**Supplementary Material**

Estrada & Baskin-Sommers

**Supplemental Methods**

**Antecedent Analyses**

To examine how sociodemographic, broader environmental, and individual difference factors predicted trajectory membership, we used antecedents assessed at the baseline interview (i.e., prior to assessments used in trajectory estimation). Six separate multinomial logistic regression analyses were used to determine if baseline age, racial group membership, biological sex, socioeconomic status, neighborhood conditions, and early behavioral problems predicted trajectory membership. For all analyses, trajectory 1 (*Low*) served as the reference group. For the racial group membership analysis, white racial group membership served as the reference group. Analyses were conducted using the nnet package in R (Ripley et al., 2016). Casewise deletion was used to address missingness (see Main Table 1 for sample size by antecedent).

***Age***

Participants were asked to report their current age at the time of the interview.

***Racial Group Membership***

Participants were asked to identify their racial group membership as one of the following: White, Black, Asian, Native American, Hispanic, or Other. Racial groups Asian and Native American were recoded into Other due to low numbers of participants identifying as Asian, Native American, and Other.

***Biological Sex***

Participants reported on their biological sex (male/female).

***Socioeconomic Status***

The Index of Social Position (Hollingshead, 1957) was used to determine parental socioeconomic status. The Index of Social Position measure uses information regarding the participant’s biological parents’ education level and occupational status to determine socioeconomic status. Scores were calculated using data for both parents where available. When data for only one parent was known, scores were calculated using that one parent’s data. Higher scores indicated lower socioeconomic status.

***Neighborhood Conditions***

An adapted version of the Neighborhood Conditions Measure was used to assess neighborhood disorder (Sampson & Raudenbush, 1999). Twenty-one items documented both physical (e.g., “cigarettes on the street or in the gutters”) and social (e.g., “adults fighting or arguing loudly”) disorder. Items were rated on a four-point Likert scale ranging from 1 (Never) to 4 (Often). Higher scores represented worse neighborhood conditions.

***Early Behavioral Problems***

Five questions yes/no questions were used to assess onset of early behavioral problems (i.e., before age 11). Items documented whether participants engaged in behaviors including stealing and fighting before age 11. Total scores consisted of the count of early behavioral problems endorsed. Higher scores indicated more early behavioral problems.

**Covariates for Antecedent and Outcome Regression Analyses**

In order to examine the influence of covariates and ensure that results held after controlling for the common variance among PH, ETV, mental health outcomes, and several sociodemographic, environmental, and individual difference covariates of interest, we performed simultaneous regression analyses with all covariates entered simultaneously into the models. All covariates were assessed at baseline (i.e., prior to the timepoints used in trajectory analyses). The following covariates were included:

*Sociodemographics.* We included baseline age, racial group membership, and biological sex as sociodemographic covariates. Age was included as a covariate to account for the structure of the Pathways to Desistance dataset (i.e., all participants were not the same age at the time of enrollment) and the relationships among age, exposure to community violence, and externalizing behaviors (Brame & Piquero, 2003; Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003). Racial group membership was included as a covariate because structural inequities associated with racial group contribute to higher rates of exposure to community violence in minoritized racial groups (Stein et al., 2003; Voisin, 2007). Race is a social construct that has serious and unfortunate consequences for minoritized people in the United States (Rothstein, 2017; Sampson, Morenoff, & Gannon-Rowley, 2002), including higher rates of exposure to community violence. Biological sex was included as a covariate given that biological sex associates differentially with exposure to community violence (Estrada et al., 2021; Zona & Milan, 2011) and externalizing/internalizing mental health problems (Bennett, Farrington, & Huesmann, 2005; Parker & Brotchie, 2010; Stein et al., 2003; Zona & Milan, 2011). All sociodemographic covariates were assessed via self-report (see above for more detail on measures used).

*Environmental factors.* We included baseline parental socioeconomic status and neighborhood conditions as broader environmental factor covariates to control for structural inequities that are often associated with stressful environmental experiences and mental health problems (e.g., Callahan, Scaramella, Laird, & Sohr-Preston, 2011; De Coster, Heimer, & Wittrock, 2006; Shuey & Leventhal, 2017; Simons, Whitbeck, & Conger, 1991; Stein et al., 2003; Ursache, Merz, Melvin, Meyer, & Noble, 2017). Parental socioeconomic status and neighborhood conditions were measured using the Index of Social Position (Hollingshead, 1957) and an adapted version of the Neighborhood Conditions Measure (Sampson & Raudenbush, 1999), respectively (see above for more details on measures used).

*Individual difference factors.* We included baseline early behavioral problems as an individual difference factor covariate in all regression analyses. Early behavioral problems may increase the likelihood of exposure to life stressors (e.g., Patterson, 1982; Salzinger, Ng-Mak, Feldman, Kam, & Rosario, 2006) as well as serve as an indicator of early mental health problems that are likely to persist into emerging adulthood (Odgers et al., 2008). Thus, we chose to statistically account for early behavioral problems to better isolate the effects of parental harshness and exposure to community violence specifically on future mental health problems.

For outcome regression analyses, the baseline level of each mental health outcome was included as an additional covariate. All outcomes that were assessed three years following the trajectories were also assessed at baseline using the same measure (see *Mental Health* *Outcome Model Covariates* in the Method section). We included the baseline score for each mental health outcome of interest as a covariate to account for each participant’s baseline functioning on that outcome.

*Sample factors*. We included study site as a sample factor covariate in all regression analyses because our sample was disproportionately recruited from one of the two Pathways to Desistance recruitment sites (Philadelphia, PA; see Supplemental Method Sections 3a and 3b below for more information).

**Guidelines for Reporting on Latent Trajectory Studies**

We followed procedures recommended in the Guidelines for Reporting on Latent Trajectory Studies (GRoLTS) Checklist (Van De Schoot, Sijbrandij, Winter, Depaoli, & Vermunt, 2017).

***1. Is the metric of time used in the statistical model reported?***

Timepoints used in the model corresponded to the number of months since the baseline assessment. To maintain uniformity in the amount of time between assessments, the six 6-month follow-up assessments were used to identify trajectories of parental harshness and exposure to community violence.

***2. Is information presented about the mean and variance of time within a wave?***

Assessments were designed to occur approximately every six months (i.e., 180 days) for three years. Supplemental Table 1 provides descriptive statistics for the time within waves.

**Supplemental Table 1. Descriptive statistics for mean and variance of time within waves.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Timepoint** | **N** | **Mean (days)** | **SD** |
| 1 | 997 | 182.74 | 25.01 |
| 2 | 1003 | 176.29 | 29.14 |
| 3 | 1001 | 174.06 | 28.76 |
| 4 | 997 | 175.92 | 29.72 |
| 5 | 999 | 175.89 | 26.22 |
| 6 | 989 | 177.42 | 24.09 |

***3a. Is the missing data mechanism reported?***

The PROC TRAJ procedure uses a Full-Information-Maximum Likelihood estimator to handle missing data. This estimator assumes that data are missing at random (i.e., missing data is independent of any unobserved outcomes and trajectory membership; Haviland, Jones, & Nagin, 2011).

***3b. Is a description provided of what variables are related to attrition/missing data?***

Overall, the Pathways dataset has a low rate of attrition. Of the 1027 participants included in trajectory analyses, 594 missed zero assessment visits, 281 missed one assessment visit, and 152 missed two assessment visits. Of those who missed at least one visit, 38 were considered dropouts (i.e., did not return for the final visit). To determine which sociodemographic and baseline characteristics were associated with dropout, we conducted t-tests and chi-square analyses that compared those who completed the study vs. those who dropped out (Supplemental Table 2). Participants who completed the study were significantly younger and more likely to be from Philadelphia, PA than those who dropped out. Otherwise, there were no differences between participants who completed the study and participants who dropped out.

**Supplemental Table 2. Characteristics of study completers vs. dropouts.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **Completed Study**  (n = 989) | | | **Dropped Out**  (n = 38) | | ***t/χ 2*** | ***p*** |
| *Age (years)* | *15.89 (1.15)* | | | *16.37 (1.05)* | | *-2.73* | *.009* |
| Race (%) |  | | |  | |  |  |
| White | 21.2% | | | 23.7% | | 0.03 | .873 |
| Black | 42.4% | | | 36.8% | | 0.26 | .611 |
| Hispanic | 32.7% | | | 31.6% | | 0.00 | 1.00 |
| Other | 3.7% | | | 7.9% | | 0.76 | .384 |
| Biological Sex (% male) | 85.2% | | | 97.4% | | 3.46 | .063 |
| Parent SES | 51.08 (12.02) | | | 51.81 (11.91) | | -0.36 | .718 |
| Neighborhood Conditions | 2.33 (0.74) | | | 2.35 (0.76) | | -0.17 | .863 |
| Early Behavioral Problems | 1.47 (1.14) | | | 1.42 (1.27) | | 0.23 | .819 |
| Baseline PH Score | 1.58 (0.41) | | | 1.57 (0.46) | | 0.07 | .946 |
| Baseline ETV Score | 5.18 (2.95) | | | 4.95 (3.00) | | 0.46 | .646 |
| *Study Site Locationa (%)* | | *54.3%* | *76.3%* | | *6.31* | | *.012* |

Italics denote statistical significance, *p* < .05. a Study Site Location refers to whether youth were enrolled in Phoenix, AZ or Philadelphia, PA. Percentage refers to proportion of participants enrolled in Philadelphia, PA.

We also used t-test and chi-square analyses to compare those who were included analyses vs. those from the full Pathways to Desistance sample (*N* = 1354) who were not included (Supplemental Table 3). Information on inclusion/exclusion criteria is presented in the Method section. Participants who were included were significantly younger, less likely to identify with Other racial group membership, showed fewer early behavioral problems, displayed lower baseline exposure to community violence scores, and were more likely to have been recruited in Philadelphia, PA compared to those who were excluded. Otherwise, there were no differences between those who were included and those who were excluded from the study. All variables that significantly differed across the included and excluded samples were controlled for at the trajectory (baseline ETV) or regression (age, racial group membership, early behavioral problems, study site location) analytic stage.

**Supplemental Table 3. Characteristics of those included in the study vs. those excluded.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | | **Included**  (n = 1027) | | **Excluded**  (n = 327) | | ***t/χ 2*** | ***p*-value** |
| *Age (years)* | | *15.91 (1.15)* | | *16.46 (1.03)* | | *-8.22* | *< .001* |
| Race (%) |  | |  | |  | |  |
| White | | 21.3% | | 16.8% | | -2.85 | .092 |
| Black | | 42.2% | | 39.1% | | 0.81 | .368 |
| Hispanic | | 32.6% | | 36.4% | | 1.42 | .234 |
| *Other* | | *3.9%* | | *7.6%* | | *6.84* | *.009* |
| Biological Sex (% male) | | 85.7% | | 88.7% | | 1.65 | .199 |
| Parent SES | | 51.11 (12.01) | | 52.36 (13.14) | | -1.52 | .130 |
| Neighborhood Conditions | | 2.33 (0.74) | | 2.39 (0.78) | | -1.21 | .227 |
| *Early Behavioral Problems* | | *1.47 (1.14)* | | *1.69 (1.32)* | | *2.67* | *.008* |
| Baseline PH Score | | 1.58 (0.42) | | 1.62 (0.43) | | -1.64 | .101 |
| *Baseline ETV Score* | | *5.17 (2.95)* | | *5.90 (3.08)* | | *-3.76* | *< .001* |
| *Study Site Locationa (%)* | | *55.1%* | | *41.0%* | | *19.28* | *< .001* |

Italics denote statistical significance, *p* < .05. a Study Site Location refers to whether youth were enrolled in Phoenix, AZ or Philadelphia, PA. Percentage refers to proportion of participants enrolled in Philadelphia, PA.

***3c. Is a description provided of how missing data in the analyses were dealt with?***

For trajectory analyses, the PROC TRAJ procedure assumes that data are missing at random, and a Full-Information-Maximum Likelihood Estimator is used to account for missing data. For antecedent and mental health outcome regression analyses, casewise deletion was used to account for missing data. See Table 1 in the main text for information on sample sizes for antecedent and outcome analyses.

***4. Is information about the distribution of observed variables included?***

The two observed variables used in our analyses were the average score of the Maternal and Paternal Hostility subscales of the Quality of Parental Relationships Inventory (PH score) and the Exposure to Community Violence total score (ETV score). PH score was coded as a continuous variable, and a censored normal model was used to account for the clustering of symptom scores at the minimum and maximum values (Jones, Nagin, & Roeder, 2001). ETV score was coded as count variable, and a zero-inflated Poisson model was used to account for clustering of scores at 0. For ETV score, we used the IORDER option in PROC TRAJ to model the function for the correction of additional zeroes in the distribution (Baumgartner & Leydesdorff, 2014).

***5. Is the software mentioned?***

Trajectory analyses were conducted with the PROC TRAJ procedure with MULTGROUPS option using SAS software, version 9.4. Regression and post-hoc analyses were conducted using the MASS, emmeans, and nnet packages in R (see *Data Analysis* in the Method section).

***6a. Are alternative specifications of within-class heterogeneity considered (e.g., LGCA vs. LGMM) and clearly documented? If not, was sufficient justification provided as to eliminate certain specifications from consideration?***

We used group-based multi-trajectory modeling (GBTM), which is a form of latent class growth analysis (LGCA), to identify subgroups of individuals following similar patterns of change over time in parental harshness and exposure to community violence. In GBTM, it is assumed that within-class individual trajectories are consistent, and the variance and covariance estimates for trajectories within each class are set to zero (Nagin, 2005). GBTM is optimal when the goal of analysis is to identify subgroups of individuals who are following approximately the same amount and pattern of change over time and there are an unknown number and distribution of trajectories in the population (Feldman, Masyn, & Conger, 2009; Nagin & Odgers, 2010). Though other methods used to identify subgroups of individuals who follow similar patterns of change over time (i.e., latent growth mixture modeling [LGMM]) allow for greater specification of individual variation within groups, these methods are more appropriate when it is assumed that there are at least two distinct subpopulations in the population as a whole (Nagin & Odgers, 2010). Further, LGMM analyses are computationally taxing, may generate models that fail to converge, and identify more homogenous trajectories (Van De Schoot et al., 2017). Because of the computational limitations of LGMM, our conceptual interest in specifying subgroups of individuals who follow approximately the same patterns of change over time, and the unknown number of subgroups in the population as a whole, we chose to use an LCGA-based approach. We supplied spaghetti plots (Supplemental Figure 1) of our optimal model solution so that interested readers can examine the individual variation within each trajectory. These plots suggest a relatively low amount of individual variation within trajectories, although more variability is observed in the high and stable parental harshness and exposure to community violence trajectories (i.e., trajectories 3 and 4). Combined with the reasonably small confidence intervals around the trajectory parameters, these plots indicate that the overall trajectory estimates adequately characterize the individuals within each trajectory.

***6b. Are alternative specifications of the between-class differences in variance-covariance matrix structure considered and clearly documented? If not, was sufficient justification provided as to eliminate certain specifications from consideration?***

In GBTM, it is assumed that between-class variance and covariance are consistent such that the deviation of the individual trajectories from the overall trajectory estimates is constant across groups (Nagin, 2005). These between-class assumptions yield models that are less computationally intensive and subject to issues with convergence. However, we acknowledge making these assumptions may result in oversimplified trajectory identification (Van De Schoot et al., 2017). We refer interested readers to the spaghetti plots (Supplemental Figure 1) for closer examination of the variance in individual trajectories across groups. Generally, the variance from the estimated trajectory parameters across groups for the PH scores seems reasonable consistent, although more variance is noted in trajectory 4. There seems to be more variability in the variance from the estimated trajectory parameters for the ETV scores. We acknowledge that the model solutions may differ if the variance and covariances between trajectories were freely estimated, and therefore, cautiously interpret trajectory results under this assumption.

**Supplemental Figure 1. Spaghetti plots of the optimal model solution.**



*Note:*Thick colored lines represent the estimated mean trajectory for each group. Spaghetti plot lines depict each individual participants’ trajectory within that group. Trajectories are characterized by stability over time (i.e., intercept parameters) unless otherwise specified in the trajectory label.

***7. Are alternative shape/functional forms of the trajectories described?***

Our inclusion of participants who had completed at least four visits meant that we were able to consider intercept, linear, quadratic, and cubic trajectory shapes. As such, we modeled intercept, linear, quadratic, and cubic parameters in our univariate and multivariate trajectory analyses. Further, we compared multiple functions (no correction, intercept, linear, quadratic, and cubic) to correct for the clustering of values at zero on the ETV scores. Higher-order parameter estimates and correction functions were trimmed if they were not statistically supported.

***8. If covariates have been used, can analyses still be replicated?***

Following standard procedures, we first implemented unconditional models in which no covariates were considered (Nagin, 2005). We then used a conditional model in which baseline parental hostility, baseline exposure to community violence, and baseline biological sex were added as covariates. Baseline PH scores and ETV scores violence were included in order to account for participants’ lifetime exposure to parental harshness and exposure to community violence prior to the six follow-up assessments (VanderWeele, Mathur, & Chen, 2020). Baseline biological sex was included in the models given its demonstrated relationships to both parental harshness and exposure to community violence (Hanson et al., 2008; Scaramella, Conger, & Simons, 1999) and the disproportionate number of male participants in the sample (86% male). All models that included baseline covariates demonstrated improved fit statistics compared to their unconditional counterparts. Thus, theory and improved fit statistics motivated our inclusion of these covariates.

***9. Is information reported about the number of random start values and final iterations included?***

The PROC TRAJ procedure does not currently support manipulation of the number of random start values in each model. Therefore, we used the default random start procedures specified by PROC TRAJ. In PROC TRAJ, start values are calculated using the group intercepts, and group intercepts are spaced based on the range or standard deviation of the observed variables (i.e., PH and ETV scores).

***10. Are the model comparison (and selection) tools described from a statistical perspective?***

We used the following standard statistical parameters to select the optimal model solution: 1) Bayesian Information Criterion (BIC), calculated for the number of participants; 2) BIC, calculated for the number of observations; 3) overall model log-likelihood; 4) average posterior probabilities for membership in each trajectory; 5) odds of correct classification for membership in each trajectory; 6) ratio of the probability of trajectory membership to the proportion of participants assigned to each trajectory; and 7) group size.

***11. Are the total number of fitted models reported, including a one-class solution?***

We used a feedforward model to identify the optimal trajectory solution and started with a one-trajectory solution (Van De Schoot et al., 2017). We then incrementally added extra trajectories to the model until the model contained six trajectories. We used standard fit statistics (see #10 above) to compare models and select the solution that best characterized the data. See Supplemental Table 4 for information on the one- through six-trajectory model solutions.

**Supplemental Table 4. Statistical description of model solutions.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Number of Groups** | **BIC**  **(N = 11557)** | **BIC**  **(N = 1027)** | **Log**  **Likelihood** | **Average Posterior Probability** | **Odds of**  **Correct Classification** | **Probability of Group Membership** | **Proportion Assigned to Group** | **Probability-Proportion Ratio** | **Absolute Size of the Trajectory** |
| 1 | -10465.15 | -10456.68 | -10432.40 | .. | .. | 100 | 100 | 1.00 | 1027 |
| 2 | -9703.68 | -9689.15 | -9647.55 | .949; .932 | 10.6; 24.2 | 63.8; 36.2 | 64.7; 35.3 | 0.99; 1.03 | 664; 363 |
| 3 | -9276.97 | -9253.98 | -9188.10 | .913; .911; .915 | 10.5; 18.4; 65.0 | 50.1; 35.7; 14.2 | 52.3; 33.7; 14.0 | 0.96; 1.06; 1.01 | 537; 346; 144 |
| *4* | *-9156.20* | *-9125.94* | *-9039.26* | *.866; .842; .883; .914* | *18.7; 7.1; 33.5; 69.9* | *25.7; 42.8; 18.4; 13.2* | *25.9; 43.6; 17.7; 12.7* | *0.99; 0.98; 1.04; 1.04* | *269; 453; 170; 135* |
| 5 | -9034.50 | -8996.98 | -8889.50 | .838; .874; .884; .874; .918 | 24.4; 18.8; 16.1; 34.4; 153.4 | 17.5; 26.9; 32.1; 16.8; 6.8 | 17.4; 28.0; 31.9; 15.7; 6.9 | 1.01; 0.96; 1.01; 1.07; 0.99 | 179; 288; 328; 161; 71 |
| 6 | -8998.04 | -8950.84 | -8815.62 | .879; .814; .880; .825; .865; .913 | 20.7; 23.1; 142.3; 10.0; 31.7; 228.0 | 26.0; 15.9; 4.9; 32.1; 16.8; 4.4 | 26.6; 15.5; 4.7; 32.9; 16.0; 4.4 | 0.98; 1.03; 1.04; 0.98; 1.05; 1.00 | 273; 159; 48; 338; 164; 45 |

*Note:*  BIC = Bayesian Information Criterion; Probability-Proportion Ratio = ratio of the probability of group membership to the proportion assigned to group. Selected model solution is indicated in italics.

***12. Are the number of cases per class reported for each model (absolute sample size, or proportion)?***

Both absolute sample size and proportion of the sample are presented for each model solution (Supplemental Table 4).

***13. If classification of cases in a trajectory is the goal, is entropy reported?***

Classification of cases in a trajectory was a primary goal for the present study. Although entropy is not reported via the PROC TRAJ procedure, we calculated the average posterior probability for each trajectory in all models. The average posterior probability statistic is conceptually similar to entropy in that it indexes how distinct each trajectory is (Van De Schoot et al., 2017) and typically is reported in studies that use GBTM (e.g., Allswede et al., 2020). Models with average posterior probabilities below 0.7 were not considered to adequately fit the data.

***14a. Is a plot included with the estimated mean trajectories of the final solution?***

A plot with the estimated mean trajectories of the final solution can be found in Figure 1 in the main text.

***14b. Are plots included with the estimated mean trajectories for each model?***

Plots with the estimated mean trajectories for each multivariate model solution are presented in Supplemental Figure 2.

**Supplemental Figure 2. Estimated mean trajectories for each multivariate solution.**

*Note:*Thick colored lines represent the estimated mean trajectory for each group. Error bands represent 95% confidence intervals.

***14c. Is a plot included of the combination of estimated means of the final model and the observed individual trajectories split out for each latent class?***

Plots with the combination of estimated means of the final model and the observed individual trajectories, split out for each latent class (i.e., spaghetti plots), are presented in Supplemental Figure 1.

***15. Are characteristics of the final class solution numerically described (i.e., means, SD/SE, n, CI, etc.)?***

Characteristics of the final trajectory solution are described in Supplemental Table 5. Comparisons were conducted using Wald *X2* tests in SAS.

***16. Are the syntax files available (either in the appendix, supplementary materials, or from the authors)?***

Syntax files are available from the corresponding author upon request.

**Supplemental Results**

**Antecedents**

Older age at baseline predicted likelihood of membership in trajectory 4 (*High PH/Moderate ETV)* compared to trajectory 1 (*Low)*. Worse neighborhood conditions equally predicted likelihood of membership in all trajectories with elevations in stressful life experiences compared to trajectory 1. More early behavioral problems predicted likelihood of membership in all trajectories with elevations in stressful life experiences compared to trajectory 1. However, post-hoc analyses revealed that more early behavioral problems predicted greater likelihood of membership in trajectory 3 (*Moderate PH/High ETV*) compared to trajectory 2 (*Moderate and Decreasing*). Baseline racial group membership, biological sex, and socioeconomic status were not significantly related to trajectory membership (Supplemental Table 6).

**Supplemental Table 5. Characteristics of the final class solution.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PH Score** | | | | | **ETV Score** | | | | | |
| Parameter | Estimate | Standard Error | *T* | *p* | Significant Comparisons |  | Estimate | Standard Error | *T* | *p* | Significant Comparisons |
| *Trajectory 1: Low* | | | | | | | | | | | |
| Intercept | 1.22 | 0.01 | 110.49 | < .001 | 1 vs. 2, 1 vs. 3, 1 vs. 4 |  | -1.35 | 0.13 | -10.70 | < .001 | 1 vs. 2, 1 vs. 3, 1 vs. 4 |
| *Trajectory 2: Moderate and Decreasing* | | | | | | | | | | | |
| Intercept | 1.38 | 0.02 | 79.37 | < .001 | 1 vs. 2, 2 vs. 4 |  | 0.54 | 0.08 | 6.81 | < .001 | 1 vs. 2, 2 vs. 3, 2 vs. 4 |
| Linear | -0.01 | 0.00 | -3.72 | < .001 |  |  | -0.06 | 0.02 | -3.33 | .001 |  |
| *Trajectory 3: Moderate PH/High ETV* | | | | | | | | | | | |
| Intercept | 1.38 | 0.02 | 88.05 | < .001 | 1 vs. 3, 3 vs. 4 |  | 1.31 | 0.03 | 41.65 | < .001 | 1 vs. 3, 2 vs. 3, 3 vs. 4 |
| *Trajectory 4: High PH/Moderate ETV* | | | | | | | | | | | |
| Intercept | 1.84 | 0.02 | 113.85 | < .001 | 1 vs. 4, 2 vs. 4, 3 vs. 4 |  | 0.83 | 0.04 | 18.47 | < .001 | 1 vs. 4, 2 vs. 4, 3 vs. 4 |
| *Overall Model Statistics* | | | | | | | | | | | |
| Sigma | 0.27 | 0.00 | 100.01 | < .001 |  | Alpha0 | -1.42 | 0.11 | -12.91 | < .001 |  |
|  |  |  |  |  |  | Alpha1 | 0.21 | 0.03 | 7.91 | < .001 |  |

**Supplemental Table 6. Regression analysis results for antecedents assessed at baseline.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Intercept** | | | | | **Predictor** | | | | | **Significant Comparisons** |
|  | ***B*** | **Standard Error** | ***z*-value** | ***p*-value** | **Relative Risk Ratio** | ***B*** | **Standard Error** | ***z*-value** | ***p*-value** | **Relative Risk Ratio** |  |
| **Age** |  |  |  |  |  |  |  |  |  |  |  |
| 2: Moderate and Decreasing | -0.44 | 1.14 | -0.39 | .699 | 0.64 | 0.08 | 0.07 | 1.09 | .277 | 1.08 |  |
| 3: Moderate PH/High ETV | -0.94 | 1.45 | -0.65 | .516 | 0.39 | 0.02 | 0.09 | 0.17 | .865 | 1.02 |
| *4: High PH/Moderate ETV* | *-3.76* | *1.58* | *-2.38* | *.017* | *0.02* | *0.22* | *0.10* | *2.28* | *.022* | *1.25* |
| **Black Racial Group Membership** |  |  |  |  |  |  |  |  |  |  |  |
| 2: Moderate and Decreasing | 0.78 | 0.26 | 2.97 | .003 | 2.18 | -0.26 | 0.26 | -0.99 | .324 | 0.77 |  |
| 3: Moderate PH/High ETV | -0.70 | 0.38 | -1.85 | .064 | 0.50 | -0.24 | 0.33 | -0.73 | .464 | 0.78 |
| 4: High PH/Moderate ETV | -0.21 | 0.35 | -0.60 | .549 | 0.81 | -0.48 | 0.35 | -1.36 | .173 | 0.62 |
| **Hispanic Racial Group Membership** |  |  |  |  |  |  |  |  |  |  |  |
| 2: Moderate and Decreasing | 0.78 | 0.26 | 2.97 | .003 | 2.18 | -0.22 | 0.24 | -0.92 | .356 | 0.80 |  |
| 3: Moderate PH/High ETV | -0.70 | 0.38 | -1.85 | .064 | 0.50 | -0.19 | 0.31 | -0.62 | .534 | 0.83 |
| 4: High PH/Moderate ETV | -0.21 | 0.35 | -0.60 | .549 | 0.81 | -0.34 | 0.32 | -1.07 | .287 | 0.71 |
| **Other Racial Group Membership** |  |  |  |  |  |  |  |  |  |  |  |
| 2: Moderate and Decreasing | 0.78 | 0.26 | 2.97 | .003 | 2.18 | -0.72 | 0.45 | -1.60 | .111 | 0.49 |  |
| 3: Moderate PH/High ETV | -0.70 | 0.38 | -1.85 | .064 | 0.50 | -0.39 | 0.59 | -0.66 | .509 | 0.68 |
| 4: High PH/Moderate ETV | -0.21 | 0.35 | -0.60 | .549 | 0.81 | 0.35 | 0.50 | 0.69 | .488 | 1.41 |
| **Biological Sex** |  |  |  |  |  |  |  |  |  |  |  |
| 2: Moderate and Decreasing | 0.78 | 0.26 | 2.97 | .003 | 2.18 | -0.01 | 0.22 | -0.03 | .975 | 0.99 |  |
| 3: Moderate PH/High ETV | -0.70 | 0.38 | -1.85 | .064 | 0.50 | 0.43 | 0.33 | 1.29 | .196 | 1.53 |
| 4: High PH/Moderate ETV | -0.21 | 0.35 | -0.60 | .549 | 0.81 | -0.21 | 0.30 | -0.69 | .493 | 0.81 |
| **Socioeconomic Status** |  |  |  |  |  |  |  |  |  |  |  |
| 2: Moderate and Decreasing | 0.92 | 0.42 | 2.20 | .028 | 2.52 | 0.00 | 0.01 | -0.40 | .692 | 1.00 |  |
| 3: Moderate PH/High ETV | -0.37 | 0.56 | -0.66 | .512 | 0.69 | -0.01 | 0.01 | -0.70 | .483 | 0.99 |
| 4: High PH/Moderate ETV | 0.45 | 0.56 | 0.79 | .427 | 1.57 | -0.01 | 0.01 | -1.30 | .193 | 0.99 |
| **Neighborhood Conditions** |  |  |  |  |  |  |  |  |  |  |  |
| *2: Moderate and Decreasing* | *-0.55* | *0.35* | *-1.59* | *.111* | *0.57* | *0.57* | *0.12* | *4.58* | *< .001* | *1.77* |  |
| *3: Moderate PH/High ETV* | *-2.51* | *0.49* | *-5.11* | *< .001* | *0.08* | *0.77* | *0.16* | *4.91* | *< .001* | *2.17* |
| *4: High PH/Moderate ETV* | *-2.13* | *0.48* | *-4.43* | *< .001* | *0.12* | *0.82* | *0.17* | *4.88* | *< .001* | *2.28* |
| **Early Behavioral Problems** |  |  |  |  |  |  |  |  |  |  |  |
| *2: Moderate and Decreasing* | *0.30* | *0.27* | *1.11* | *.266* | *1.35* | *0.33* | *0.08* | *4.21* | *< .001* | *1.39* | *2 vs. 3* |
| *3: Moderate PH/High ETV* | *-1.48* | *0.39* | *-3.76* | *< .001* | *0.23* | *0.53* | *0.10* | *5.54* | *< .001* | *1.71* |
| *4: High PH/Moderate ETV* | *-0.92* | *0.37* | *-2.50* | *.012* | *0.40* | *0.48* | *0.10* | *4.69* | *< .001* | *1.62* |

*Note:* Italics denote that trajectory membership was significantly predicted by the antecedent of interest. All regression coefficients represent estimates for the given trajectory compared to the reference group (i.e., Trajectory 1 [*Low*]). All regression coefficients for racial group membership analyses represent estimates for the given racial group compared to the reference group (i.e., white racial group). All regression coefficients for study site location represent estimates for the Phoenix, AZ relative to the reference group (Philadelphia, PA).

**Supplemental References**

Allswede, D. M., Addington, J., Bearden, C. E., Cadenhead, K. S., Cornblatt, B. A., Mathalon, D. H., . . . Tsuang, M. T. (2020). Characterizing covariant trajectories of individuals at clinical high risk for psychosis across symptomatic and functional domains. *American Journal of Psychiatry, 177*(2), 164-171. doi:10.1176/appi.ajp.2019.18111290

Baumgartner, S. E., & Leydesdorff, L. (2014). Group‐based trajectory modeling (GBTM) of citations in scholarly literature: Dynamic qualities of “transient” and “sticky knowledge claims”. *Journal of the Association for Information Science and Technology, 65*(4), 797-811. doi:10.1002asi.23009

Bennett, S., Farrington, D. P., & Huesmann, L. R. (2005). Explaining gender differences in crime and violence: The importance of social cognitive skills. *Aggression and Violent Behavior*, *10*(3), 263-288. doi:[10.1016/j.avb.2004.07.001](https://doi.org/10.1016/j.avb.2004.07.001)

Brame, R., & Piquero, A. R. (2003). Selective attrition and the age-crime relationship. *Journal of Quantitative Criminology, 19*(2), 107-127.

Callahan, K. L., Scaramella, L. V., Laird, R. D., & Sohr-Preston, S. L. (2011). Neighborhood disadvantage as a moderator of the association between harsh parenting and toddler-aged children's internalizing and externalizing problems. *Journal of Family Psychology*, *25*(1), 68-76. doi: [10.1037/a0022448](https://doi.org/10.1037/a0022448)

De Coster, S., Heimer, K., & Wittrock, S. M. (2006). Neighborhood disadvantage, social capital, street context, and youth violence. *The Sociological Quarterly*, *47*(4), 723-753. doi:[10.1111/j.1533-8525.2006.00064.x](https://doi.org/10.1111/j.1533-8525.2006.00064.x)

Estrada, S., Gee, D.G., Bozic, I., Cinguina, M., Joormann, J., & Baskin-Sommers, A. (2021).

Individual and environmental correlates of childhood matlreatmetn and exposure to community violence. Utilizing a latent profile and multilevel meta-analysis approach. *Psychological Medicine,* 1-17. doi:[10.1017/s0033291721001380](https://doi.org/10.1017/s0033291721001380)

Feldman, B. J., Masyn, K. E., & Conger, R. D. (2009). New approaches to studying problem

behaviors: A comparison of methods for modeling longitudinal, categorical adolescent drinking data. *Developmental Psychology*, *45*(3), 652-676. doi:[10.1037/a0014851](https://doi.org/10.1037%2Fa0014851)

Hanson, R. F., Borntrager, C., Self-Brown, S., Kilpatrick, D. G., Saunders, B. E., Resnick, H. S., & Amstadter, A. (2008). Relations among gender, violence exposure, and mental health: the national survey of adolescents. *American Journal of Orthopsychiatry, 78*(3), 313-321. doi:10.1037/a0014056

Haviland, A. M., Jones, B. L., & Nagin, D. S. (2011). Group-based trajectory modeling extended to account for nonrandom participant attrition. *Sociological Methods & Research, 40*(2), 367-390. doi:10.1177/0049124111400041

Hollingshead, A. B. (1957). Two factor index of social position.

Jones, B. L., Nagin, D. S., & Roeder, K. (2001). A SAS procedure based on mixture models for estimating developmental trajectories. *Sociological Methods & Research, 29*(3), 374-393. doi:10.1177/0049124101029003005

Nagin, D. (2005). *Group-Based Modeling of Development*. Cambridge, MA: Harvard University Press.

Nagin, D. S., & Odgers, C. L. (2010). Group-based trajectory modeling in clinical research. *Annual Review of Clinical Psychology*, *6*(1), 109-138. doi:[10.1146/annurev.clinpsy.121208.131413](https://doi.org/10.1146/annurev.clinpsy.121208.131413)

Odgers, C. L., Moffitt, T. E., Caspi, A., Broadbent, J. M., Dickson, N. P., Hancox, R., ... Caspi,

A. (2008). Female and male antisocial trajectories: From childhood origins to adult outcomes. *Development and Psychopathology, 20,* 673–716. doi:[10.1017/s0954579408000333](https://doi.org/10.1017/s0954579408000333)

Parker, G., & Brotchie, H. (2010). Gender differences in depression. *International Review of*

*Psychiatry*, *22*(5), 429-436. doi:[10.3109/09540261.2010.492391](https://doi.org/10.3109/09540261.2010.492391)

Patterson, G. R. (1982). *A Social Learning Approach; III. Coercive Family Process.* Eugene,

OR: Castalia.

Ripley, B., Venables, W., & Ripley, M. B. (2016). Package ‘nnet’. *R package version*, *7*(3-12),

700.

Rothstein, R. (2017). *The Color of Law: A Forgotten History of ow our Government Segregated*

*America.* New York, NY: Liveright Publishing Corporation.

Salzinger, S., Ng-Mak, D. S., Feldman, R. S., Kam, C. M., & Rosario, M. (2006). Exposure to

community violence: Processes that increase the risk for inner-city middle school children. *The Journal of Early Adolescence*, *26*(2), 232-266. doi:[10.1177/0272431605285712](https://doi.org/10.1177/0272431605285712)

Sampson, R. J., Morenoff, J. D., & Gannon-Rowley, T. (2002). Assessing ‘neighborhood

effects’: Social processes and new directions in research. Annual Review of Sociology, 28(1), 443–478. doi:[10.1146/annurev.soc.28.110601.141114](https://doi.org/10.1146/annurev.soc.28.110601.141114)

Sampson, R. J., & Raudenbush, S. W. (1999). Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. *American Journal of Sociology, 105*(3), 603-651. doi:10.1086/210356

Scaramella, L. V., Conger, R. D., & Simons, R. L. (1999). Parental protective influences and gender-specific increases in adolescent internalizing and externalizing problems. *Journal of Research on Adolescence, 9*(2), 111-141. doi:10.1207/s15327795jra0902\_1

Shuey, E. A., & Leventhal, T. (2017). Pathways of risk and resilience between neighborhood socioeconomic conditions and parenting. *Children and Youth Services Review, 72*, 52-59. doi:10.1016/j.childyouth.2016.09.031

Simons, R. L., Whitbeck, L. B., Conger, R. D., & Wu, C. I. (1991). Intergenerational transmission of harsh parenting. *Developmental Psychology*, *27*(1), 159-171. doi:[10.1037/0012-1649.27.1.159](https://doi.org/10.1037/0012-1649.27.1.159)

Stein, B., Jaycox, L., Kataoka, S., Rhodes, H., & Vestal, K. (2003). Prevalence of child and adolescent exposure to community violence. *Clinical Child and Family Psychology Review, 6*(4), 247-264. doi:1096-4037/03/1200-0247/0

Ursache, A., Merz, E.C., Melvin, S., Meyer, J., & Noble, K.G., (2017). Socioeconomic status,

hair cortisol and internalizing symptoms in parents and children. *Psychoneuroendocrinology, 78*, 142-150. doi:[10.1016/j.psyneuen.2017.01.020](https://doi.org/10.1016/j.psyneuen.2017.01.020)

Van De Schoot, R., Sijbrandij, M., Winter, S. D., Depaoli, S., & Vermunt, J. K. (2017). The GRoLTS-checklist: Guidelines for reporting on latent trajectory studies. *Structural Equation Modeling: A Multidisciplinary Journal, 24*(3), 451-467. doi:10.1080/10705511.2016.1247646

VanderWeele, T. J., Mathur, M. B., & Chen, Y. (2020). Outcome-wide longitudinal designs for

causal inference: A new template for empirical studies. *Statistical Science*, *35*(3), 437-466. doi:[10.1214/19-sts728](https://doi.org/10.1214/19-sts728)

Voisin, D. R. (2007). The effects of family and community violence exposure among youth:

Recommendations for practice and policy. *Journal of Social Work Education*, *43*(1), 51-66. doi:[10.5175/jswe.2007.200400473](https://doi.org/10.5175/jswe.2007.200400473)

Zona, K., & Milan, S. (2011). Gender differences in the longitudinal impact of exposure to

violence on mental health in urban youth. *Journal of Youth and Adolescence*, *40*(12), 1674-1690. doi:[10.1007/s10964-011-9649-3](https://doi.org/10.1007/s10964-011-9649-3)