



Cumulative Police Exposures, Police Violence Stress, and Depressive Symptoms: A Focus on Black LGBQ Youth in Baltimore City, Maryland

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Abstract The present study investigates associations between cumulative police exposures, police violence stress, and depressive symptoms among Black youth, and whether LGBQ (lesbian, gay, bisexual, and queer) identities moderate these associations. Data come from the Survey of Police-Adolescent Contact Experiences (SPACE), a cross-sectional survey of a community-based sample of Black youth ages 12–21 in Baltimore City, Maryland ($n=345$), administered from August 2022 to July 2023. We used multivariable ordinary least squares regression to estimate direct associations and product-term analysis to test for effect modification by sexual identities. We also calculate covariate-adjusted predicted

depressive symptoms scores by cumulative police exposures and police violence stress across sexual identities. Findings indicate that LGBQ youth collectively reported higher levels of police violence stress than heterosexual youth. Still, LGBQ youth varied in their cumulative police exposures, which were significantly higher among bisexual and queer youth than lesbian or gay youth. Associations between cumulative police exposures, police violence stress, and depressive symptoms were significantly moderated by LGBQ identity, with the largest associations emerging for bisexual and queer youth. Police exposures and police violence stress also compounded to worsen depressive symptoms among the subsample of LGBQ youth. Collectively, our findings suggest that LGBQ youth—especially bisexual and queer youth—may be particularly vulnerable to the mental health harms of cumulative police exposures and police violence stress. Intersectional, public health approaches that combine prevention and treatment strategies are needed to mitigate LGBQ mental health inequities stemming from cumulative police exposures and police violence stress.

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Police violence is a public health crisis in the United States that disproportionately impacts young people [1]. National data from 2014–2017 indicate that by age 15, more than one in four urban-born youth have been stopped by police [2], with stops being 2.5 times as common among boys [3]. These encounters are more heavily concentrated in communities of color, underpinning racial stratification in the criminal legal system. By age 15, over 70% of Black youth have witnessed police stops in their neighborhoods and schools and 40% of Black boys have been directly stopped by police [3, 4]. Exposure to police aggression—such as harsh language and threats or use of force—is also heavily racialized, as Black male youth are more than three times as likely to be subjected to police aggression when stopped compared with White male youth (67% vs. 21%) [2].

A growing body of research has revealed that police exposures (whether direct or vicarious) pose a significant threat to the mental health of adolescents [2, 5–8]. Youth experiencing procedurally unjust and/or intrusive stops report higher levels of depressive symptoms [9], anxiety [6, 10], social stigma [2, 11], post-traumatic stress [2, 12], and sleep problems [13, 14] compared to their unexposed peers. Additionally, among youth who witness police stops, there are pronounced racial and ethnic disparities in emotional distress during the stop, largely because Black and multiracial youth are more likely to witness police aggression [4]. A recent systematic review of research found robust evidence linking diverse police exposures to adverse mental health outcomes for Black youth specifically [15], echoing a recent call to consider youth-police contact as a racialized adverse childhood experience [16] and pointing to police exposures as potential drivers of ethnoracial health inequities, starting from the early stages of the life course.

Despite this growing body of literature, key gaps remain in our knowledge of the mental health sequelae of youth police exposures, including for Black youth. First, the literature on youth police exposures tends to examine them in a siloed fashion. Some studies examine witnessed in-person stops [4], while others examine direct stops [2] or social media news stories and/or videos of police brutality [17, 18].

Researchers rarely employ nuanced survey data wherein a multitude of police exposures are *simultaneously* assessed within the *same group of youth*, and then considered collectively—in a dose–response fashion—as shaping mental health outcomes. The robust literature on cumulative adverse childhood experiences (ACEs) highlights the importance of accounting for the compounding effects of adversity [19]. We contend that considering police exposures in a similar fashion [16] will be beneficial for generating evidence to inform policies that might help prevent a range of exposures to police violence, given the proliferating ways in which young people today can be exposed to police and police violence.

Second, when extant studies assess youth mental health in the context of police exposures, police violence stress is often left unexamined [2, 4, 8, 9]. Police violence stress generates known harms to mental health [20, 21], including among young people [5, 22]; this makes the simultaneous examination of police exposures and police violence stress critical to the advancement of research in this area. Furthermore, police violence stress 1) is highly concentrated among – and disproportionately impacts—Black individuals [5, 20–22], 2) is a form of racism-related stress that may manifest even when personal police exposures are lacking [23], and 3) may exert effects on mental health that are *independent* of police exposures (e.g., direct or witnessed stops), though youth-focused research with such specificity is sparse [15]. Scholars have also overlooked whether associations between police exposures and youth mental health are exacerbated when police violence stress is high. For instance, for some youth or under certain circumstances, police exposures may be perceived as non-threatening and/or do little to heighten their level of worry about the potential for police violence against members of their community. In these instances, police exposures may be less germane to mental health symptoms (e.g., depressive symptoms). Conversely, if police exposures accumulate among individuals who are also experiencing a high degree of stress surrounding potential police violence towards members of their community, such exposures may be much more detrimental to youth mental health.

Finally, much of the research focus in this area has understandably and appropriately centered on Black youth and other youth of color, their disproportionate police exposures or police violence stress,

and resultant ethnoracial mental health inequities [3, 4, 15]. However, less frequently examined are the intersecting identities that might further marginalize Black youth and make them even more vulnerable to mental health challenges, such as LGBQ (lesbian, gay, bisexual, queer) identities. Multiple studies and frameworks suggest that sexual minority stress and stigma may intersect with racism to worsen mental health outcomes for Black LGBQ youth [15, 24]. Even so, scholars have overlooked how LGBQ mental health disparities might stem from cumulative police exposures and police violence stress for Black youth in particular, despite a handful of studies documenting LGBQ disparities in police contact, including police harassment [25–27]. A careful examination of how cumulative police exposures and police violence stress individually and jointly harm the mental health of Black LGBQ youth is critical given the extant work on racial disparities in youth police exposures [3] and Black LGBQ youths' vulnerability to poor mental health outcomes [28].

The present study uses an original and recent (2022–2023) data source – the Survey of Police-Adolescent Contact Experiences (SPACE) – to examine associations between cumulative police exposures, police violence stress, and depressive symptoms among Black youth (ages 12–21) in Baltimore City, Maryland, with a particular focus on LGBQ youth. SPACE is the first survey of its kind to examine Black LGBQ youths' cumulative police exposures, police violence stress, and mental health. The survey's intersectional focus is critical to advancing the science on the public health harms of youths' cumulative police exposures and police violence stress, and, ultimately, in developing strategies to support some of our most marginalized young people. We employ data from SPACE to answer the following research questions:

Q1: Do LGBQ youth vary from heterosexual youth in their cumulative police exposures and police violence stress, and do distinct LGBQ identities differ on these factors?

Q2: Do LGBQ identity, cumulative police exposures, and police violence stress independently predict depressive symptoms within this sample of youth?

Q3a: Does LGBQ identity moderate associations between cumulative police exposures, police violence stress, and depressive symptoms? Do

distinct LGBQ identities significantly moderate these associations?

Q3b: Among the LGBQ subsample, do cumulative police exposures and police violence stress interact to predict depressive symptoms?

Methods

Data from the Survey of Police-Adolescent Contact Experiences (SPACE) was used for this analysis. SPACE is a recent, cross-sectional, non-probability sample survey of Black youth ages 12–21 in Baltimore City. The survey was designed to better understand police exposures among youth in an urban setting, as well as their health impacts. Data collection occurred from August 2022 to July 2023. Community-based recruitment involved collaboration between SPACE investigators at the Johns Hopkins Bloomberg School of Public Health and 12 youth-serving organizations in Baltimore City. These organizations partnered with the research team to share the survey opportunity and assist youth in completing it, both on-site and online. The project was co-developed with the Johns Hopkins Center for Adolescent Health (CAH) Youth Advisory Board (YAB) to ensure youth co-production of materials and the inclusion of diverse youth participants in the survey, including LGBQ participants. Surveys were conducted on Qualtrics, with participants receiving \$30. To ensure data quality, attention checks were integrated into the survey and respondents were screened out if data quality was compromised.

To be eligible for participation in the survey, youth were required to 1) reside in Baltimore City, 2) identify as Black or African American (including Black biracial and multiracial), and 3) be 12–21 years old. The final sample size for SPACE is 345 youth. However, for the present study, we restrict the sample to youth who had valid data on the sexual identity question ($n=321$; ~40% LGBQ). Ethical approval was obtained from the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (#18323). Written informed consent was obtained from all participants ages 18 and older, whereas written parental permission and written youth assent were obtained from all participants under age 18.

Outcome Variable

Depressive Symptoms

Depressive symptomatology was measured using the CES-D-10 (Center for Epidemiologic Studies – Depression, 10 item) scale, a short-form measure of the widely used and validated CES-D scale to assess depressive symptom severity [29, 30], including in adolescents [31]. Youth were provided with the following statement: “Below is a list of some of the ways you may have felt or behaved. For each statement, please select how often you have felt this way *during the past week*.” 1) I was bothered by things that usually don’t bother me, 2) I had trouble keeping my mind on what I was doing, 3) I felt depressed, 4) I felt that everything I did was an effort, 5) I felt hopeful about the future (reverse-coded), 6) I felt fearful, 7) My sleep was restless, 8) I was happy (reverse-coded), 9) I felt lonely, and 10) I could not “get going”. Response options range from 1 (*Rarely or none of the time [less than one day]*) to 4 (*most or all of the time [5–7 days]*). For the purposes of this study, items were averaged into a composite index (range = 1–4; $\alpha = 0.79$), with higher scores indicating greater symptomatology.

Independent Variables

Cumulative Police Exposures

During the survey, youth were asked about various ways they may have been exposed to police or police stops, either directly or vicariously. These included the following six binary items capturing different forms of police exposure: 1) *Known Persons Stopped by Police*, 2) *Daily Police Violence News*, 3) *Watched Fatal Police Violence Videos*, 4) *In-Person Witnessed Police Stop*, 5) *In-Person Direct Police Stop*, and 6) *In-Person Intrusive Police Stop*. Apart from exposure form 2 (which measures exposure in a “typical week”), all exposures are lifetime. For more details on the measurement of each item, see Appendix A. Similar to research on cumulative adverse childhood experiences [19], the six items were summed into a count measure of cumulative police exposures (range = 0–6; $\alpha = 0.72$).

Police Violence Stress

In a similar fashion to Howard and colleagues [32], we captured young people’s distress about police violence against members of their community by asking participants how 1) concerned, 2) worried, and 3) stressed they were about “police brutality or unfair treatment of members in your community by law enforcement.” Response options to the three items included 0 (*Not at all*) to 4 (*Extremely*). Items were summed into an additive index ranging from 0–12 ($\alpha = 0.86$), with higher scores representing greater police violence stress.

Moderating Variable

LGBQ Identity

The focal moderating variable is LGBQ identity. In the demographics section of the survey, youth were asked, “What best describes your sexual orientation?” Based on responses, youth were categorized as heterosexual, lesbian, gay, bisexual, or queer. The latter designation included individuals who explicitly identified as queer and other less frequently endorsed groups reporting identities that did not fall into the previous categories (e.g., pansexual).

Covariates

The following covariates were included in each of the multivariable models to minimize the likelihood of spurious results: youth age (in years), youth sex (male = 1; female = 0), youth multiracial identity (Black/African American in conjunction with other race/ethnicity = 1), youth delinquency (13-item index adopted from the Future of Families and Child Wellbeing Study (FFCWS) [33]; $\alpha = 0.95$), youth ACEs (11 items), home safety (i.e., how often do you feel safe at home? *Never, sometimes, most of the time, always*), school safety (i.e., how often do you feel safe at home? *Never, sometimes, most of the time, always*), neighborhood safety (i.e., how often do you feel safe at home? *Never, sometimes, most of the time, always*), neighborhood disorder (i.e., trash/litter, graffiti/broken windows, run-down buildings), biological parents married (yes/no), biological parents cohabiting (yes/no), biological parent immigrant (yes/no), maternal education (i.e.,

from *less than high school to completed graduate degree*), and household size (i.e., number of people living in current residence).

Statistical Analyses

First, we calculated descriptive statistics among the full sample and LGBQ identity subgroups. Second, we employed multivariable Ordinary Least Squares (OLS) regression to examine associations between cumulative police exposures, police violence stress, and depressive symptoms, including both standardized and unstandardized coefficients. Standardized coefficients were calculated by multiplying the unstandardized coefficients by the ratio of the standard deviations of the independent variable and the dependent variable. Third, we re-ran the OLS regression models stratified by LGBQ identity to test whether LGBQ identity moderated associations between cumulative police exposures, police violence stress, and depressive symptoms. Fourth, we constructed product-terms between cumulative police exposures and each LGBQ identity, as well as police violence stress and each LGBQ identity, to test for interaction effects by specific identities. We then calculated covariate-adjusted predicted depressive symptoms scores by cumulative police exposures and police violence stress across sexual identities. These results were then plotted in illustrative figures to facilitate interpretation of results. Finally, we restricted our final analysis to the subsample of LGBQ youth ($n=130$) and tested whether a product-term including cumulative police exposures and police violence stress significantly predicted depressive symptoms. In ancillary analyses, interactions between the key independent variables (i.e., cumulative police exposures and police violence stress), sex (male = 1), and age were also tested as predictors of depressive symptoms in the full sample. Missing data was imputed in STATA 17.1 using `mi` commands, which offers advantages over listwise deletion (e.g., resolves issues related to wastefulness as well as biased covariances, p -values, and confidence intervals) [34]. In the present study, we employ multiple imputation with chained equations, imputing variables with less than 10% missing data [35], resulting in 20 multiply imputed data sets.

Results

Table 1 provides descriptive statistics for the full sample ($n=321$) and the subsamples stratified by LGBQ identities. First, 59.5% of the sample was heterosexual, whereas 40.5% were LGBQ (20.25% were lesbian or gay, 13.71% were bisexual, and 6.54% were queer). The average score on cumulative police exposures (0–6) was 2.41, with knowing a person who has been stopped by police (49.53%) and witnessing an in-person police stop (45.17%) being the most common, followed closely by watching fatal police violence videos (44.55%). Despite being the least common police exposure, 1 in 3 youth in the sample reported in-person direct police stops. The average police violence stress score (range: 0–12) was 6.02. Youth were 17.86 years old on average, and the sample skewed slightly male (52.02%). More than three-fourths of youth had biological parents who were not married or cohabiting at the time of the survey, with an average household size of 4.17 individuals. Descriptive statistics also indicate that average scores on cumulative police exposures were higher among bisexual (mean = 2.96; SD = 1.75) and queer (mean = 3.14; SD = 1.71) youth than among lesbian or gay youth (mean = 1.77, SD = 1.92). Furthermore, police violence stress was also higher among LGBQ youth (mean = 6.52; SD = 3.12) than among heterosexual youth (mean = 5.68; SD = 3.23).

Table 2 presents the multivariable OLS regression models that examine associations between cumulative police exposures, police violence stress, and youth depressive symptoms. Findings revealed that, net of covariates, both cumulative police exposures ($B=0.084$, Beta = 0.259; $p < 0.01$) and police violence stress ($B=0.034$, Beta = 0.182; $p < 0.01$) were significantly and positively associated with depressive symptoms scores. Critically, these findings held even when both cumulative police exposures and police violence stress were included in the same model (all Variance Inflation Factors (VIFs) under 2). Ancillary analyses examining age and sex interactions revealed significantly larger associations between cumulative police exposures and depressive symptoms for girls and older youth, and a significantly larger association between police violence stress and depressive symptoms for girls (see Appendix B).

Results in Table 2 also reveal that LGBQ identity ($B=0.249$, Beta = 0.204; $p < 0.01$) was a significant

Table 1 Descriptive Statistics Among Full Sample and LGBQ Identity Subgroups

	<i>Full Sample</i> (<i>N</i> = 321)	<i>Heterosexual Youth</i> (<i>N</i> = 191; 59.5%)	<i>LGBQ Youth</i> (<i>N</i> = 130; 40.5%)	<i>Lesbian/Gay Youth</i> (<i>N</i> = 65; 20.25%)	<i>Bisexual Youth</i> (<i>N</i> = 44; 13.71%)	<i>Queer Youth</i> (<i>N</i> = 21; 6.54%)
<i>Variables</i>	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %
<i>Outcome Variable</i>						
Depressive Symptoms	2.06 (0.60)	1.97 (0.57)	2.19 (0.62)	2.00 (0.60)	2.29 (0.56)	2.57 (0.64)
<i>Police Exposures</i>						
Known Persons Stopped by Police	49.53%	49.74%	49.23%	27.69%	70.45%	71.43%
Daily Police Violence News	34.27%	31.41%	38.46%	33.85%	45.45%	38.09%
Watched Fatal Police Violence Videos	44.55%	46.07%	42.31%	33.85%	47.73%	57.14%
In-Person Witnessed Police Stop	45.17%	46.07%	43.85%	32.31%	50.00%	66.67%
In-Person Direct Police Stop	33.02%	32.98%	33.08%	24.62%	40.91%	42.86%
In-Person Intrusive Police Stop	34.27%	35.60%	32.31%	24.62%	40.91%	38.10%
Cumulative Police Exposures	2.41 (1.85)	2.42 (1.80)	2.39 (1.92)	1.77 (1.92)	2.96 (1.75)	3.14 (1.71)
<i>Police Violence Stress</i>	6.02 (3.21)	5.68 (3.23)	6.52 (3.12)	6.26 (2.47)	6.82 (3.51)	6.72 (4.04)
<i>Covariates</i>						
Youth Age	17.86 (1.61)	17.84 (1.74)	17.89 (1.42)	17.97 (1.55)	17.89 (1.30)	17.62 (1.24)
Youth Sex (Male = 1)	52.02%	69.11%	26.92%	20.00%	29.55%	42.86%
Youth Multi-racial	3.74%	4.19%	3.08%	1.54%	2.27%	9.52%
Youth Delinquency	1.38 (0.63)	1.39 (0.62)	1.37 (0.65)	1.30 (0.53)	1.48 (0.78)	1.37 (0.68)
Youth ACEs	1.71 (1.96)	1.42 (1.51)	2.12 (2.43)	1.86 (2.42)	2.48 (2.41)	2.19 (2.54)
Home Safety	3.39 (0.87)	3.42 (0.88)	3.34 (0.86)	3.46 (0.69)	3.43 (0.82)	2.79 (1.20)
School Safety	2.60 (0.86)	2.57 (0.84)	2.65 (0.89)	2.62 (0.86)	2.77 (0.89)	2.50 (1.00)
Neighborhood Safety	2.60 (0.98)	2.63 (0.91)	2.54 (1.08)	2.38 (1.05)	2.89 (1.08)	2.34 (1.02)
Neighborhood Disorder	1.40 (0.96)	1.45 (0.96)	1.33 (0.95)	1.25 (0.94)	1.41 (0.92)	1.43 (1.08)
Bio Parents Married	18.07%	17.28%	19.23%	13.85%	25.00%	23.81%
Bio Parents Cohabiting	4.67%	3.66%	6.15%	4.62%	6.82%	9.52%
Bio Parent Immigrant	7.78%	10.47%	3.85%	3.08%	4.55%	4.76%

Table 1 (continued)

	Full Sample (<i>N</i> =321)	Heterosexual Youth (<i>N</i> =191; 59.5%)	LGBQ Youth (<i>N</i> =130; 40.5%)	Lesbian/Gay Youth (<i>N</i> =65; 20.25%)	Bisexual Youth (<i>N</i> =44; 13.71%)	Queer Youth (<i>N</i> =21; 6.54%)
Maternal Education	3.93 (1.93)	3.94 (1.92)	3.92 (1.95)	3.83 (1.79)	4.07 (1.98)	3.91 (2.39)
Household Size	4.17 (1.98)	4.31 (2.23)	3.95 (1.53)	3.69 (1.47)	4.45 (1.61)	3.67 (1.32)

LGBQ=Lesbian, Gay, Bisexual, and Queer; ACEs=Adverse Childhood Experiences; *N*=Sample Size; SD=Standard Deviation

predictor of depressive symptoms, as were youth delinquency ($B=0.342$, $Beta=0.359$; $p<0.01$), youth ACEs ($B=0.077$, $Beta=0.252$; $p<0.01$), school safety ($B=-0.137$, $Beta=-0.196$; $p<0.01$), and household size ($B=-0.043$, $Beta=-0.140$; $p<0.01$). After stratifying the sample into subsamples of youth identifying as heterosexual ($n=191$) and LGBQ ($n=130$), we re-estimated the same multivariable OLS models. Findings indicated that cumulative police exposure and police violence stress were associated with depressive symptoms, but only among the LGBQ subsample (cumulative police exposure: $B=0.136$, $Beta=0.420$; $p<0.01$; police violence stress: $B=0.060$, $Beta=0.300$; $p<0.01$). Paternoster and colleagues' [36] test of the equality of regression coefficients reveal significant differences in the association between cumulative police exposures and depressive symptoms across subsamples distinguished by LGBQ identity ($z=3.26$, $p<0.01$). Similar patterns emerged in the case of police violence stress ($z=3.70$, $p<0.01$). For ancillary analyses examining each form of police exposure separately, see Appendix B.

Next, we constructed product terms between cumulative police exposures and each LGBQ identity, as well as police violence stress and each LGBQ identity (see Table 3). Depressive symptoms were then regressed on the product terms and all covariates. Findings reveal that the association between cumulative police exposures and depressive symptoms is significantly larger among lesbian or gay ($B=0.107$, $Beta=0.199$, $p<0.01$), bisexual ($B=0.124$, $Beta=0.248$, $p<0.01$), and queer ($B=0.186$, $Beta=0.275$, $p<0.01$) youth than heterosexual youth. Furthermore, the association between police violence stress and depressive symptoms is significantly larger among bisexual ($B=0.118$, $Beta=0.523$, $p<0.01$) and queer ($B=0.116$,

$Beta=0.375$, $p<0.01$) youth than heterosexual youth. Such is not the case, however, for lesbian or gay youth.

Next, we calculated covariate-adjusted predicted depressive symptoms scores by cumulative police exposures and police violence stress across sexual identities. These patterns are displayed in Fig. 1. As illustrated in panel A, increases in cumulative police exposure from 0 to 6 do little to shift depressive symptoms among heterosexual youth (a 0.233 standard-deviation increase). Comparatively, an increase from 0 to 6 cumulative police exposures among queer youth results in a 2.117 standard-deviation increase on the depressive symptoms scale. Similar, though slightly attenuated, patterns emerged for lesbian or gay and bisexual youth. Furthermore, as illustrated in panel B, increases in police violence stress from 0 to 12 do little to shift depressive symptoms scores among heterosexual youth (a 0.083 standard-deviation decrease). Comparatively, an increase from 0 to 12 in police violence stress among queer youth results in a 2.233 standard-deviation increase on the depressive symptoms scale. Furthermore, an increase from 0 to 12 on police violence stress among bisexual youth results in a 2.267 standard-deviation increase on the depressive symptoms scale. This pattern, however, is attenuated to non-significance for lesbian or gay youth.

Finally, we restricted the sample to the LGBQ subsample ($n=130$) and used product-term analysis to examine whether cumulative police exposures and police violence stress interacted to predict depressive symptoms and visually plot adjusted predicted scores. As illustrated in Fig. 2, an increase from 0 to 12 on police violence stress resulted in a 0.274 standard-deviation decrease in depressive symptoms when cumulative police exposures were low (i.e., exposures=one or two). Comparatively, an increase from

Table 2 OLS Regression Models of the Association between Cumulative Police Exposures, Police Violence Stress, and Depressive Symptoms Among Black Youth: Moderation by LGBQ Identity

Variables	Depressive Symptoms				
	Full Sample			LGBQ Youth	
	B/Beta SE	B/Beta SE	B/Beta SE	B/Beta SE	B/Beta SE
Cumulative Police Exposures	.084**/.259 .016	-	.076**/.234 .017	.136**/.420 .026	.014/.047 .021
Police Violence Stress	-	.034**/.182 .010	.026**/.137 .010	.060**/.300 .015	-.002/-.012 .012
<i>Covariates</i>					
Youth Age	-.007/-.018 .018	-.012/-.033 .019	-.007/-.020 .018	.016/.037 .035	-.022/-.067 .021
Youth Sex (Male = 1)	.067/.056 .063	.073/.061 .065	.072/.060 .063	.133/.095 .104	.016/.013 .077
Youth LGBQ	.269**/.220 .063	.243**/.199 .065	.249**/.204 .063	-	-
Youth Multiracial	.058/.018 .148	.024/.008 .151	.072/.023 .147	.246/.068 .255	-.037/-.013 .175
Youth Delinquency	.305**/.320 .050	.387**/.407 .052	.342**/.359 .051	.270**/.281 .082	.434**/.473 .064
Youth ACEs	.082**/.267 .016	.092**/.298 .015	.077**/.252 .016	.036/.141 .022	.109**/.287 .023
Home Safety	-.057/-.083 .037	-.094*/-.136 .037	-.063/-.091 .037	-.048/-.066 .058	-.042/-.064 .046
School Safety	-.136**/-.194 .038	-.172**/-.245 .038	-.137**/-.196 .037	-.106/-.151 .056	-.150**/-.221 .047
Neighborhood Safety	.056/.092 .034	.072*/.117 .035	.067/.109 .034	.122*/.210 .048	.006/.009 .046
Neighborhood Disorder	-.045/-.071 .032	-.045/-.072 .033	-.058/-.093 .032	.021/.032 .048	-.086/-.145 .045
Bio Parents Married	-.056/-.036 .076	-.074/-.047 .078	-.066/-.043 .075	-.083/-.052 .119	-.025/-.017 .093
Bio Parents Cohabiting	.020/.007 .137	-.053/-.019 .140	-.011/-.004 .136	-.148/-.057 .188	.130/.043 .191
Bio Parent Immigrant	.176/.079 .111	.159/.071 .113	.189/.084 .110	.250/.077 .237	.122/.066 .118
Maternal Education	-.002/-.006 .015	.006/.018 .015	.001/.003 .015	-.020/-.064 .024	.003/.009 .019
Household Size	-.037*/-.120 .015	-.039*/-.129 .016	-.043**/-.140 .015	-.038/-.092 .031	-.033/-.129 .018
<i>N</i>	321	321	321	130	191

* $p < 0.05$; ** $p < 0.01$. B = Unstandardized Coefficient; Beta = Standardized Coefficient; SE = Standard Error. ACEs = Adverse Childhood Experiences. OLS = Ordinary Least Squares. LGBQ = Lesbian, Gay, Bisexual, and Queer. Importantly, youth who responded "prefer not to say" to the sexual identity item were categorized as missing and were not included in the analyses. Paternoster et al. (1998) test of the equality of regression coefficients reveals significant differences in the association between cumulative police exposures and depressive symptoms across subsamples distinguished by LGBQ identity ($z = 3.26$, $p < 0.01$). Similar patterns emerged in the case of police violence stress ($z = 3.70$, $p < 0.01$)

Table 3 Which LGBQ Identities Moderate Associations between Cumulative Police Exposures, Police Violence Stress, and Depressive Symptoms Among Black Youth?

	Depressive Symptoms			
	B/Beta	SE	B/Beta	SE
Cumulative Police Exposures x LGBQ	.137**/.387	.030	-	-
Cumulative Police Exposures x Lesbian/Gay	-	-	.107**/.199	.037
Cumulative Police Exposures x Bisexual	-	-	.124**/.248	.047
Cumulative Police Exposures x Queer	-	-	.186**/.275	.066
Police Violence Stress x LGBQ	.093**/.584	.018	-	-
Police Violence Stress x Lesbian/Gay	-	-	.032/.145	.027
Police Violence Stress x Bisexual	-	-	.118**/.523	.024
Police Violence Stress x Queer	-	-	.116**/.375	.029

All covariates from Table 2 are included in each of the interaction models but are suppressed for the sake of space. * = $p < 0.05$; ** = $p < 0.01$. B = Unstandardized Coefficient; Beta = Standardized Coefficient; SE = Standard Error. LGBQ = Lesbian, Gay, Bisexual, and Queer

0 to 12 on police violence stress resulted in a 2.742 standard-deviation *increase* in depressive symptoms when cumulative police exposures were high (i.e., four or more exposures).

Discussion

In this study, we examined how cumulative police exposures and police violence stress shape depressive symptoms among Black youth in Baltimore City, with a focus on LGBQ youth. Our study yielded five main findings. First, LGBQ youth vary in their cumulative police exposures. Overall, LGBQ youth in the sample were not subjected to greater cumulative police exposures than heterosexual youth in the sample, but cumulative police exposure was higher among bisexual and queer youth relative to lesbian or gay youth. Second, compared to their heterosexual peers, LGBQ youth reported higher levels of police violence stress. This is particularly true among bisexual and queer youth.

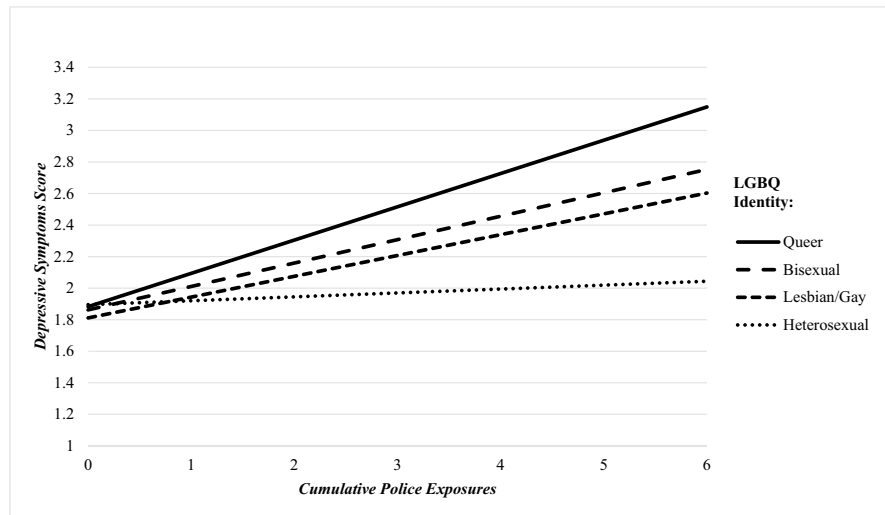
Third, multivariable models revealed that both cumulative police exposures and police violence stress predicted youth depressive symptoms scores, independent of each other and a host of covariates. This is consistent with existing literature on the mental health repercussions of police exposures [2, 4–7] and answers the call of prior research to examine the compounding effects of multiple, varied police exposures on mental health [8]. Critically, these

associations were most pronounced for girls and, in the case of cumulative police exposures, older youth. Researchers should continue to explore how stress around the topic of police violence, and exposures beyond just in-person stops, might undermine the health of girls specifically [5].

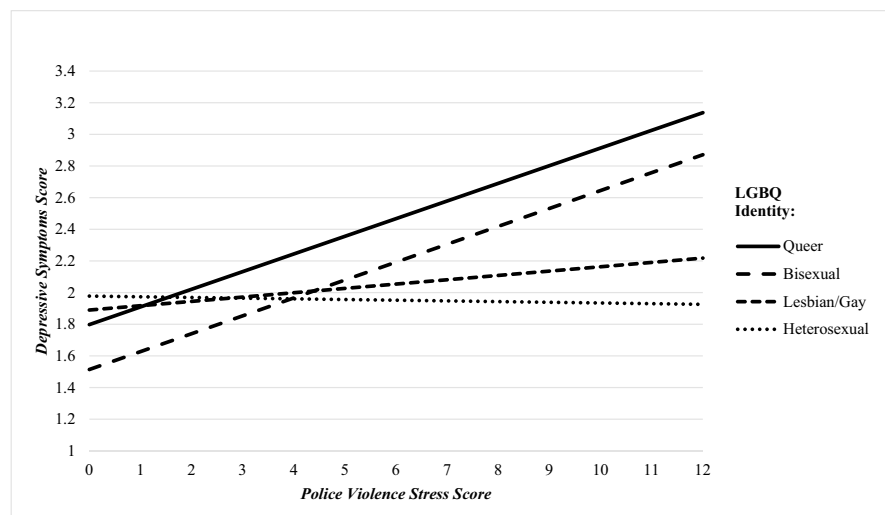
Fourth, LGBQ identity moderated associations between cumulative police exposures, police violence stress, and depressive symptoms, with the strongest and most consistent effects emerging for bisexual and queer youth. Still, these patterns mostly held across specific LGBQ identities and individual forms of exposure. Critically, significant findings did not emerge among the heterosexual subsample. Evidence suggests that LGBQ individuals may face unique police exposures—such as high levels of sexuality-based discrimination and harassment by police [37] – that could have disproportionate mental health impacts. The Black LGBQ youth in our sample also reported heightened police violence stress, and depressive symptoms in response to that stress. This may be a function of their belonging to multiple marginalized communities (i.e., Black and LGBQ), so that when asked about concern, worry, or stress about police violence being experienced by members in their community, Black LGBQ youth may be especially, and reasonably, susceptible to that stress on behalf of the multiple vulnerable communities to which they belong. These youth may also face social stigmatization more broadly and thus unique barriers to social and mental health supports [38],

Fig. 1 a Adjusted Predicted Depressive Symptoms Scores by Cumulative Police Exposures and Specific LGBQ Identity. **b** Adjusted Predicted Depressive Symptoms Scores by Police Violence Stress and Specific LGBQ Identity

a Adjusted Predicted Depressive Symptoms Scores by Cumulative Police Exposures and Specific LGBQ Identity



b Adjusted Predicted Depressive Symptoms Scores by Police Violence Stress and Specific LGBQ Identity



which may result in greater challenges coping with police exposures and police violence stress [39] and thus worse mental health outcomes. Fifth, cumulative police exposure and police violence stress compounded to worsen depressive symptoms among the LGBQ subsample ($N=130$). In short, scoring high on both cumulative police exposures and police violence stress placed LGBQ youth in the top decile of depressive symptoms scores. This was not the case, however, for the heterosexual subsample. As intersectionality and minority stress paradigms contend, stress is inherent in marginalized identities [15, 24]. Hence, there is need for additional research investigating

mental health sequelae from compounding police exposures and police violence stress for multiply marginalized youth, such as Black LGBQ youth.

Study findings should be considered in light of certain limitations. First, given the cross-sectional nature of the data, we cannot definitively determine the causal ordering between our main variables of interest. Second, the sample is a non-probability, community-based sample of Black youth in Baltimore City, intimating that the findings cannot be generalized to other groups of youth. Third, we were unable to separately examine other identities belonging to the LGBTQIA+ community given their rarity

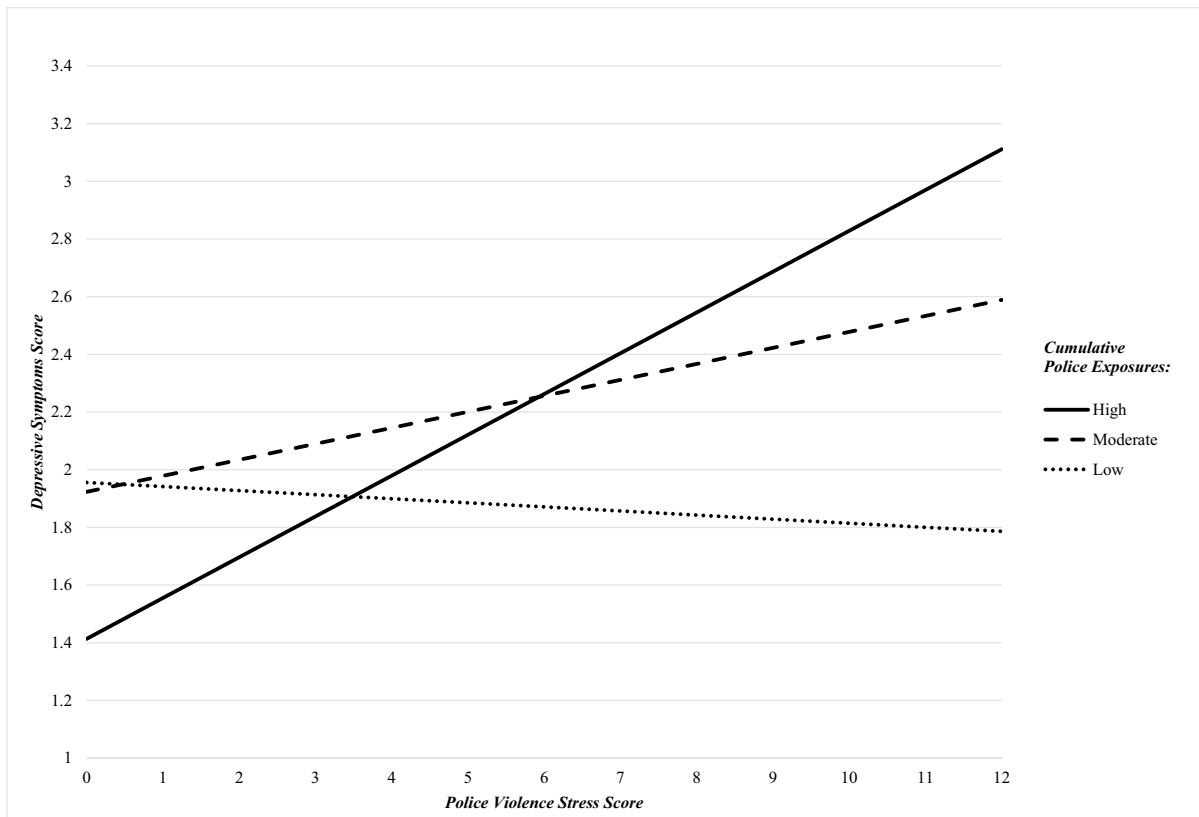


Fig. 2 Adjusted Predicted Depressive Symptoms Scores by Police Violence Stress and Cumulative Police Exposures Among the LGBQ Subsample ($N=130$)

in (e.g., pansexual youth) or complete absence from (e.g., trans youth) our sample. Finally, future research should examine supports and resources that Black LGBQ youth might rely upon to mitigate poor mental health outcomes due to police exposures and police violence stress.

Conclusions

Our results have important implications for policy and practice specific to police interactions with the Black LGBQ community. It is becoming increasingly clear that youth-police contact is a racialized adverse childhood experience [3, 16], and it might also widen Black LGBQ health disparities. Thus, reductions in the proactive policing and surveillance of Black youth – including LGBQ youth – in under-resourced communities are long overdue [40]. For police interactions that do occur, officers must receive culturally sensitive,

trauma-informed social skills training that prioritizes diversion and de-escalation to limit negative outcomes [41]. Still, even in the absence of in-person exposures, police exposures and police violence stress may persist via social networks and social media. Youth service providers including school counselors, social workers, and pediatricians should screen for police exposures and police violence stress and provide trauma-informed care accounting for associated harm to youths' mental well-being [16]. Our findings suggest that such approaches and other support interventions must be more proactively and intentionally intersectional to be effective. A recent review [42] found that only ~16% of mental health interventions for LGBQ individuals are sufficiently intersectional. Given the prominent cultural relevance of police-related exposures and stressors for Black youth, including Black LGBQ youth, intersectional interventions that attend to their specific lived experiences and concerns are critical to promote mental health equity. Ultimately, intersectional public health

approaches that combine prevention and treatment strategies are necessary to mitigate the harms of police exposure and advance mental health equity for Black LGBQ youth.

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Data Availability The data that support the findings of this study are available on request from the corresponding author.

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