,604.6; $p < .001$). The ICC was 52% after partitioning the variance into within-individual and between-individual variability, suggesting that the changes in violent behaviors over time differed across individuals. Similar results from the unconditional model of depressive symptoms indicated that 53% of variability in the average level of symptoms over time, (X^2 (df = 603) = 2,745.6, $p < .001$), was across individuals. Based on these results, we subsequently accounted for differences on the intercept for both violence and depressive symptoms, respectively, and modeled participants' change over time on these outcomes.

Violent behaviors—At baseline, we found significant differences by participants' sex and level of education (Figure 1). Males and those who had not finished high school had higher mean violent behavior scores than females or those who had finished high school (Table 2). Modeling change over time, results indicated a quadratic change across participants' violent behaviors over young adulthood. These temporal associations, however, did not differ by sex or education.

Depressive symptoms—Although we found no baseline differences across sex or education, we found that participants' depressive symptoms trajectories varied by sex (Figure 1). When we modeled change over time, we found that a quadratic model was the best fit for participants' depressive symptoms during the transition to young adulthood (Table 2). Overall, depressive symptoms decreased as respondents became young adults; however, the temporal associations differed by sex. Among males, depressive symptoms remained stable until age 21, but increased by age 25. Among females, depressive symptoms remained consistent over time. We noted no trajectory differences by education.

Multiple Life Domain Stressors

After modeling the changes in participants' trajectories for violent behavior and depressive symptoms, respectively, we tested for a temporal relationship between participants' trajectories and the multiple stressors after controlling for perceived daily stress.

Violent behaviors—We found that changes in perceived daily stress and stress from racial discrimination were associated with changes in violent behavior during the transition to adulthood (Table 2). Higher levels of these stressors over time were related to higher risks for violent behaviors. We found no temporal association between violent behaviors and financial, parenting, or neighborhood stress.

Depressive Symptoms—We found that depressive symptoms were positively associated with higher levels of perceived daily stress, financial stress, neighborhood stress, and racial discrimination stress over time (Table 2).

Accumulation of Stressors

Given the observed relationships between stressors in multiple life domains and violent behaviors and depressive symptoms, respectively, we examined whether the changes in the outcomes were proportional to increases in the accumulation of stressors across waves.

Violent behavior—Participants who had 2 or more stressors were at higher risk for violent behaviors (Figure 2) than those with no stressors. Those who reported having a single stressor did not differ in risk for violent behaviors during the transition to adulthood from those who reported no stressors (Table 3). When we examined post-hoc pairwise contrasts (results not shown), we found that participants with 5 stressors had higher risk for violent behaviors than those with 2 to 4 stressors. We found no differences between youth who experienced 2 to 4 stressors.

Depressive symptoms—Participants who reported any accumulation of stressors over time had a higher risk for depressive symptoms than those who reported no stressors (Table 3). In other words, mean depressive symptoms scores over time increased with every additional level of accumulated stress (Figure 2). Consistent with these findings, post-hoc contrasts between cumulative stress categories indicated that mean depressive symptoms over time increased with each additional level of accumulated stress (i.e., where participants who reported an additional stressor were at higher risk than those in the previous category), with the exception of those who reported 4 to 5 stressors.

Discussion

Although stress long has been associated with violent behaviors (Liu & Kaplan, 2004; Aseltine et al., 2000; Copeland-Linder et al., 2011; Warner & Fowler, 2003) and depressive symptoms (Hurd & Zimmerman, 2010), little is known about the effects of specific stressors in different life domains on these outcomes. This study expands the current literature by identifying distinct sources of stress and their relationship to risk for violent behaviors and depressive symptoms during the period of emerging adulthood among African Americans. Results indicate that stressors are not equally salient in the development of risk. Among this sample of African American emerging adults, higher levels of racial discrimination stress over time increased the risk for violent behaviors over and above the impact of perceived daily stress. Similarly, and consistent with our hypotheses, higher levels of financial, neighborhood, and racial discrimination stress were associated with higher levels of depressive symptoms over time. Furthermore, the accumulation of stress (i.e., the number of stressors at each wave) seems to have an important influence on these externalizing and internalizing outcomes, regardless of which life domain it stems from. Several noteworthy findings are described below.

Trajectories of Violent Behaviors

Researchers guided by General Strain Theory (GST) have long argued that increased levels of stress will heighten the risk for violent behaviors (Agnew, 1992, 2001; Agnew et al., 1992, 1997, 2002). Longer exposure to a greater number of stressors may explain partially levels of violence during the transition into adult roles. Our findings that feeling overwhelmed by daily hassles and experiencing racism-related stressors increase the risk for violent behaviors during emerging adulthood are consistent with GST and previous empirical tests of it. Agnew and White (1992) found that perceived stress increased the risk for delinquency. Brody and colleagues (2006) found that experiences with discrimination predicted higher levels of violent behaviors, particularly among males. Caldwell and colleagues (2004) also found that racial discrimination was related to violent behaviors among African American young adults. Experiences of racial discrimination may stem from interactions with individuals, as well as institutions. Racist institutional policies in police departments and juvenile justice systems, for example, have resulted in African American youth receiving disproportionate sentences compared to White youth for the same offences (Williams, Mohammed, Leavell, & Collins, 2010). This has repercussions beyond the time served. Young adults with criminal records have a harder time reintegrating into society, thus increasing their vulnerability for recidivism and increasing exposure to various life stressors such as economic strain and discrimination (Williams et al., 2010). Intervention efforts that focus on helping people to manage the stress that comes from being subjected to overt and more subtle forms of racist social interactions may ameliorate some of these effects; however, researchers and policy makers must begin to think critically about how policies may unintentionally perpetuate discrimination and develop policies that can help eliminate institutionalized racial discrimination.

Contrary to expectations, stress that stemmed from financial shortage and neighborhood stress were not associated with the risk of violent behaviors during this time. Haynie, Weiss, and Piquero (2008) found that economic and employment prospects mediated the race-criminal offending relationship among African Americans, potentially offering insight into the pathways by which financial stress leads to higher risk. Our measure of financial stress focused on respondents' financial situation during data collection and may not tap into the notion of prospects (appraisal of how likely economic security in the future) or may be placing the burden of responsibilities in personal actions, rather than in an unfair disadvantage in financial opportunities. Agnew (2001) argued that the link between financial strain and negative behavioral outcomes is mediated by a disjunction between reality and

expectations. If not having enough money for basic needs is not perceived as unjust, then it would not increase the risk for violent behaviors. Perceived neighborhood environments have been consistently found to be related to violent behaviors among youth (Eitle & Turner, 2002; Sampson, Morenoff, & Raudenbush, 2005; Felson, Deane, & Armstrong, 2008). Contrary to our hypothesis, neighborhood stress was not associated with increased risk for violent behaviors among young adult African Americans. Our non-significant findings on the relationship between neighborhood stress - including fear of violence in their neighborhoods - and the risk for violent behaviors may stem from the age range we examined. It is possible that the effect of perceived negative neighborhood social and structural characteristics on the risk for violent behaviors may have a strong effect among children and adolescents, with the effects attenuating over time as they become more independently mobile or desensitized to the exposure.

Previous studies conducted among young African American adults (Eitle & Turner, 2002) have focused on witnessing violence in neighborhoods and other highly traumatic forms of victimization, which may account for a persistent effect across time. It is possible that, outside of exposure to community violence, the perceptions of neighborhoods may not have as strong of an effect on the risk for violent behaviors among emerging adults over time. Moreover, consistent with our hypothesis and other studies based on GST (Agnew, 2001), parenting stress was not linked to risk for violent behaviors. Yet, the majority of participants in our study did not have children until Wave 8; thus, conclusions made on the effect of this specific stressor should be made with caution, as we may have lacked the power to correctly identify a significant effect.

Our findings on the effect of the accumulation of stressors during emerging adulthood underscore the possibility that having too many stressors can push someone over the edge and increase their risk for violent behaviors. Our results suggest that having ongoing stressors in one life-domain may be manageable, and even expected, in most instances. Yet, the presence of ongoing stress in multiple life domains may overwhelm coping mechanisms, increasing the risk for violence. Additional research is needed to confirm these findings. In particular, future research that examines which potential combinations of stressors pose the most risk for violent behaviors would be useful.

Trajectories of Depressive Symptoms

The results of our study show that, on average, levels of depressive symptoms remained relatively low across the sample. The evidence on the prevalence and correlates of race differences in depressive symptoms is mixed. National studies, for example, have indicated that African Americans have significantly lower risks for mood disorders than their White counterparts across different life stages (Kessler et al., 1994; Robins & Reiger, 1991; Blazer, Kessler, McGonagle, & Swartz, 1994), and that as adolescents transition into young adulthood, African Americans have the sharpest decrease in risk for depression and suicide risk compared to any other racial/ethnic group in the United States (Harris et al., 2006). Yet, other researchers have found that African-American youth, particularly females, with a history of depressive symptoms during childhood and adolescence were more likely to experience higher risk for suicide and long-term depression during adulthood (Joe, Baser, Neighbors, Caldwell, & Jackson, 2009). This mixed evidence underscores the importance of understanding specific pathways that exacerbate the risk for depression among this population.

We found gender differences over time, which indicated an acceleration of depressive symptoms among males from ages 21 to 25. Emerging adulthood is a critical developmental period when multiple transitions are occurring and when the accumulation of disadvantage over time is heightened (Williams, 2003). This is also a time when African American males

are especially aware of restricted opportunity structures associated with discrimination that may lead to ineffective coping with stressors (Copeland-Linder et al., 2011). We found that, in addition to higher risk linked to persistent daily stressors, the risk for depressive symptoms increases with financial, neighborhood, and racial discrimination stressors. We also found that youth experienced a linear association between the number of stressors and risk for depressive symptoms. Those who were trying to manage stress had a higher risk from those with no stress; where those with 2 stressors had a higher risk than those with 3, and so on. Thus, male African American emerging adults who are struggling to find their place in the adult world, but live in neighborhoods that expose them to environmental stressors (Bellair & McNulty, 2005; Sampson, 2003) and face blocked opportunity structures in employment and other areas important to successful adult transitions (Berzin & De Marco, 2010; Entwisle et al., 2000), may be an unrecognized population in need of mental health services. The role of institutional and interpersonal discrimination in the process of successfully transitioning into adulthood and expectations for negative behavioral outcomes for young African American males at the expense of their mental health is not well understood. More longitudinal research on this topic will help to disentangle the effects of stressful events on depression among young African American males transitioning into adulthood, and further the development of relevant mental health services for them.

Although our findings are promising, several limitations merit mentioning. This study's measures of violence did not distinguish the context for violence, making it difficult to assess whether it happened in the community or home, among strangers or acquaintances. The Flint Adolescent Study allowed us to examine stressors stemming from a handful of life domains, but some of our measures served as proxies for stressors across life domains. We were not able to assess, for example, how people felt about their financial shortage or whether they thought it was fair – issues identified in GST as important pathways to negative outcomes. Some of our non-significant findings may be due to little variation in some of the variables of interest in the short time span examined. Items used for the construction of our variables (e.g., financial stress) were not asked prior to wave 5; thus, we were unable to examine some of the variations in life domains prior to young adulthood. Future research that examines the full transition from young adults into their early 30s may reveal more variability of additional markers of exposure to stress (e.g., biomarkers) and potential moderators (e.g., sources of support, ability to handle stressors). Finally, our study is limited to an African American sample in a small Midwestern city. Although our findings are potentially applicable to similar cities, future research should examine whether patterns found in our studies are also applicable to other contexts and other racial/ethnic populations.

Despite the above limitations, findings from this study help in understanding factors that contribute to the experiences of African Americans as they transition into young adults. It provides insight into the effect of multiple stressors on externalizing and internalizing behaviors among an urban sample using a longitudinal, multilevel (i.e., growth curve models) approach. Untangling relationships across time provides a more complete picture of mechanisms that are amenable to change at multiple levels. This information may prove to be extremely useful for the development of effective intervention strategies that reduce the risk of violent behaviors and depressive symptoms. Our findings, for example, point to sex differences and the need for tailored interventions. Interventions focusing on preventing depression for African American males may benefit by beginning prior to age 21. Most current programs that focus on young African American men in this age range focus on employment opportunities (Mincy & Pouncy, 2002); however, more attention could be given to incorporating a focus on managing emotional well-being for these young men as well. Moreover, this study raises questions about institutional barriers and racism. At the structural level, removing discriminatory barriers to earlier transitioning into stable employment for African American youth through effective policies and system changes, as

well as finding ways to reduce community violence in neighborhoods where many African American youth live are critical for the formation of stable family life, a critical developmental task in the transition to young adulthood for all youth.

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Figure 1.
Trajectories of Violent Behaviors and Depressive Symptoms by Sex and Level of Education

Figure 2.
Trajectories of Risk by Accumulation of Stressors

Table 1

Means, Std Deviations, and Cronbach's Alphas of Time-Varying Variables, per Wave

	Wave 5 ^a	Wave 6	Wave 7	Wave 8
Violent Behaviors	1.3 (.5)	.68 1.3 (.5)	.73 1.2 (.4)	.69 1.3 (.5)
Depressive Symptoms	1.8 (.7)	.83 1.7 (.7)	.83 1.7 (.7)	.83 1.7 (.7)
Age	20 (.7)	21 (.6)	22 (.7)	23 (.7)
Perceived daily stress	2.4 (.6)	.82 2.5 (.6)	.81 2.4 (.5)	.80 2.4 (.5)
Financial stress	--	5.0 (1.7)	.80 4.9 (1.7)	.82 5.3 (1.7)
Parenting stress	1.7 (1.2)	.67 1.8 (1.2)	.69 2.0 (1.3)	.73 2.1 (1.2)
Neighborhood stress	2.0 (.6)	.73 2.0 (.6)	.72 1.9 (.5)	.73 1.9 (.6)
Racial discrimination stress	1.3 (1.3)	.97 1.2 (1.2)	.97 1.2 (1.3)	.97 1.2 (1.2)
No. of Stressors (%)				
0	28.3	16.7	17.1	13.6
1	41.4	31.3	31.5	23.3
2	24.7	31.1	31.3	34.4
3	5.1	16.1	15.8	18.5
4	.4	4.1	3.7	6.6
5	--	.6	.6	.6

Note:

^a Only four stressors were assessed at Wave 5.

Table 2

Growth Curve Models for Specific Stressors on the Risk for Violent Behaviors and Depressive Symptoms

	Violent Behaviors		Depressive Symptoms	
		<i>SE</i>		<i>SE</i>
Intercept	.32 ***	.01	1.7 ***	.06
Male ^a	.04 **	.01	.13	.11
No H.S. at Wave 5 ^b	.03 **	.01	-.02	.06
Age	.01 ⁺	.00	.11 *	.05
Male ^a	-.01	.01	-.24 **	.08
Age ²	-.002 *	.00	-.02 *	.01
Male ^a	.002	.002	.04 **	.02
<i>Time-Varying Stressors</i>				
Perceived Daily Stress	.01 ***	.002	.32 ***	.02
Financial Stress	.00	.002	.07 ***	.02
Parenting Stress	.001	.003	-.01	.02
Neighborhood Stress	.001	.002	.09 ***	.02
Racial Discrimination Stress	.007 **	.002	.08 ***	.02

Note: = Coefficient; *SE* = Standard Error; Reference groups:

^aFemales = 0,

^bFinished High School = 0 by Wave 5;

p < .001,

**
p < .01,

*
p < .05,

⁺
p < .10

Table 3

Accumulation of Stressors for Violent Behaviors and Depression Symptoms

	Violent Behaviors		Depressive Symptoms	
		SE		SE
Intercept	.32 ***	.01	1.41 ***	.07
Male ^a	.042 ***	.01	.08	.10
No H.S. at Wave 5 ^b	.03 ***	.01	.02	.05
Age	.001	.004	.06	.05
Male ^a	-.01	.01	-.20 *	.08
Age ²	-.001	.001	-.02 ⁺	.01
Male ^a	.001	.002	.04 **	.01
<i>Number of Stressors</i>				
1	.003	.004	.20 ***	.03
2	.02 ***	.004	.42 ***	.04
3	.02 ***	.01	.61 ***	.05
4	.02 *	.01	.91 ***	.09
5	.05 *	.02	.98 ***	.19

Note: = Coefficient; SE = Standard Error; Reference groups:

^aFemales,

^bFinished High School by Wave 5;

p < .001,

**
p < .01,

*
p < .05,

⁺
p < .10