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Trajectories of Posttraumatic Stress Among Urban Residents

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Abstract

Urban residents experience a wide range of traumatic events and are at increased risk of assaultive violence. Although previous research has examined trajectories of posttraumatic stress (PTS) through latent class growth analysis (LCGA) among persons exposed to the same index events (e.g., a natural disaster), PTS trajectories have not been documented among urban residents. The aims of this study were to conduct LGCA with a sample of trauma survivors from Detroit, Michigan (N = 981), and to explore predictors of trajectory membership. Participants completed three annual telephone surveys, each of which included the posttraumatic stress disorder (PTSD) Check-list-Civilian Version. Four PTS trajectories were detected. Although the majority evidenced a trajectory of consistently few symptoms (*Low*: 72.5 %), 4.6 % were in a trajectory of chronic severe PTSD (*High*), and the remainder were in trajectories of consistently elevated, but generally subclinical, levels of PTS (*Decreasing*: 12.3 %; *Increasing*: 10.6 %). Socioeconomic disadvantage (e.g., lower income), more extensive trauma history (e.g., childhood abuse), and fewer social resources (e.g., lower social support) were associated with membership in higher PTS trajectories, relative to the *Low* trajectory. The results suggest that efforts to reduce PTS in urban areas need to attend to socioeconomic vulnerabilities in addition to trauma history and risk for ongoing trauma exposure.

Keywords

Posttraumatic stress; Latent class growth analysis; Non-Hispanic Blacks; Urban environment

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Introduction

Living in an urban environment is associated with increased risk of exposure to assaultive traumatic events (e.g., rape, being shot or stabbed), compared residence in other contexts (e.g., Goldmann et al. 2011). Assaultive traumatic events, in turn, are more strongly associated with posttraumatic stress (PTS) than non-assaultive traumatic events (e.g., serious illness or injury) (Breslau et al. 1998). Because trauma-exposed urban residents are more likely to have a history of assaultive events, it follows that they would also be at increased risk of higher PTS, relative to residents of other contexts. The picture, however, may not be so clear. The majority of trauma survivors do not experience levels of PTS consistent with a diagnosis of posttraumatic stress disorder (PTSD) (Roberts et al. 2011). Furthermore, there is substantial variation in the course of PTS, such that some individuals experience symptom recovery, others chronic symptoms, and others delayed or intermittent symptoms (Norris et al. 2009).

Documenting PTS trajectories among urban residents can allow for a better understanding of the varying course of PTS under conditions that are modal for most global residents today. As of 2010, more than 50 % of the world's population lives in urban environments and it is estimated that this will rise to over 60 % by 2030 (WHO & UN-HABITAT 2010). Furthermore, trajectory analysis could identify modifiable risk factors, which would have important implications for interventions to prevent or mitigate PTS. The current study therefore had two aims. The first aim was to document PTS trajectories among adult trauma survivors living in Detroit, Michigan. The second aim was to explore indicators of socioeconomic disadvantage, trauma history, and social resources as potential predictors of trajectory membership.

Posttraumatic Stress Trajectories

Two approaches have been commonly used to investigate patterns of PTS over time. First, studies have employed growth curve modeling (GCM) to estimate an average PTS trajectory, and to explore whether predictor variables explain residual variance in initial PTS (i.e., the intercept) and changes in PTS over time (i.e., the slope) (e.g., Murphy et al. 2003). Although using continuous measures of PTS maximizes the statistical variance that can be predicted, GCM assumes that all participants come from the same population, a single growth trajectory can be approximated for the entire sample, and covariates affect growth the same way for each participant (Andruff et al. 2009; Jung and Wickrama 2008). A GCM approach does provide some understanding of variation in responses to trauma over time, but does not capture the varying trajectories of responses (e.g., symptom recovery, delayed symptoms, intermittent symptoms), quantify the percentage of participants falling into each trajectory, or allow for exploration of the factors that might predict membership in one trajectory versus another.

Second, cut-off scores or averages have been used to categorize participants into groups representing different patterns of PTS (e.g., Hobfoll et al. 2009). A drawback of this approach is the large number of possible categories in multi-wave datasets. Categories with few participants could represent statistical outliers rather than true subpopulations. Cut-off scores can also be somewhat arbitrary and do not adequately capture variance in PTS. For

example, among those categorized as having a PTSD diagnosis, there is variation in levels of PTS, with some barely surpassing the clinical cut-off and others far exceeding them. Additionally, some individuals without a PTSD diagnosis could be experiencing subthreshold symptoms. These variations can have important implications for survivors' daily lives and functioning.

Unlike GCM and categories of growth based on cut-off scores, latent class growth analysis (LCGA), a person-centered technique, identifies distinct trajectories of PTS in the data without sacrificing variance in PTS within each assessment (Andruff et al. 2009). LCGA is a special case of Growth Mixture Modeling (GMM). Unlike a general GMM approach, LCGA imposes the restriction that intercept and growth terms within each trajectory are constant (i.e., the variance of these terms is fixed at zero) (Jung and Wickrama 2008). The advantage of these restrictions is that models are more easily specified; for example, quadratic growth terms can be estimated with only three waves of data (Jung and Wickrama 2008). A disadvantage of LCGA, versus GMM, is that the variance in intercept and growth terms cannot be predicted by exogenous variables. Nonetheless, LCGA fits the aims of the current study in that allows for identification of latent trajectories, and exploration of associations between predictor variables and trajectory membership.

To date, studies have used LCGA to document patterns of PTS over time among survivors of the same index trauma, such as terrorist attacks, natural disasters, and war (e.g., Berntsen et al. 2012; Norris et al. 2009). A consistent finding in these studies is that the majority of trauma survivors are resilient, experiencing low levels of PTS over time. Other patterns, although less common, have also been detected, including chronic, increasing, and decreasing symptom trajectories. Although LCGA studies to date have provided insight into longitudinal patterns of PTS, they are limited in their focus on survivors of the same index trauma. Consequently, less is known about PTS trajectories among urban adults who have faced a wider range of trauma.

Predictors of Posttraumatic Stress Trajectories

Three categories of variables are likely associated with membership in different PTS trajectories. First, demographic factors associated with socioeconomic disadvantage, including female gender, racial or ethnic minority status, younger age, lower income, unemployment, and being unmarried, increase risk for higher PTS (e.g., Breslau et al. 1998; Brewin et al. 2000).

Second, persons with more extensive trauma histories are at increased risk for chronic and more severe PTS (e.g., Kolassa et al. 2010). Within this context, childhood physical, emotional and sexual abuse have been shown to be specific risk factors for adult PTS (e.g., Nishith et al. 2000; Schumm et al. 2006).Characteristics of the index trauma have also been associated with PTS severity. For example, assaultive traumatic events are more strongly associated with higher PTS than non-assaultive traumatic events (Goldmann et al. 2011).

Third, social resources have been found to influence the course of PTS. Survivors who lack social support are at greater risk of increases in PTS, and PTS symptoms in turn have been found to undermine perceptions of support from others (e.g., Kaniasty and Norris 2008).

Negative perceptions of neighborhoods, such as low perceived neighborhood social cohesion and neighborhood dissatisfaction, have also been linked to higher PTS (Gapen et al. 2011).

Current Study

The first aim of this study was to document PTS trajectories through LCGA using data from a three-wave study of adults living in Detroit, Michigan. Participants were exposed to a wide range of traumatic events, which is in contrast to previous studies that have conducted LCGA on samples wherein all participants experienced the same index trauma (e.g., a natural disaster, serious illness). The second aim was to explore predictors of trajectory membership. Based on that extant literature, we included three sets of predictors: (1) indicators of socioeconomic disadvantage (e.g., lower income, unemployment); (2) trauma history variables (e.g., childhood maltreatment, number of traumatic events); and (3) social resources (e.g., social support, neighborhood perceptions).

Methods

Participants and Procedure

Data were from the Detroit Neighborhood Health Study (DNHS), a population-based longitudinal study of predominantly non-Hispanic Black adults (18 years or older) living in Detroit, Michigan (Uddin et al. 2010). Wave 1 (W1) of the study was conducted between 2008 and 2009. Wave 2 (W2) occurred approximately one year after W1, and Wave 3 (W3) approximately one year after W2. At each wave, participants completed a structured telephone survey, which lasted an average of 40 min and included a measure of lifetime PTS. Informed consent was obtained at the beginning of each survey, and participants were offered $25 for their participation in each interview. The Institutional Review Board of the University of Michigan approved the study.

A total of 1547 participants completed the W1 survey, with an overall response rate among eligible persons of 53.0 %. Because we were interested in the impact of trauma exposure over time, we selected the 1349 W1 participants (87.2 %) who reported at least one lifetime traumatic event and completed the PTS measure for inclusion in the current study. Bonferroni-corrected independent samples *t*-tests and Chi square tests found that the participants included base on this criterion had significantly higher W1 income than the 198 participants who were dropped. We further limited the sample to participants who the PTS measure at either W2 or W3, or both, yielding a final sample of 981 participants (72.7 % retention rate). Bonferonni-corrected independent-samples *t*-tests and Chi square tests detected the following significant differences between the 981 included participants and the 368 participants who were dropped due to this criterion (but may have provided other W2 or W3 data): retained participants were significantly older, from smaller households, more likely to be widowed and a parent of a child 18-years old or younger and less likely to be single at W1, had higher W1 neighborhood social cohesion, and reported significantly more W2 and W3 traumatic events.

The majority (84.4 %) of the 981 participants identified as non-Hispanic Black, 11.2 % as non-Hispanic White, and 4.4 % as "other" race; 1.2 % identified as Hispanic ethnicity; and 59.2 % were female. On average, participants were 52.62 years old (*SD* = 16.05; range: 18–92) at W1; 26.7 % reported being a parent of at least one child under 18-years old, and the average household size was 2.49 (*SD* = 1.55; range: 1–9). At W1, 25.7 % were married, whereas 25.2 % were separated or divorced, 13.7 % widowed, and 35.4 % single and never married. Participants also reported on their employment status at W1: 31.9 % were employed full-time and 9.4 % part-time; 58.7 % were unemployed. W1 income was assessed using an ordinal variable ranging from 1 (*Less than $10,000*) to 7 (*$75,000 or more*) (*M* = 3.83, *SD* = 2.00).

Measures

Traumatic Events—At W1, participants completed a 20-item trauma inventory, wherein they indicated whether they had experienced 19 traumatic events in their lifetime (Breslau et al. 1998), as well as on additional item allowing participants to indicate whether they had experienced another traumatic event not on the inventory. Notably, although the majority of the traumatic events on the inventory could have occurred in childhood (e.g., rape, being badly beaten up), the inventory did not specifically assess childhood physical, emotional, or sexual abuse, or childhood neglect. After completing the inventory, participants were asked to indicate which of the lifetime traumatic events was the "worst" and the year that this event had occurred. The number of years since the "worst" trauma was computed as the difference between the year of the interview and the year that the "worst" trauma had occurred, and a dummy code indicating whether the "worst" trauma was assaultive in nature was created. At W2 and W3, participants completed the same 20-item inventory in reference to the time since the last interview. For each wave, a count of traumatic events reported was computed.

Posttraumatic Stress—A modified version of the PTSD Checklist-Civilian Version (PCL-C; Weathers and Ford 1996) was used to assess lifetime PTS. The PCL-C includes 17 items, representing criteria B (re-experiencing; five items, e.g., "repeated, disturbing thoughts or memories about the event"), C (avoidance/numbing; seven items, e.g., "avoiding activities or situations because they reminded you of the stressful experience"), and D (hyperarousal; five items, e.g., "trouble falling and staying asleep") from the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSMIV*; American Psychological Association [APA], 1994). At each assessment, participants asked to respond based on the event reported as the "worst" at W1, regardless of whether they had experienced any intervening traumatic events. Participants indicated the degree to which they had been bothered by each symptom as a result of the event from 1 = *Not at all* to 5 = *Extremely*. Responses were summed to yield a total severity score for PTSD ranging from 17 to 85, with scores 44 and above indicative of probable PTSD (Blanchard et al. 1996). The PCL-C has previously been shown to have excellent internal consistency and substantial agreement with PTSD diagnosis and symptom ratings (e.g., Blanchard et al. 1996). Clinical in-person interviews with a random subsample of 51 DNHS participants supported the reliability and validity of diagnoses based on the intrusion, avoidance, and hyperarousal subscales of the PCL-C, as well as items assessing feelings of helplessness and hopelessness during the

event, duration of symptoms, and significant distress and functional impairment, relative to the gold-standard Clinician-Administered PTSD Scale for *DSM-IV* (CAPS) (Uddin et al. 2010). The internal consistency of the PCL-C in this study was Cronbach's a of .93 at W1, . 94 at W2, and .97 at W3.

Childhood Maltreatment—As mentioned above, although participants completed an inventory of lifetime traumatic events at W1, items did not specifically assess exposure to childhood abuse and neglect. To provide more specific information about such experiences, all participants completed the Childhood Trauma Questionnaire (CTQ; Bernstein et al. 1994) at W2 only. The CTQ assessed childhood physical abuse (three items, e.g., "People in my family hit me so hard that it left me with bruises and marks"), emotional abuse (two items, "People in my family said hurtful or insulting things to me"), and emotional neglect (one reverse-coded item, "There was someone in my family who made me feel that I was important or special") prior to age 11. The CTQ is a commonly used measure for retrospective assessment of child abuse and has been shown to have good internal consistency across diverse samples (Bernstein et al. 2003). Items were rated on five-point Likert-type scale ranging from 0 (*Never true*) to 4 (*Very often True*). In the current study, internal consistency CTQ was Cronbach's alpha of .72. We note here that participants might have endorsed items on the CTQ on W2, but not on the lifetime trauma inventory at W1. However, these participants were excluded from the analysis given that they did not complete assessments of lifetime PTS.

Childhood Sexual Abuse—Similarly, to provide additional information on experiences of child sexual abuse, all participants reported on such experiences at W2 only. Two items were included: (1) "Were you ever touched in a sexual way by an adult or an older child, or were you forced to touch an adult or child in a sexual way when you did not want to?" (*Touching*) and (2) "Did an adult or an older child ever force you or attempt to force you into any sexual activity by threatening you, holding you down, or hurting you in some way when you did not want to?" (*Activity*). Both questions were asked in reference to the period prior to age 18, and response options were *No, this never happened* (0), *Yes, this happened to me* (1), and *Yes, this happened more than once* (2). These items were originally from a national survey conducted by the Gallup Organization (Moore et al. 1995) and have since been used in other longitudinal research (e.g., Austin et al. 2008). Again, participants who reported child sexual abuse, but not W1 lifetime trauma, were excluded given that they did not complete assessments of lifetime PTS.

Social Support—The sum of three items was used as an indicator of social support at W1. Items (e.g., "Among my friends or relatives, there is someone who makes me feel better when I'm feeling down") were rated on a four-point Likert-type scale from 1 (*strongly disagree*) to 4 (*strongly agree*). These items were drawn from the Post deployment Social Support Scale from the Deployment Risk and Resilience Inventory (DRRI; King et al. 2006). Although this scale was developed for use with veterans, it assesses general emotional and instrumental support from family and friends, and is therefore suitable for non-military populations. Previous studies have demonstrated its validity and reliability

(Vogt et al. 2008). In the current study, internal consistency of this scale was Cronbach's alpha of .64.

Perceived Neighborhood Social Cohesion—Perceived neighborhood social cohesion was assessed at W1 using five items (e.g., "this is a close or unified neighborhood," "people around here are willing to help their neighbors"), rated on a 4-point Likert-type scale from 1 (*strongly disagree*) to 4 (*strongly agree*). This scale was developed bySampson et al. (1997) and has been used in prior studies investigating the influence of neighborhood perceptions on mental health (e.g., Mulvaney-Day et al. 2007). In the current study, internal consistency of this scale was Cronbach's alpha of .69.

Perceived Neighborhood Quality—At each wave, participants provided an overall evaluation of their neighborhood (*Neighborhood Satisfaction*): "On the whole, how much do you like this neighborhood as a place to live?" Response options ranged from 1 (*not at all*) to 4 (*a great deal*). Although this item was unique to DNHS, a large body of research has used similar one-item measures of neighborhood satisfaction (for a review, see Sirgy and Cornwell 2002). At W2 and W3, participants were also asked about *Neighborhood Change* over the past year, with response options ranging from 1 (*gotten a lot worse*) to 5 (*gotten much better*). This item was developed by Abt SBRI, a survey research firm.

Data Analysis

Prior to testing the study aims, we conducted missing value analysis. Among the variables included in the study, the missing rate ranged from 0 to 48.0 %, and the overall rate of missingness of 7.1 %. All of the variables had less than 15 % missingness, with two exceptions: W3 number of traumatic events (17.6 %) and W3 PTS (48.0 %). Bonferroni-corrected independent samples *t*-tests and Chi square tests assessed differences between complete cases (n = 301) and incomplete cases (n = 680). Complete cases reported significantly more traumatic events at each wave, higher W1 and W2 PTS, less positive perceived neighborhood change at W2, and lower W3 neighborhood satisfaction than incomplete cases. Missing data were handled through multiple imputation. Fifty complete datasets were generated in Amelia II for R (Honaker et al. 2008). Results represent an average of the 50 separate analyses with Rubin's (1987) correction of standard error.

Analyses to fulfill the study aims were subsequently conducted in Mplus 7.0 (Muthén and Muthén 1998–2012) and consisted of two steps. First, we compared five LCGA models that both linear and quadratic and different numbers of classes, ranging from 2 to 6. To compare models, we investigated Bayesian information criterion (BIC), and adjusted BIC, with lower values indicating better fit; and entropy and average posterior probabilities, with higher values indicating better fit (Andruff et al. 2009; Jung and Wickrama 2008). Additionally, we took into account considerations of parsimony and interpretability. Second, predictors of trajectory membership were explored through the three-step approach proposed by Vermunt (2010). This analytic approach is similar to multinomial logistic regression, but accounts for the classification uncertainty rate in the LCGA model (Asparouhov and Múthen 2013). The indicator of years since the "worst" W1 lifetime traumatic event was first entered as a predictor of trajectory membership, to account for variation in the likelihood of trajectory

membership due to the passage of time. Subsequently, associations between each predictor variable and likelihood of trajectory membership were examined in separate models, controlling for years since "worst" W1 lifetime trauma.

Results

Latent Class Growth Analysis

The results of the LCGA models are presented in Table 1. The four-class model was selected as the best representation of the data, although we note here that this decision was not clear-cut. Although the BIC and Adjusted BIC of the four-class model were lower than those of the three-class model, its entropy was the same and average posterior probability was lower. Similarly, the five-class model had a lower BIC and Adjusted BIC, but lower entropy and equal average posterior probability, compared to the four-class model. Issues of parsimony and interpretability were therefore crucial to model selection, and the four-class model was selected based on its distinct, non-redundant trajectories, each accounting for more than four percent of the study sample. Results of the other models are available on request. Growth curves for the four-class model, with estimated means for each trajectory, are shown in Figure 1.

Table 2 lists the means of the quadratic and linear terms for each class, as well as means and standard deviations for PTS at each wave among participants with most likely membership in each class. The majority of participants fell into the *Low* PTS class (n = 711, 72.5 %), which was defined by significant linear and quadratic terms. Participants in the *Low* trajectory, on average, never exceeded the cut-off for probable PTSD on the PCL-C. The second most frequent trajectory was labeled *Decreasing* (n = 121, 12.3 %) and was also defined by significant linear and quadratic growth. Participants in the *Decreasing* trajectory, on average, exceeded the cut-off for probable PTSD at W1, but not at W2 or W3. The third most common trajectory was labeled *Increasing* (n = 104, 10.6 %). Although the linear and quadratic terms for the *Increasing* trajectory were non-significant, participants' W2 and W3 levels of PTS were elevated relative to their W1 levels. On average, *Increasing* participants' PCL-C scores did not exceed the cut-off for probable PTSD at any wave. The final class, labeled *High* (n = 45, 4.6 %), had PCL-C scores exceeding the cut-off for probable PTSD at each wave. Although their levels of PTS qualitatively decreased over the course of the study, neither the linear nor quadratic growth terms reached statistical significance.

Predictors of Latent Classes Membership

Table 3 presents descriptive data for years since the W1 "worst" trauma and the three categories of predictor variables for the full sample and participants with most likely membership in each latent trajectory. Table 4 presents the results of the three-step analyses examining relationships between trajectory membership and years since W1 "worst" lifetime trauma, as well as between each predictor variable and trajectory membership, controlling for years since W1 "worst" lifetime trauma. As shown, more years since W1 "worst" lifetime trauma was associated with an increased likelihood of membership in the *Decreasing* trajectory (vs. the *Low* and *Increasing* trajectories), and a decreased likelihood of membership in the *Increasing* trajectory (vs. the *Low* trajectory).

Socioeconomic Disadvantage

Several indicators of socioeconomic disadvantage predicted trajectory membership, controlling years since W1 "worst" lifetime trauma. Younger age and Hispanic ethnicity were significantly associated with a greater likelihood of being in the *High* and *Increasing* trajectories (vs. the *Low* trajectory). Parent status was significantly associated with an increased likelihood of being in the *High* trajectory (vs. the *Low* and *Increasing* trajectories) and the *Decreasing* trajectory (vs. the *Low* trajectory). Larger household size was significantly associated with an increased likelihood of membership in the *High* trajectory, relative to all other trajectories. Lower income and unemployment were significantly associated with a decreased likelihood of membership in the *Low* trajectory, relative to all other trajectories, and part-time employment was also significantly associated with a greater likelihood of being in the *Increased* trajectory (vs. the *Low* trajectory). For marital status, being divorced or separated was significantly associated with an increased likelihood of membership in the *Increasing* trajectory, and being single and never married with membership in the *Decreasing* trajectory, both relative to the *Low* trajectory.

Trauma History

More childhood maltreatment, child sexual abuse (touching and activity), and traumatic events reported at each wave were significantly associated with a decreased likelihood of membership in the *Low* trajectory relative to all other trajectories, controlling for years since W1 "worst" lifetime trauma. Additionally, more childhood maltreatment and W2 traumatic events were significantly associated with increased likelihood of membership in the *High* trajectory (vs. the *Increasing* and *Decreasing* trajectories), as were more W1 traumatic events (vs. the *Increasing* trajectory) and more W3 traumatic events (vs. the *Decreasing* trajectory). Fewer W1 traumatic events, but more W2 traumatic events, were significantly associated with increased likelihood of membership in the *Increasing* trajectory (vs. the *Decreasing* trajectory). Lastly, having an assaultive "worst" W1 lifetime trauma was significantly associated with an increased likelihood of membership in the *Decreasing* trajectory (relative to the *Increasing* and *Low* trajectories).

Neighborhood Disadvantage

Indicators of neighborhood disadvantage were also significantly associated with trajectory membership, controlling for years since W1 "worst" lifetime trauma. Higher W1 social cohesion and support were significantly predictive of membership in the *Low* trajectory, versus all other trajectories. Similarly, higher neighborhood satisfaction at each wave was significantly associated with increased likelihood of membership in the *Low* trajectory (vs the *Decreasing* trajectory for W1; all other trajectories for W2; and the *High* and *Decreasing* trajectories for W3). Higher W3 neighborhood satisfaction was also significantly associated with a decreased likelihood of membership in the *High* trajectory, relative to the *Increasing* trajectory. Lastly, more positive perceptions of neighborhood change at W2 and W3 were significantly associated with increased likelihood of membership in the *Low* trajectory (vs the *High* and *Decreasing* trajectories) and the *Increasing* trajectory (vs the *High* trajectory).

Discussion

The first aim of this study was to document PTS trajectories among a predominantly non-Hispanic Black sample of adults living in Detroit, Michigan. Using LCGA, we found evidence of four trajectories. The majority of participants fell into a trajectory of consistently low symptoms over time (*Low*: 72.5 %). More than ten percent of the sample were in a trajectory that surpassed the established clinical cut-off for probable PTSD at W1, had a steep decline in symptoms from W1 to W2, and a more subtle decline from W2 to W3 (*Decreasing:* 12.3 %). Another 10.6 % participants were in an *Increasing* trajectory, with levels of PTS that increased sharply between W1 and W2, and decreased slightly from W2 to W3. Lastly, less than five percent (4.6 %) of the sample was in a *High* trajectory, with levels of PTS far exceeding the clinical cut-off for probable PTSD at each wave and decreasing non-significantly over the course of the study. The second aim was to explore predictors of trajectory membership. We found that indicators of socioeconomic disadvantage (e.g., lower income, unemployment), more extensive trauma history (e.g., childhood abuse, greater number of traumatic events), and fewer social resources (e.g., lower social support, lower perceived neighborhood quality) were associated with membership in trajectories with higher PTS, relative to the *Low* trajectory.

In contrast to previous trajectory studies, which have focused on patterns of PTS in the aftermath of a single index trauma (e.g., natural disaster, serious illness; e.g., Norris et al. 2009), participants in this study reported on their lifetime exposure to traumatic events and on PTS in reference to the one they considered the “worst” at baseline. The study is therefore distinct in its inclusion of a wider range of traumatic events, both in terms of their nature and timing. We observed several differences in the PTS trajectories compared to those documented in the aftermath of single index events. For example, we noted that previous LCGA studies of PTS have documented lower rates of consistently low symptoms, and higher rates of chronic PTSD (e.g., Norris et al. 2009) than we documented in this study. One possible reason for this discrepancy is that whereas participants in the specific index trauma studies were assessed in the months following the traumatic event, the timing of the traumatic events in our study varied, such that on average participants were reporting on PTS more than a decade after the event occurred. As such, initially elevated symptoms may have decreased or stabilized over time, and current PTS might not necessarily reflect more proximal reactions to the event.

In interpreting the results, we looked closely at each trajectory to provide insight into PTS phenomenology in urban environments. For example, we noted that participants in the *Low PTS* trajectory were, on average, consistently above the lower limit for the scale (17). This could indicate that their trauma exposure was having some psychological impact, perhaps manifesting through other psychological symptoms (e.g., depression, generalized anxiety, substance use). Participants in the *Low PTS* trajectory also experienced both significant linear and quadratic growth in symptoms over the course of the study— perhaps suggesting reactivity to more proximal environmental resources and stressors.

Another observation was that the rate of symptom recovery in the *Decreasing* trajectory was non-linear, with smaller decreases in symptoms between W2 and W3 than between W1 and

W2. This could indicate that urban trauma survivors who have experienced high PTS might be prone to persistent subthreshold PTSD. Participants in the *Increasing* trajectory also exhibited persistent subthreshold symptoms over the course of the study, despite never surpassing the clinical cut-off for probable PTSD. Taken together, the *Decreasing* and *Increasing* trajectories suggest that a sizeable proportion of urban trauma survivors experience chronic subthreshold PTSD. Lastly, we noted that PTS levels in the *High* trajectory consistently declined over time. Although this trend was non-significant and possible reflective of regression to the mean, it could represent gradual recovery among those with severe symptoms.

The second aim of the study was to explore three categories of variables as predictors of trajectory membership. In these analyses, we controlled for years since the index trauma, thereby accounting for variation in the likelihood of trajectory membership due to the passage of time. First, we investigated indicators of socioeconomic disadvantage, and found that younger age, larger household size, and parent status were predictive of membership in the *High* trajectory, relative to the *Low* trajectory. These findings underscore the vulnerability of young parents to PTS, which is consistent with prior research (e.g., Paxson et al. 2012). Hispanics were also more likely to be in the *High* and *Increasing* trajectories, relative to the *Low* trajectory, which was also consistent with prior research (e.g., Dohrenwend et al. 2008). However, this finding should be interpreted with caution given the small number of Hispanic participants in the study. We also found that lower income and unemployment were significantly associated with a decreased likely of being in the *Low*, relative to the other three trajectories. Again, this is consistent with prior research documenting lowers levels of PTS among individuals of higher socioeconomic status (e.g., Brewin et al. 2000). The direction of these effects remains unclear, however. For example, it could be that higher PTS renders trauma survivors less able to meet the demands of full-time employment. On the other hand, lack of employment could represent an additional stressor that exacerbates PTS.

Second, we investigated how aspects of participants' trauma histories related to trajectory membership. Child maltreatment was a significant predictor of trajectory membership, such that higher maltreatment was associated with an increased likelihood of membership in the *High* trajectory, and lower maltreatment with an increased likelihood of membership in the *Low* trajectory, relative all other trajectories. Child sexual abuse, in contrast, was predictive of the *Low* trajectory only, such participants with lower levels of both unwanted touching and sexual activity had increased likelihood of membership in the *Low* trajectory, relative to all other trajectories. This finding might suggest that child sexual abuse limits the potential for posttraumatic resilience whereas other factors have a strong influence on PTS severity. Participants who experienced more traumatic events at each time point were also more likely to be in classes of higher PTS, highlighting the role of further trauma exposure in shaping the course of PTS symptomatology. Lastly, participants who indicated an assaultive, versus non-assaultive, "worst" W1 lifetime trauma were significantly more likely to be in the *Decreasing* trajectory (relative to the *Low* and *Increasing* trajectories), suggesting that assaultive trauma might be associated with slower symptom recovery and persistently elevated symptoms.

Third, we investigated how trajectory membership related to social resources. Higher levels of social cohesion and support from close friends and family members were predictive of membership in the *Low* trajectory, relative to all other trajectories. Additionally, greater neighborhood satisfaction and more positive perceptions of neighborhood change were predictive of the *Low* trajectory, most consistently relative to the *High* trajectory. Again, the direction of these effects is unknown. PTS could negatively influence perceptions of support and neighborhoods, and vice versa, and studies provide evidence for both paths (e.g., Kaniasty and Norris 2008).

Limitations

Several limitations to the study are worth noting. Since PTS was assessed at the same time as the predictor variables, participants' responses could have been biased by their current symptoms, leading to inflated parameter estimates. For example, participants with higher PTS might have been more likely to report more traumatic events (e.g., Roemer et al. 1998). While this limitation could certainly strengthen cross-sectional associations between the two constructs, it is unclear how it might influence associations between trauma exposure and PTS trajectory membership. In addition, our measures of social support and perceived neighborhood social cohesion had relatively low internal consistency, and the former was not initially developed for a community sample. Limits to reliability and validity of the measures could have led to underestimates of the influence of these constructs on PTS trajectory membership, yet it is notable that they were significant predictors of trajectory membership nonetheless. The measures of child maltreatment included items of both physical and emotional abuse. Although it is possible that the two forms of abuse are differentially related to adult PTS, assessing them together was a more parsimonious approach. Perceived neighborhood quality measures were assessed using single items. Although many investigations of perceived neighborhood quality use single items, studies that include more in-depth scales with demonstrated reliability and validity would be of value. The generalizability of the results is limited because all participants were from the same city. Differential attrition and missing data also limit the external validity of the study. The results might not apply to subgroups that were more likely to be dropped due to attrition or missing data, including younger, unmarried, lower income, and childless adults, and those with lower neighborhood social cohesion and satisfaction, and who have experienced fewer traumatic events. Furthermore, 7.1 % of data for retained cases was missing, although a sensitivity analysis of complete cases (n = 301) detected the same patterns of statistical significance. Limitations regarding generalizability, differential attrition and missing data are typical of longitudinal population-based studies, however, and should be interpreted alongside the strengths of this methodological approach.

It is worth emphasizing, however, that missing data was particularly high on a key variable in the study: the W3 assessment of PTS, which had 48.0 % missingness. Although the use of multiple imputation allowed us to include participants with missing data, it is possible that this approach did not capture unmeasured differences between complete and incomplete cases that could have biased our results. One possibility is that some of the participants missing follow-up assessments could not recall the event they reported as the "worst" at baseline, despite being reminded of which event they had reported, and therefore could not

report on PTS linked to that event. This points to the more general limitation of having all assessments linked to the "worst" event, which does not fit with a conceptualization of PTSD as a set of symptoms that could be connected to multiple traumatic events. It is also possible that participants were experiencing more severe PTS stemming from another lifetime event than the event that was reported as the "worst." Additionally, participants could have experienced other events over the course of the study that they considered "worse" than the W1 "worst" lifetime event, yet they continued to report symptoms in reference to the latter. Levels of PTS over the course of the study could therefore be considered underestimates of participants' symptomatology. However, an advantage of linking all assessments to the W1 "worst" event was consistency in measurement over time. This approach also aligned with previous studies using LCGA and linking symptom assessments to the same index event.

Implications

Despite these limitations, the results of the study have implications for research and practice. First, they highlight the importance of taking a longitudinal perspective on PTS to understand how symptoms change or remain constant over time. Within this context, future research should include even more waves of data, which would permit growth mixture model (GMM) through which researchers could explore predictors of initial levels and changes in PTS within each trajectory while taking non-linear growth into account. Trajectories of other psychological symptoms, including depression, generalized anxiety, and substance abuse, would also provide insight into a broader range of psychological responses to traumatic events among urban residents. Future research could also investigate the complex processes through which risk and protective factors interact in influencing patterns of PTS. For example, studies that explore factors that moderate the influence of child abuse history on adult PTS (e.g., genetic variants, extra familial support) would be of value. Bidirectional relationships between PTS symptoms and risk and protective factors could also be investigated through cross-lagged models.

Second, the findings suggest that clinical interventions aiming to reduce PTS directly (for reviews, see Ipser and Stein 2012; Ponniah and Hollon 2009) should be accompanied by policies and community-based interventions that attend to socioeconomic disadvantage, trauma exposure, and social resources. For example, policies that increase access to childcare, postsecondary education, and job training would be of value to prevent chronic unemployment and poverty and their negative effects on mental health (Rice 2001). Empirically-supported drug abuse and violence prevention programs, early education and intervention, and rehabilitation for former offenders, would also serve the dual purpose of preventing violence and increasing social cohesion (e.g., Center for Disease Control 2011).

Third, mental health practitioners should address the risk factors identified in the study alongside survivors' psychological symptoms. Outreach efforts are needed, given that individuals with sustained severe PTS might be socially isolated—unemployed, living in low-quality neighborhoods, and without much social support. Practitioners could raise awareness of the psychological impact of trauma and available services by forging connections with medical centers, churches, and social service agencies, for example. Once

referrals are made, practitioners should thoroughly and continually assess patients' socioeconomic disadvantage, trauma history and risk for further trauma exposure, and social resources, and attend to any factors that might prevent symptom recovery. Examples of such efforts would be coordinating with job training and placement agencies to help patients secure adequate employment, helping patients identify and cope with aspects of their environment that might put them at risk for further trauma exposure, and including family members or significant others in treatment to strengthen patients' social relationships.

Conclusion

The results of the study demonstrate that, although the majority of urban trauma survivors exhibit low levels of PTS over time, a sizeable minority experience chronic subthreshold PTSD and about five percent experience chronic severe PTSD. Moreover, those who experience low levels of PTS are generally not symptom-free, and subclinical PTS could warrant clinical attention or be indicative of other forms of psychopathology. We also showed that PTS trajectories are related to indicators of socioeconomic disadvantage, more extensive trauma history, and fewer social resources. These findings provide support for policies and practices that target individuals at greatest risk of chronic PTS. Individual- and community-level interventions that reduce socioeconomic disadvantage and boost trauma survivors' social support are needed in addition to treatments that address survivors' trauma history and risk for further exposure. Such efforts would be important steps towards promoting the resilience of urban populations.

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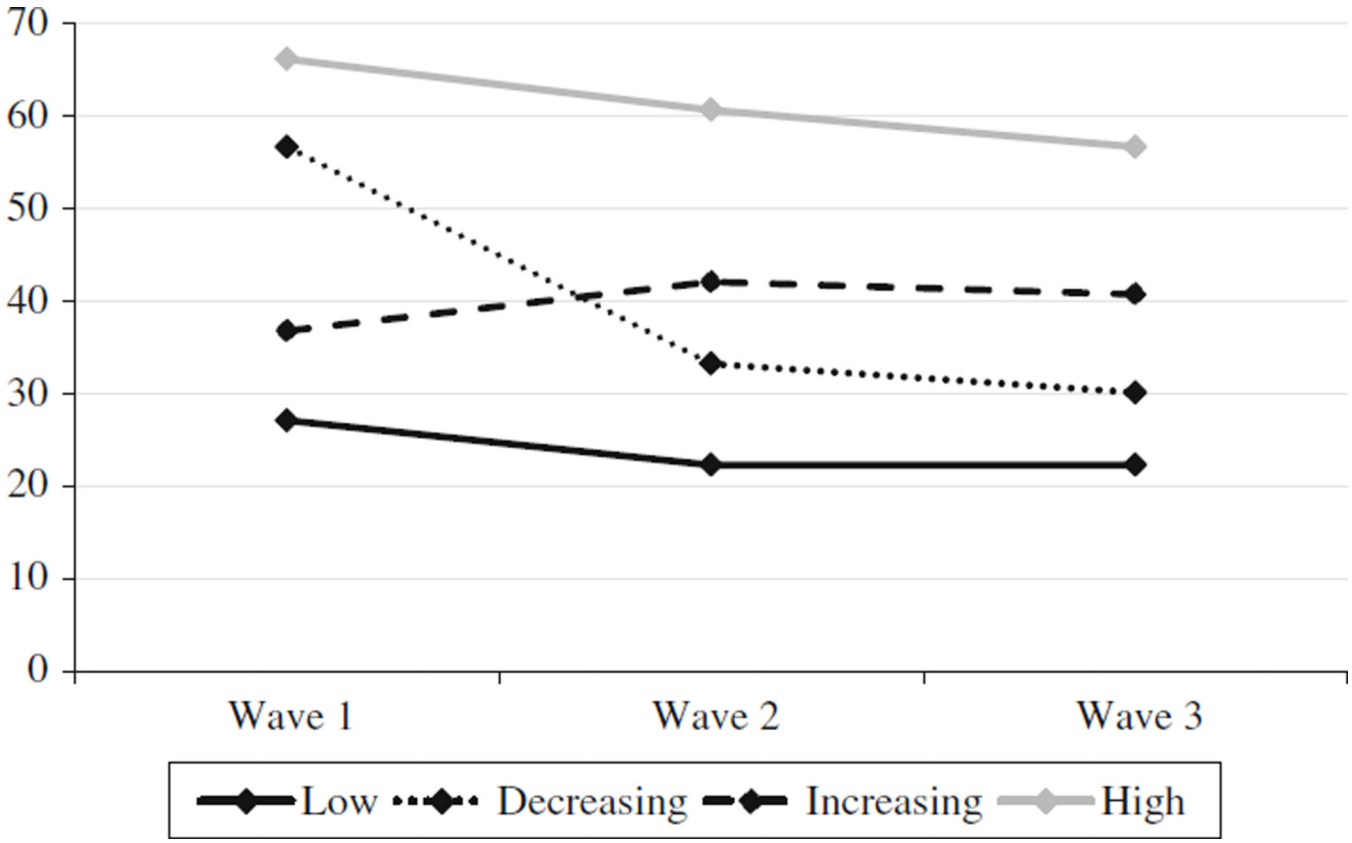

Fig. 1.
Graph of estimated means on the PTSD Checklist-Civilian Version (PCL-C) for the four latent class trajectories (N = 981)

Table 1

Results of latent class growth models

Classes	BIC	Adj BIC	Entropy	Mean posterior probability (SD; Range)	n of smallest class (%)
2	22572.77	22541.01	.91	.95 (.04; .92 – .98)	147 (15.0 %)
3	22258.93	22214.46	.89	.94 (.04; .90 – .96)	56 (5.7 %)
4	22181.69	22124.53	.89	.90 (.06; .84 – .97)	45 (4.6 %)
5	22115.45	22045.58	.88	.90 (.07; .81 – .96)	21 (2.1 %)
6	22090.42	22007.84	.86	.89 (.07; .79 – .95)	19 (1.9 %)

N = 981

BIC Bayesian information criteria; *Adj* adjusted; *SD* standard deviation

Table 2

Descriptive statistics on posttraumatic stress for full sample and by most likely class membership, and growth parameters for each trajectory

	Full sample	LCGA Trajectories			
		Low	Decreasing	Increasing	High
	N = 981	n = 711	n = 121	n = 104	n = 45
Posttraumatic stress					
Wave 1	33.58 (15.00)	27.10 (8.05)	57.72 (9.91)	35.75 (9.04)	66.14 (11.03)
Wave 2	27.57 (12.00)	22.40 (6.06)	33.86 (8.91)	41.49 (9.45)	60.12 (10.11)
Wave 3	26.83 (12.37)	22.48 (8.29)	30.11 (9.49)	39.75 (10.91)	56.83 (10.89)
Growth parameters					
Linear slope	–	−7.18 (1.00)***	−33.55 (7.61)***	8.60 (6.39)	−6.27 (4.68)
Quadratic slope	–	2.39 (.51)***	10.14 (3.05)**	−3.31 (2.65)	.78 (2.03)

Standard deviations listed in parentheses for posttraumatic stress descriptive data. Standard error listed in parentheses for growth parameters $N = 981$

** $p < .01$;

*** $p < .001$

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Table 3

Descriptive statistics on predictor variables for full sample and by most likely class membership

	Full sample	LCGA Trajectories			
		Low	Decreasing	Increasing	High
	N = 981	n = 711	n = 121	n = 104	n = 45
Years since “worst” trauma	14.52 (13.88)	14.59 (14.13)	18.06 (14.35)	11.59 (11.63)	10.64 (12.26)
Socioeconomic disadvantage					
Age	52.62 (16.05)	53.60 (16.42)	52.46 (14.08)	48.72 (15.26)	45.24 (13.22)
Race					
White	11.2 %	12.3 %	6.6 %	9.7 %	8.9 %
Black	84.4 %	83.3 %	89.3 %	86.5 %	84.4 %
Other	4.4 %	4.4 %	4.1 %	3.8 %	6.7 %
Hispanic	1.2 %	.7 %	.0 %	3.8 %	6.7 %
Female	59.2 %	56.3 %	72.7 %	61.5 %	64.4 %
Parent of child under 18	26.7 %	24.1 %	32.2 %	29.0 %	46.7 %
Household size	2.49 (1.55)	2.44 (1.50)	2.42 (1.53)	2.55 (1.50)	3.27 (2.08)
Income (1 = < $10,000 to 7 = >$75,000)	3.83 (2.00)	4.13 (1.97)	3.17 (1.94)	2.98 (3.07)	2.75 (1.76)
Employment					
Full-time	31.9 %	36.5 %	19.0 %	22.1 %	17.7 %
Part-time	9.4 %	9.8 %	4.1 %	13.5 %	6.7 %
Unemployed	58.7 %	53.7 %	76.9 %	64.4 %	75.6 %
Marital status					
Married	25.7 %	28.3 %	18.2 %	19.2 %	22.2 %
Divorced or separated	25.2 %	24.2 %	28.9 %	30.8 %	17.8 %
Widowed	13.7 %	14.2 %	14.9 %	11.5 %	6.7 %
Single, never married	35.4 %	33.3 %	38.0 %	38.5 %	53.3 %
Trauma history					
Childhood maltreatment	12.61 (4.89)	11.83 (4.38)	13.72 (4.87)	14.69 (5.49)	17.20 (6.34)
Childhood sexual abuse—touching	.33 (.69)	.25 (.61)	.60 (.84)	.47 (.77)	.51 (.85)
Childhood sexual abuse—activity	.19 (.54)	.13 (44)	.41 (.75)	.30 (.64)	.39 (.73)
Assaultive “worst” W1 lifetime trauma	15.1 %	12.0 %	29.8 %	17.3 %	15.6 %

	Full sample	LCGA Trajectories			
		Low	Decreasing	Increasing	High
	N = 981	n = 711	n = 121	n = 104	n = 45
W1 Number of traumatic events	5.28 (3.45)	4.63 (3.05)	7.41 (3.59)	5.86 (3.63)	8.40 (4.14)
W2 Number of traumatic events	1.14 (1.48)	.85 (1.10)	1.31 (1.84)	1.90 (1.83)	3.47 (2.81)
W3 Number of traumatic events	1.17 (1.52)	.90 (1.22)	1.491 (1.69)	2.04 (1.82)	2.63 (2.54)
Social resources					
W1 Social cohesion	17.26 (4.75)	17.74 (4.52)	16.25 (4.77)	15.88 (5.26)	15.53 (5.60)
W1 Social support	13.26 (2.52)	13.49 (2.32)	12.90 (2.33)	12.60 (3.19)	12.09 (3.44)
W1 Neighborhood satisfaction	3.21 (.87)	3.27 (82)	3.07 (.99)	3.11 (.95)	2.91 (1.03)
W2 Neighborhood satisfaction	3.14 (.84)	3.21 (.81)	2.98 (.79)	2.96 (.77)	2.86 (.88)
W2 Neighborhood change	2.68 (.97)	2.71 (.93)	2.59 (1.12)	2.80 (1.04)	2.28 (1.02)
W3 Neighborhood satisfaction	3.18 (.81)	3.25 (.78)	3.06 (.83)	3.11 (.84)	2.74 (.95)
W3 Neighborhood change	2.70 (.98)	2.75 (.95)	2.51 (1.01)	2.75 (1.02)	2.32 (1.02)

Standard deviations listed in parenthesis

Table 4

Results of analyses predicting latent class membership

	Odds ratios (95 % CIs)		
	High versus low	**Inc versus low**	**Dec versus low**
Years since "worst" W1 lifetime trauma	.97 (.95, 1.00)	**.98 (.96, 1.00)***	**1.02 (1.01, 1.03)****
Socioeconomic disadvantage			
Age	**.97 (.95, .99)*****	**.98 (.97, 1.00)***	.99 (.98, 1.00)
Race			
White (reference)	–	–	–
Black	1.35 (.45, 4.05)	1.29 (.56, 2.95)	2.36 (.92, 6.10)
Other	2.08 (.42, 10.38)	1.08 (.24, 4.69)	2.08 (.51, 8.39)
Hispanic	**10.97 (2.39, 50.39)****	**6.27 (1.33, 29.53)***	_[a]
Female	1.42 (.74, 2.75)	1.18 (.71, 1.96)	**2.45 (1.42, 4.23)****
Parent of child under 18	**2.72 (1.43, 5.15)****	1.17 (.66, 2.08)	**1.76 (1.07, 2.91)***
Household size	**1.32 (1.10, 1.56)****	1.03 (.89, 1.20)	1.01 (.86, 1.18)
Income	**.68 (.57, .81)*****	**.72 (.63, .82)*****	**.75 (.66, .86)*****
Employment			
Full-time (reference)	–	–	–
Part-time	1.37 (.33, 5.74)	**2.59 (1.14, 5.91)***	.52 (.08, 3.60)
Unemployed	**3.16 (1.37, 7.24)****	**2.14 (1.16, 3.95)***	**3.02 (1.66, 5.49)*****
Marital status			
Married (reference)	–	–	–
Divorced or separated	.93 (.34, 2.57)	**2.12 (1.01, 4.48)***	1.94 (.96, 3.90)
Widowed	.58 (.14, 2.34)	1.22 (.47, 3.16)	1.78 (.80, 3.93)
Single, never married	1.94 (.88, 4.29)	1.71 (.84, 3.49)	**2.07 (1.06, 4.03)***
Trauma History			
Childhood maltreatment	**1.23 (.66, 2.31)*****	**1.15 (1.09, 1.21)*****	**1.09 (1.05, 1.14)*****
Childhood sexual abuse—touching	**1.77 (1.13, 2.76)***	**1.64 (1.15, 2.33)****	**2.03 (1.52, 2.70)*****
Childhood sexual abuse—activity	**2.39 (1.46, 3.92)****	**1.96 (1.24, 3.10)****	**2.31 (1.64, 3.25)*****
Assaultive "worst" W1 lifetime trauma	1.33 (.54, 3.26)	1.45 (.72, 2.92)	**3.51 (2.11, 5.86)*****
W1 Number of traumatic events	**1.40 (1.27, 1.53)*****	**1.13 (1.04, 1.22)****	**1.30 (1.21, 1.39)*****
W2 Number of traumatic events	**2.44 (2.00, 2.98)*****	**1.83 (1.51, 2.21)*****	**1.38 (1.14, 1.67)****
W3 Number of traumatic events	**1.88 (1.55, 2.27)*****	**1.69 (1.43, 1.99)*****	**1.40 (1.17, 1.66)*****
Social resources			
W1 Social cohesion	**.90 (.84, .97)****	**.91 (.87, .97)****	**.93 (.89, .98)****
W1 Social support	**.83 (.75, .92)*****	**.87 (.79, .96)****	**.90 (.84, .97)****
W1 Neighborhood satisfaction	.64 (.46, .90)*	.82 (.60, 1.12)	**.73 (.56, .96)***
W2 Neighborhood satisfaction	**.61 (.43, .86)****	**.68 (.50, .91)****	**.71 (.54, .93)***

	Odds ratios (95 % CIs)		
	High versus low	**Inc versus low**	**Dec versus low**
W2 Neighborhood change	**.60 (.39, .93)***	1.18 (.86, 1.62)	**.84 (.63, 1.12)**
W3 Neighborhood satisfaction	**.50 (.34, .74)*****	.81 (.58, 1.13)	**.72 (.54, .96)***
W3 Neighborhood change	**.60 (.39, .93)***	1.04 (.77, 1.40)	**.74 (.56, .97)***
	Odds ratios (95 % CIs)		
	High versus Dec	Inc versus Dec	High versus Inc
Years since “worst” trauma	.96 (.93, .99)	**.96 (.94, .98)****	1.00 (.96, 1.03)
Socioeconomic disadvantage			
Age	.98 (.96, 1.00)	.99 (.97, 1.01)	.99 (.97, 1.01)
Race			
White (reference)	-	-	-
Black	.57 (.14, 2.35)	.55 (.15, 2.00)	1.04 (.27, 4.03)
Other	1.00 (.13, 7.72)	.52 (.07, 3.93)	1.93 (.23, 15.93)
Hispanic	_[a]	-	1.75 (.35, 8.80)
Female	.58 (.25, 1.34)	.49 (.23, 1.04)	1.20 (.54, 2.70)
Parent of child under 18	1.54 (.71, 3.34)	.67 (.31, 1.44)	**2.32 (1.02, 5.28)***
Household size	**1.31 (1.05, 1.63)***	1.03 (.83, 1.28)	**1.27 (1.03, 1.58)***
Income	.91 (.73, 1.13)	.96 (.79, 1.16)	.95 (.76, 1.18)
Employment			
Full-time (reference)	-	-	-
Part-time	2.62 (.24, 28.48)	4.93 (.56, 43.45)	.53 (.10, 2.68)
Unemployed	1.05 (.38, 2.85)	.71 (.30, 1.72)	1.47 (.54, 4.06)
Marital status			
Married (reference)	–	–	–
Divorced or separated	.48 (.14, 1.60)	1.10 (.38, 3.15)	.44 (.13, 1.50)
Widowed	.32 (.07, 1.57)	.69 (.19, 2.45)	.47 (.09, 2.54)
Single, never married	.94 (.34, 2.58)	.83 (.30, 2.27)	1.14 (.41, 3.19)
Trauma history			
Childhood maltreatment	**1.13 (1.05, 1.20)*****	1.05 (.98, 1.12)	**1.07 (1.00, 1.15)***
Childhood sexual abuse—Touching	.87 (.54, 1.41)	.81 (.53, 1.240	1.08 (.64, 1.83)
Childhood sexual abuse—Activity	1.04 (.62, 1.74)	.85 (.52, 1.39)	1.22 (.69, 2.16)
Assaultive “worst” W1 lifetime trauma	.38 (.14, 1.00)	**.41 (.17, .95)***	.92 (.31, 2.74)
W1 Number of traumatic events	1.07 (.97, 1.19)	**.87 (.79, .96)*****	**1.24 (1.10, 1.39)*****
W2 Number of traumatic events	**1.77 (1.40, 2.23)*****	**1.32 (1.05, 1.67)***	**1.34 (1.13, 1.58)****
W3 Number of traumatic events	**1.35 (1.08, 1.68)****	1.21 (.99, 1.48)	1.11 (.93, 1.34)
Social resources			
W1 Social cohesion	.97 (.89, 1.06)	.98 (.91, 1.06)	.99 (.91, 1.08)
W1 Social support	.92 (.82, 1.03)	.96 (.86, 1.07)	.95 (.84, 1.08)
W1 Neighborhood satisfaction	.87 (.58, 1.32)	1.12 (.73, 1.72)	.78 (.50, 1.21)

	Odds ratios (95 % CIs)		
	High versus low	**Inc versus low**	**Dec versus low**
W2 Neighborhood satisfaction	.86 (.57, 1.30)	.95 (.64, 1.42)	.90 (.59, 1.38)
W2 Neighborhood change	.72 (.43, 1.19)	1.41 (.89, 2.24)	**.51 (.30, .87)***
W3 Neighborhood satisfaction	.69 (.44, 1.10)	1.13 (.73, 1.75)	**.62 (.38, .99)***
W3 Neighborhood change	.81 (.50, 1.32)	1.40 (.93, 2.13)	**.58 (.35, .96)***

A three-step procedure (Vermunt 2010) was used in the analyses to account for classification uncertainty in the LCGA model. Analyses of socioeconomic disadvantage, trauma history, and social resource variables controlled for the number of years since the index trauma, the "worst" traumatic event reported at Wave 1

$N = 981$

Bold values are statistically significant ($p < .05$)

[a] Comparisons could not be computed since .0 % of participants in the *Decreasing* trajectory identified as Hispanic

* $p < .05$;

** $p < .01$;

*** $p < .001$