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Police Brutality, Heightened Vigilance, and the Mental Health of Black Adults

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Objectives: To examine whether heightened vigilance partially explains associations between police brutality, depressed mood, and generalized anxiety among Black adults. ***Method***: We used data from the cross-sectional Survey of the Health of Urban Residents (SHUR) in the United States ($N = 623$). Controlling for sociodemographic and health characteristics, we regressed depressed mood and generalized anxiety on police brutality. To assess whether heightened vigilance mediates the relationship between police brutality and mental health, we computed the direct effects of police brutality and indirect effects (through heightened vigilance) on depression and anxiety. ***Results***: Over half of the sample reported experiencing police brutality. Both police brutality and heightened vigilance were associated with depressed mood and generalized anxiety. Heightened vigilance explained 11% of the total effect of police brutality on depressed mood and 21% of the total effect of police brutality on generalized anxiety. ***Conclusions***: Police brutality is associated with negative mental health outcomes among Black people. As clinicians work to provide assessment, diagnosis, and treatment services, they should be aware that Black patients might face increased risk for depression and anxiety because of heightened vigilance and police brutality. Addressing how to manage these kinds of stressors is important, as is building a society where hypervigilance is unnecessary for the survival of Black people. Advocating for broad policy actions to reimagine policing is important for the mental health of Black adults.

Keywords: police brutality, mental health, racism and mental health, hypervigilance

There is growing focus on the impact of police brutality on mental health, especially the mental health of Black people (Mcleod et al., 2019). Police brutality refers to intentional and unintentional conduct of police officers that dehumanizes people, and it includes the perpetration of psychological violence and intimidation, neglect, verbal abuse, and physical and sexual violence (Alang et al., 2017; Bandes, 1999). Exposure to and anticipation of police brutality are both associated with depression and anxiety, regardless of race (Alang et al., 2021). Police brutality also disproportionately impacts minoritized groups, especially Black people (Edwards et al., 2019). Given that police brutality is an indicator of racism (Boyd, 2018), mechanisms that link racism to mental health might also link police brutality to mental health. For example, heightened vigilance which is a coping response to racial discrimination has been examined as a mediator of the effects of racism on mental health (Himmelstein et al., 2015; Pascoe & Smart Richman, 2009; Williams, 2018). In this article, we examine the connection between police brutality and two mental health outcomes—depressed mood and generalized anxiety—among Black people. Given greater exposure to and anticipation of police brutality in Black communities, we examine how personal experiences of police brutality are associated with depressed mood and generalized anxiety. We also investigate the role of heightened vigilance in the relationship between police brutality and these mental health outcomes.

Factors Associated With Exposure to Police Brutality

Exposure to police brutality is not equally distributed. Black people are more likely to be stopped and arrested, and over four times more likely than Whites to sustain injuries from police intervention (Feldman et al., 2016). Additionally, experiences of physical, emotional, and sexual violence perpetrated by the police are higher among Black than among White populations, and among Black women compared to White women (DeVylder, Oh, et al., 2017; Fedina et al., 2018). Rates of police-perpetrated homicides are elevated among young adults ages 25–34 (Bui et al., 2018) and the experiences of all forms of police violence are generally more common among persons between the ages of 20 and 44 (DeVylder, Oh, et al., 2017; Edwards et al., 2019).

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Socioeconomic indicators are also associated with the risks of experiencing police brutality. For example, persons without a high school education are more likely to be victims of psychological intimidation perpetuated by the police and are also likely to have their calls for help neglected by the police compared to persons who completed high school (DeVylder, Oh, et al., 2017; Fedina et al., 2018). And, limited access to socioeconomic resources increases exposure to police violence (Feldman et al., 2019), putting Black people at greater risk for homicides caused by the police. From 2005 to 2012, the proportion of Black people killed by police was almost three times greater than White people (Barber et al., 2016). Among victims of lethal use of force, Black people are 3.49 times more likely than their White peers to be unarmed (Ross, 2015). Indeed, assessments of racial disparities in fatal police shootings that occurred in 2015 and 2016 show that Black civilians were killed at more than twice the rate of White civilians, and that they were also less likely to be armed when shot (Bui et al., 2018; Nix et al., 2017). As a state sanctioned and historically perpetrated form of violence against Black people, police brutality is considered one of the most enduring forms of structural racism in the United States (Alang, 2018; Boyd, 2018).

Police Brutality as a Stressor

We conceptualize police brutality as a stressor, consistent with frameworks that view racism as a stressor (Clark et al., 1999). The stress process paradigm posits that exposure to stressors leads to poor mental health, and that variation in mental health outcomes result from variation in exposure to stressors, stress responses, and resources (Pearlin & Bierman, 2013). Stressors are experiential situations, factors or conditions that produce stress. Stress research focuses on four main types of stressors: life events, chronic strains, daily hassles, and traumas (Thoits, 2010; Wheaton, 1999; Wheaton et al., 2013). Police brutality fits well with all kinds of stressors. For example, being arrested is a stressful life event, frequently being monitored, followed, and pulled over by the police is a chronic strain as it is ongoing. Being unreasonably followed could also be a daily hassle because for Black people, these are anticipated and there is ongoing frustration associated with dealing with constant police surveillance. Perhaps, the most fitting description of negative encounters with the police is that they are traumatic events—characterized by being sudden, unexpected, discrete, and having a strong serious impact. Indeed, police violence is associated with complex forms of trauma requiring management over the life course, and is likely to impact families, communities, and future generations (Bryant-Davis et al., 2017).

As a stressor, especially a traumatic event, exposure to police violence is associated with a range of mental health outcomes including delusional mood, paranoia, hallucinations, psychological distress, depression, anxiety, and suicidal ideation (Bor et al., 2018; DeVylder, Cogburn, et al., 2017; DeVylder, Frey, et al., 2017; Geller et al., 2014; Jackson et al., 2017). However, the psychosocial mechanisms that connect police brutality with mental health are less clear. Trauma is a well-documented link between violence and poor mental health. Traumatic events are also associated with upsetting and distressing emotions including sadness, anxiety, hypervigilance, and fear (Briere et al., 1995; May & Wisco, 2016). Perhaps, the trauma from experiencing police brutality, like other forms of violence, can also lead to hypervigilance. If police brutality is a traumatic stressor that elicits significant worries about future harmful experiences (Alang et al., 2021), and if these worries lead to vigilance and attempts to avoid anticipated exposures to police violence, then it is not simply exposure to police violence that leads to poor mental health. How people make sense of police violence also matters.

Appraisal theory posits that how an individual perceives a stressful event affects their self-concept (Jamieson et al., 2018; Lazarus & Folkman, 1984), and that to fully understand the differential impact of stressful events on mental health, attention must be given to the appraisal of that stressor (Louie & Wheaton, 2019; McLeod, 2012; Thoits, 2006). The necessity of police actions is usually hotly debated. In high-profile cases of police brutality, there are public debates about whether the police should have used force. But individuals who have had encounters with the police have their own evaluations of whether the actions of the police were necessary. For example, Geller et al. (2014) showed that when police actions were perceived by victims to be fair and respectful, they experienced less anxiety. Thus, we build on existing research on police violence, stressors, racial vigilance, and mental health to explore how differences in exposure to police actions, evaluations of the necessity of police actions (perceived necessary and perceived unnecessary actions), and heightened vigilance shape the mental health of Black people.

Hypervigilance is a potential factor that lies on the pathway between experiences of racism and mental health (Himmelstein et al., 2015; Pascoe & Smart Richman, 2009; Williams, 2018). Heightened vigilance is defined as: "living in a state of psychological arousal in order to monitor, respond to, and attempt to protect oneself from threats linked to potential experiences of discrimination and other dangers in one's immediate environment" (Williams, 2018). Racism is traumatic and leads to the constant anticipation of discrimination (Carter, 2007) including hypervigilance. Heightened vigilance involves the modification of individual behavior, appearance, and surroundings in order to protect oneself from discrimination (Hicken et al., 2013). We suspect that heightened vigilance might be a response to police brutality and therefore a pathway through which police brutality affects the mental health of Black adults.

Study Goals and Hypotheses

In this article, we examine the connection between police brutality and two mental health outcomes—depressed mood and generalized anxiety (or anxiety symptoms)—among Black adults. An article utilizing the data set that we use here has examined the association between police encounters and depressed mood and between police encounters and generalized anxiety among all racial groups, with race as a moderator (Alang et al., 2021). The present study makes a distinct contribution by examining the relationship between police encounters and these mental health outcomes specifically among Black adults. It also examines the mediating role of heightened racial vigilance. Our hypotheses here are that: (a) Black adults who have experienced negative encounters with the police have greater odds of depressed mood and generalized anxiety compared to those without these encounters. (b) Persons who appraise their encounters with the police as necessary will have lower odds of depression and anxiety compared to those who appraise these encounters as unnecessary. (c) Heightened vigilance will partially mediate the effects of police brutality on depressed

mood and anxiety symptoms. If supported, our findings could inform policies to eliminate violent racialized policing, as well as the assessment of risks of engaging in heightened vigilance which might then lead to poor mental health outcomes among Black adults.

Method

Participants

Our analytical sample consists of Black adults, 18 and older ($N = 623$) to highlight mechanisms specific to the context within which Black people experience police brutality, heightened vigilance, and mental health problems.

Procedure

We used data from the 2018 Survey of the Health of Urban Residents (SHUR) administered online by Qualtrics LLC (Qualtrics, LLC, 2013) to a nonprobability quota sample of adults ages 18 and older living in urban areas across the contiguous U.S. The SHUR was developed in collaboration with populations that are marginalized by structural inequalities, and assesses a range of experiences and stressors that are salient to the health of urban residents (Alang et al., 2020). Qualtrics has access to national databases and panels of individuals who have opted to participate in online surveys. Survey respondents were drawn from these databases. The survey was introduced as a survey of stressors and health. People of color, as well as those whose usual source of care was not a doctor's office were oversampled. The median time for survey completion was 10 min. Before providing the data to researchers, Qualtrics performed quality checks that removed incomplete responses, assessed the time it took for each respondent to complete the survey, and excluded respondents who took less than a third of the median time to complete the survey because of the possibility that there were unlikely to be paying attention to the questions. Data were further cleaned by researchers, standardizing values and deleting outliers, for example, a respondent who entered their age as 115 years. SHUR has a response rate of 58.5%. Respondents received some form of incentive from Qualtrics panel providers, but the specific value of the incentive was not disclosed to researchers. SHUR was approved by the Lehigh University Institutional Review Board (Alang et al., 2020).

Measures

Police Brutality

The primary independent variable is direct personal experiences of police brutality. Respondents were asked if they have ever had any negative personal encounters with the police. Negative encounters included police cursing at respondent; hitting, kicking, or shoving the respondent; using an electroshock weapon such as a stun gun; or pointing a gun at the respondent. Respondents who reported at least one negative encounter with the police were asked: Thinking of your most recent experience(s) with the police, would you say the action of the officer was necessary? The variable, personal experiences of police brutality, was then created with three mutually exclusive categories: no negative encounter, necessary negative encounter, and unnecessary negative encounter. Public debates about the kinds of nonfatal police actions considered necessary or violent behooves us to examine and distinguish actions that though violent, can be considered necessary by the victims and those that may not be considered necessary. In other studies (e.g., English et al., 2017; Geller et al., 2014) perceptions of not only exposure to police brutality have shaped mental health, sometimes in distinct ways. We relied on self-reports of whether the encounter was necessary to account for individual appraisal of police brutality, a practice consistent with the literature on the impact of police actions on health (Cooper et al., 2004; English et al., 2017).

Depressed Mood

Depressed mood is one of the dependent variables. Depressed mood was assessed using the 2-item Patient Health Questionnaire (PHQ-2; Kroenke et al., 2003, 2010). The PHQ-2 is used as initial screening instrument to assess depression in primary care settings. It asks respondents how often they have been bothered by (a) little interest or pleasure in doing things, and (b) feeling down, depressed, or hopeless in the past 2 weeks. Response options for the PHQ-2 include: not at all (coded 0), several days (1), more than half the time (2), or nearly every day (3). The scores for each response options range from 0 to 6. A score of 3 or more indicates likely depressed mood with 83% sensitivity and 90% specificity (Kroenke et al., 2003). We use a binary measure for depressed mood: 0 if the total score on the PHQ-2 is less than 3 (i.e., no depressed mood) and 1 if equal to or greater than 3 (i.e., likely depressed mood). In our sample, the PHQ-2 had a Cronbach's α of .87.

Generalized Anxiety

Generalized anxiety, another dependent variable, was assessed using the Generalized Anxiety Disorder (GAD-2) questionnaire (Kroenke et al., 2007, 2010). The GAD-2 asks respondents how often they have been bothered by (a) feeling nervous, anxious, or on edge, and (b) not being able to stop or control worrying over the last 2 weeks. Response options for GAD-2 include: not at all (coded 0), several days (1), more than half the time (2), or nearly every day (3). The scores for each response options range from 0 to 6. A score of 3 on the GAD-2 indicates likely generalized anxiety disorder at 86% sensitivity and 83% specificity (Kroenke et al., 2007). The GAD-2's Cronbach α in our sample is .80, and therefore fairly reliable for assessing generalized anxiety. We included the dichotomous measure of generalized anxiety in the analyses—0 for no anxiety and 1 for likely generalized anxiety.

Heightened Vigilance

Heightened vigilance was assessed using the abbreviated four-item Heightened Vigilance Scale (Williams, 2016). Respondents were asked how often the following happened in their day-to-day lives: (a) tried to prepare for possible insults from other people before leaving home, (b) felt that they always had to be very careful about their appearance to get good service or avoid being harassed, (c) carefully watched what they said or how they said it, and (d) tried to avoid certain social situations and places. The response options included: never (coded 0), less than once a year (1), a few times a year (2), a few times a month (3), at least once a week (4), and almost every day (5). The mean score across all four items was computed to

create a vigilance scale ranging from 0 to 5 with a Cronbach's α of .82 in data from the SHUR.

We included control variables that are known to be associated with depression, anxiety, or police brutality. Sociodemographic covariates include age [18–24 (reference category), 25–34, 35–44, 45–54, and 55 and older], gender (man, compared to woman, and transgender or gender fluid), level of education (no high school as reference, high school/General Educational Development (GED), some college/associate degree/vocational school, and bachelor's degree or higher), and work status (not in the labor force as reference, employed/looking for work, employed part time, and employed full time). We also included the following health status indicators: activity or functional limitations (yes/no), self-rated general health (excellent, very good, or good versus fair or poor), and health insurance [uninsured (reference category), public, private].

Data Analysis Plan

Our first objective was to determine whether police brutality is associated with depressed mood and anxiety symptoms. To address this, we used logistic models in which depressed mood and anxiety symptoms were regressed on experiences with the police (reference group: no negative experiences with the police), controlling for sociodemographic characteristics and health status indicators. Next, we included heightened vigilance in the model with all covariates. We computed the direct effects of police brutality as well as the indirect effects of police brutality (through heightened vigilance) on depression and anxiety symptoms using the Karlson–Holm–Breen (KHB) method of effect decomposition (Karlson & Holm, 2011). The KHB method is appropriate for the decomposition of total effects in nonlinear models such as logistic regressions. Consistent with the KHB method, we obtained the relative magnitude of direct and indirect effects (confounding ratio) and the confounding percentage—the percentage of the total effect that is due to heightened vigilance (the mediator). We conducted a post hoc analyses in PASS (2018, Version 16) which determined that the sample had adequate power to detect a medium effect at 0.05 in our multivariate regression model with nine predictors.

Results

Characteristics of the sample by encounters with the police are presented in Table 1. As shown, more than half reported a negative encounter with the police ($n = 372$), with almost 60% of those with negative encounters describing these encounters as unnecessary ($n = 213$). The mean vigilance score in the sample was 2.37 (last column on the right). However, it was 2.70 among persons with negative and necessary encounters, and 2.72 among persons who reported negative unnecessary encounters with the police. In general, 32.7% respondents met the criteria for likely depressed mood ($n = 207$), and this was similar to the percent of respondents who met the criteria for generalized anxiety (31.1%, $n = 194$). Among respondents with negative and unnecessary encounters with the police, over 40% met the criteria for depressed mood. For respondents with negative and necessary police encounters, 41.5% met the criteria for depressed mood. In contrast, only 20.7% of those with no negative police encounters met the criteria for depressed mood. Compared to respondents without negative experiences with the police, the proportion of persons with likely generalized anxiety was higher among respondents with negative police encounters, whether necessary (43.4%) or unnecessary (32.9%). 21.9% of persons with no negative encounters with the police met the criteria for generalized anxiety.

Table 1 also shows sociodemographic characteristics of the sample. Looking at the last column on the right, cisgender women accounted for over 70% of the sample ($n = 440$). The sample consisted mostly of working-age adults, with about 80% being between the ages of 18 and 54. More than 60% had attended some college and obtained an associate degree or higher ($n = 427$). Most worked full time (39.9%, $n = 241$) and many worked part time (20.4%, $n = 123$). 79.3% rated their overall health as good, very good, or excellent ($n = 494$). Almost 60% of the respondents were publicly insured ($n = 369$), and 35.2% reported that they were limited in their ability to perform certain activities because of physical, mental, or emotional problems ($n = 215$).

Experiences of police brutality varied significantly based on certain demographic characteristics. Specifically, among respondents who reported negative and unnecessary police encounters (second column from the right), the majority were younger than 35 years of age: 25.8% were 18–24-year old ($n = 55$), and 34.7% ($n = 74$) were between the ages of 25 and 34. About 40% of respondents who reported negative and unnecessary encounters with the police had a GED or high school education as their highest level of formal education ($n = 86$). Finally, up to 47% of respondents who reported negative but necessary encounters with police had activity limitations ($n = 75$), and 37.1% of those with negative and unnecessary encounters with the police had activity limitations ($n = 79$), suggesting that exposure to police brutality was higher among persons limited in their ability to perform certain activities because of physical, mental, or emotional problems.

Results from the logistic regression show an association between police brutality and depressed mood (see Table 2). Model 1 includes all covariates. As shown, persons with negative encounters that they believed were necessary had greater odds of depressed mood compared to persons without negative encounters ($OR = 2.06$, $SE = 0.52$). This finding supports our first hypothesis that persons who experienced police brutality, regardless of how they appraised their experiences with the police, had greater odds of depressed mood than persons with no experiences of police brutality. Persons who reported unnecessary negative encounters with the police had the greatest odds of depressed mood ($OR = 2.36$, $SE = 0.56$), supporting our second hypothesis that appraisal matters, and that perceived unnecessary encounters with the police were associated with greatest odds of depression. Odds of depressed mood were lower among those 35 and older, compared to respondents between the ages of 18 and 24. Good self-rated mental health was associated with lower odds of depressed mood ($OR = 0.40$, $SE = 0.10$). However, persons with activity limitations had three times greater odds of depressed mood compared to their peers with no limitations ($OR = 3.05$, $SE = 0.62$).

When we included heightened vigilance in Model 2 (Table 2), the effects of police brutality on depressed mood were reduced but still significant. Each unit increase in vigilance was associated with 13% greater odds of depressed mood ($OR = 1.13$, $SE = 0.07$).

We dichotomized police brutality (no negative encounters versus any negative encounters, whether perceived as necessary or unnecessary) and computed the total and decomposed effects of police brutality on depressed mood, controlling for covariates (Table 3). As

Table 1
Characteristics of Sample by Experiences of Police Brutality

Sociodemograhic and health characteristics of respondents	No negative encounters (40.29%, $n = 251$)		Necessary negative encounters (25.52%, $n = 159$)		Unnecessary negative encounter (34.19%, $n = 213$)		Total ($N = 623$)	
	%	*n*	%	*n*	%	*n*	%	*n*
Mean vigilance score	$\bar{x} = 1.82$	241	$\bar{x} = 2.70^{**}$	155	$\bar{x} = 2.72^{**}$	207	$\bar{x} = 2.37$	603
Likely depressed mood	20.7	52	41.5***	66	40.4***	86	32.7	204
Likely generalized anxiety	21.9	55	43.4***	69	32.9***	70	31.1	194
Gender								
Cisgender man	24.7	62	20.1	32	28.6	61	24.8	155
Cisgender woman	72.1	181	74.2	118	66.2	141	72.1	440
Trans or gender fluid	3.2	8	5.7	9	5.2	11	3.1	28
Age category								
18–24	30.7	77	31.5	50	25.8**	55	29.2	182
25–34	21.9	55	27.0*	43	34.7***	74	27.6	172
35–44	19.1	48	29.6	47	19.7	42	22.0	137
45–54	10.4	26	8.8	14	9.4	20	9.6	60
55 and older	18.0	45	4.5**	5	10.4	22	11.5	72
Level of education								
No high school	5.2	13	4.4	7	10.3**	22	6.7	42
High school or GED	23.9	60	18.9	30	30.1*	64	24.7	154
Some college or associate degree	48.2	121	59.1	94	45.5	97	50.1	312
Bachelor's or higher	22.7	57	17.6	28	14.1	30	18.5	115
Work status								
Not in the labor force	26.3	61	19.5	31	20.7	44	22.5	136
Unemployed, looking	20.7	48	13.2	21	16.4	35	17.2	104
Part time (<30 hr/week)	19.4	45	23.9	38	18.8	40	20.4	123
Full time (30+ hr/week)	33.6	78	43.4	69	44.1	94	39.9	241
Self-rated health								
Fair or poor	17.5	44	20.8	33	24.4	52	20.7	129
Good, V. good, Excellent	82.5	207	79.3	126	75.6	161	79.3	494
Activity limitation								
No	75.0	183	52.5	83	62.9	134	65.0	400
Yes	25.0	61	47.5***	75	37.1**	79	35.0	215
Health insurance								
Uninsured	10.0	25	10.7	17	9.4	20	10.0	62
Public	53.4	134	63.5	101	62.9	134	59.2	369
Private	36.7	92	25.8	41	27.7	59	30.8	192

Note. Significantly different from subsample with no negative police encounters. GED = General Educational Development.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

hypothesized, heightened vigilance partially mediates the relationship between police brutality and depressed mood. Negative encounters increase the log odds of depressed mood by 0.40. Accounting for heightened vigilance, the effect of negative encounters reduces to 0.35, leaving an indirect effect of 0.04. The confounding ratio of 1.13 means that the total effect of negative encounters is about 1.1 times larger than its direct effect, and the confounding percentage of 11.4 means that about 11% of the total effect of police brutality on depressed mood can be explained by heightened vigilance. This provides support for our third hypothesis that heightened vigilance partially mediates the association between police brutality and depressed mood among Black adults.

In Table 4, we present the results of logistic models with anxiety regressed on experiences with the police, controlling for sociodemographic characteristics and health status indicators. In Model 1 (without the mediator), persons with negative necessary encounters with the police had greater odds of generalized anxiety compared to those without negative experiences with the police ($OR = 2.11$, $SE = 0.52$). However, there were no significant differences in odds of generalized anxiety between persons who reported unnecessary negative encounters with the police and persons without negative encounters. Our first hypothesis only held partially true for anxiety. When we compared differences in odds of generalized anxiety between persons who perceived encounters with the police as unnecessary and those who perceived these encounters as necessary, there were not significant. This finding did not support our second hypothesis with respect to anxiety as persons who appraised their encounters with the police as necessary did not have lower odds of anxiety compared to those who appraised these encounters as unnecessary. Only two covariates were associated with anxiety—good self-rated overall health was associated with lower odds of generalized anxiety ($OR = 0.43$, $SE = 0.10$) and having an activity limitation was associated with greater odds of anxiety ($OR = 2.93$, $SE = 0.60$).

Accounting for the heightened vigilance, the results indicate that the effect of police brutality on generalized anxiety was attenuated ($OR = 1.87$, $SE = 0.47$). Heightened vigilance was associated with greater odds of anxiety. A one-unit increase in heightened vigilance was associated with 25% greater odds of anxiety, controlling for police brutality and all covariates ($OR = 1.25$, $SE = 0.08$).

Table 2
Association Between Perceived Police Brutality, Heightened Vigilance, and Odds of Depressed Mood

Experiences of police brutality, and sociodemographic and health characteristics of respondents	Odds of depressed mood			
	Model 1		Model 2	
	OR	*SE*	*OR*	*SE*
Police brutality (ref: no negative encounter)				
Negative encounter necessary	2.06**	0.52	1.92**	0.49
Negative encounter not necessary	2.36***	0.56	2.20***	0.53
Mean vigilance score			1.13*	0.07
Gender (ref: Cis man)				
Cis woman	1.14	0.27	1.19	0.29
Transgender or gender fluid	0.81	0.39	0.83	0.40
Age category (ref: 18–24)				
25–34	0.69	0.17	0.69	0.17
35–44	0.51**	0.14	0.52	0.14
45–54	0.35**	0.14	0.36*	0.14
55 and older	0.25**	0.13	0.28*	0.14
Level of education (ref: no H.S.)				
High school or General Educational Development (GED)	0.80	0.32	0.82	0.32
Some college or associate degree	1.06	0.42	1.09	0.44
Bachelor's degree or higher	0.66	0.30	0.66	0.30
Work status (ref: not in labor force)				
Unemployed, looking for work	1.35	0.43	1.33	0.42
Part time for pay (<30 hr/week)	0.73	0.24	0.69	0.23
Full time for pay (≥30 hr/week)	0.97	0.27	0.94	0.26
Good self-rated health (ref: fair/poor)	0.40***	0.10	0.42***	0.10
Activity limitation (ref: none)	3.05***	0.62	2.89***	0.59
Health insurance (ref: uninsured)				
Public insurance	0.64	0.20	0.63	0.20
Private insurance	0.55	0.19	0.53	0.19

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

We decomposed the effects of police encounters on generalized anxiety, as shown in Table 5. Police encounters increase the log odds of generalized anxiety by 0.71. Accounting for heightened vigilance, the effect of police encounters reduces to 0.56, meaning that the indirect effect of police encounters on generalized anxiety is 0.15. The total effect of police encounters is about 1.3 times larger than its direct effect (confounding ratio = 1.27), and about 21.4% of the total effect of police encounters on generalized anxiety can be explained by heightened vigilance (confounding percentage = 21.39). Therefore, our third hypothesis was supported for anxiety—the association between police brutality and generalized anxiety can be partially explained by increased heightened vigilance.

Discussion

In our sample, more than 50% of respondents reported experiencing negative police encounters. This is consistent with previous research that demonstrates a high prevalence of police brutality among Black populations in urban areas (Edwards et al., 2018). The proportion of respondents who met the criteria for depressed mood and generalized anxiety are similar to estimates in the general population of U.S. adults in a recent analysis that takes into consideration the mental health impact of the ongoing COVID-19 pandemic (Vahratian et al., 2021). Findings of a strong relationship between police brutality and depressed mood support our first hypothesis. These findings are also consistent with evidence from the Survey of Police-Public Encounters linking various forms of police violence to depression (DeVylder et al., 2018) and from the Menhood Study of Black men between the ages of 18 and 44 who live in Washington, D.C. (Bowleg et al., 2020). Depressed mood impacts the quality of life and productivity, and might also be a risk factor for other severe and debilitating conditions such as cardiovascular diseases (Donohue & Pincus, 2007; Friedrich, 2017; Greenberg et al., 2015; Hilton et al., 2009). Therefore, in addition to increasing odds of depression, police brutality might reduce the quality of life, limit productivity, and affect economic outcomes in Black communities.

Consistent with the appraisal theory, and with a New York based study (Geller et al., 2014), persons who had negative police encounters that they appraised as necessary had greater odds of meeting criteria for generalized anxiety compared to those without negative experiences with the police. Public debates about the kinds of nonfatal police actions considered necessary or violent behooves us to examine and distinguish actions that though violent, can be considered necessary by the victims and those that may not be considered necessary. One of the theoretical contributions of this study is that appraisal of negative police encounters can shape mental health in distinct ways. For example, unlike finding with respect to depressed mood, there were no significant differences in odds of generalized anxiety between persons who reported unnecessary negative encounters with the police and persons without negative encounters. One highly speculative explanation for why we got only partial support for our first hypothesis when it comes to anxiety and no support for our second hypothesis might be that frequent unnecessary negative encounters with the police might lead to desensitization—psychological unresponsiveness to negative police encounters. Desensitization has been associated with decreased anxiety symptoms among urban youth who are exposed to community violence (Kennedy & Ceballo, 2016). It might be relevant to further explore desensitization in the context of police violence. A related explanation might also be the normalization of expectations of police brutality. For example, part of the racial socialization of Black Americans is recognition that unnecessary negative encounters with police will happen, thus guidance is provided on how to respond (Harris & Amutah-Onukagha, 2019). This preparation might reduce the odds of intense worrying about instances of police brutality when they do happen.

Findings from the present study support our third hypotheses that heightened vigilance partially mediates the relationship between police brutality and mental health among Black people. These

Table 3
Direct and Indirect Effects of Police Encounters on Depressed Mood

Efffect decomposition	Coefficient	[95% CI]
Total effect of police encounters	0.29***	[0.20–0.37]
Direct effect of police encounters	0.20***	[0.11–0.29]
Indirect effect through heightened vigilance	0.09***	[0.06–0.11]

Summary of confounding		
Confounding ratio	Confounding percentage	Rescale factor
1.44	30.49	1.04

*** $p \leq .001$.

Table 4

Association Between Police Brutality, Heightened Vigilance, and Odds of Generalized Anxiety

Experiences of police brutality, and sociodemographic and health characteristics of respondents	Model 1		Model 2	
	OR	*SE*	*OR*	*SE*
Police brutality (ref: no negative encounter)				
Negative encounter necessary	2.11**	0.52	1.87*	0.47
Negative encounter not necessary	1.38	0.33	1.21	0.29
Mean vigilance score			1.25***	0.08
Gender (ref: Cis man)				
Cis woman	0.79	0.19	0.84	0.20
Transgender or gender fluid	0.89	0.42	0.91	0.43
Age category (ref: 18–24)				
25–34	1.29	0.32	1.30	0.32
35–44	0.60	0.16	0.62	0.17
45–54	0.53	0.20	0.54	0.20
55 and older	0.27	0.15	0.32	0.18
Level of education (ref: no H.S.)				
High school or General Educational Development (GED)	1.79	0.74	1.91	0.80
Some college or associate degree	1.30	0.55	1.40	0.60
Bachelor's degree or higher	1.58	0.75	1.64	0.78
Work status (ref: not in labor force)				
Unemployed, looking for work	1.44	0.46	1.40	0.45
Part time for pay (<30 hr/week)	1.30	0.44	1.18	0.40
Full time for pay (≥30 hr/week)	0.84	0.24	0.78	0.22
Good self-rated health (ref: fair/poor)	0.43***	0.10	0.45***	0.11
Activity limitation (ref: none)	2.93***	0.60	2.67***	0.56
Health insurance (ref: uninsured)				
Public insurance	0.48	0.14	0.62	0.20
Private insurance	0.80	0.07	0.80	0.28

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

findings extend the current literature on the role of heightened vigilance in mental health. Emotional states of heightened vigilance such as attending to discriminatory cues in the social environment have been associated with psychological problems including depression and anxiety (Hicken et al., 2013; Himmelstein et al., 2015; LaVeist et al., 2014; Taylor & Wald, 2003). Accordingly, we found heightened vigilance to be positively associated with depressed mood and generalized anxiety. One new contribution of this study is the connection between police brutality, heightened vigilance, and mental health. While vigilance might be a mechanism to avoid exposure to police brutality, it takes a toll on mental health.

Table 5

Direct and Indirect Effects of Police Encounters on Generalized Anxiety

Effect decomposition	Coefficient	[95% CI]
Total effect of police encounters	0.28***	[0.20–0.37]
Direct effect of police encounters	0.20***	[0.11–0.28]
Indirect effect through heightened vigilance	0.08***	[0.06–0.10]

Summary of confounding		
Confounding ratio	Confounding percentage	Rescale factor
1.43	30.44	1.04

*** $p \leq .001$.

Disproportionate exposure to events that necessitate heightened vigilance is therefore one mechanism through which police brutality inflicts psychological violence on Black communities. It is a partial mediator of the relationship between police brutality and poor mental health. As a traumatic event, police brutality is associated with greater vigilance—daily emotional preparation in anticipation of possible negative encounters with the police. This vigilance might then lead to an increase in depressed mood and anxiety symptoms.

Our finding that persons under 35 years of age were more likely to report negative police encounters than their older counterparts lends support to the work of others demonstrating exposure to police brutality among young adults (Bui et al., 2018). We also found that respondents 35 and older had lower odds of depressive symptoms compared to 18–24-year olds. Although not explored in the present study, we think this finding might be explained by the frequency of police contact among 18–24-year olds (Landers et al., 2011) and the development of racial identity as a coping mechanism over the lifespan (Woo et al., 2019; Yip et al., 2006) for those 35 and older, that might protect them from the negative effects of police brutality.

One rather troubling set of findings is that most adults with activity limitations were more likely to report negative encounters with the police, and they were also more likely to have significantly greater odds of depressed mood and anxiety symptoms compared to respondents without activity limitations. Research on the prevalence of police brutality among individuals with limitations is scarce but scholars estimate that about 50% of people killed by police between 2013 and 2015 had a physical or mental disability (Perry & Carter-Long, 2016), and that by age 28, Black people with disabilities are significantly more likely to have been arrested compared to White people with disabilities (McCauley, 2017). Future research might consider examining how police brutality might exacerbate health outcomes of Black people with disabilities.

Limitations

Findings from this study should be considered with several limitations. First, the analyses are not causal. We only measure direct associations of police brutality with depressed mood and generalized anxiety, and those cross-sectionally mediated by heightened vigilance. The measures also reflect experiences at different time frames. For example, assessing mental health symptoms in the last 2 weeks versus lifetime exposure to police brutality adds to the challenge of establishing temporal order than increases the accuracy and rigor of estimating mediation effects. Our data do not disentangle whether experiences of police brutality occurred before the respondents became hypervigilant or before they developed symptoms of depressed mood or generalized anxiety. Second, our data do not assess the frequency and chronicity of negative encounters with the police. Third, cross-sectional mediation analysis can lead to biased estimates of long-term meditational processes. While certainty of temporal precedence as in the case of longitudinal data would provide more robust analysis, similar patterns from our findings have been observed in other studies that use several cross-sectional surveys to model changes in mental health outcomes after personal and community exposure to police violence (Bor et al., 2018; Geller et al., 2017; Yimgang et al., 2017). Given the findings from these previous studies, as well as the associations between police brutality and vigilance and between vigilance and mental health outcomes in the present study, we believe that some of

the effects of police brutality on depressed mood and anxiety symptoms are mediated, in part, by vigilance. At the very least, our findings offer insights to potential mechanisms linking police brutality to poor mental health. We admit, however, that the limitations of cross-sectional mediation analysis necessitate further exploration in longitudinal analysis. Fourth, our measure of police brutality lacks psychometric assessments of reliability and validity. Finally, responses around the perceived necessity of police actions were self-reported and could have been affected by recall bias.

Future Research Directions

First, longitudinal studies are needed to examine the relationships between exposure to police brutality, vigilance, and mental health outcomes. The degree to which heightened vigilance mediates the relationship between police brutality and mental health cannot be fully explored using cross-sectional data. A better understanding of this pathway, and other mechanisms that link police brutality to poor mental health outcomes among Black populations might provide support for policies to eliminate police brutality and might also inform the provision of mental health services in communities that are disproportionately exposed to police brutality. Second, our finding that evaluations of the necessity of police encounters seem to matter more for depressed mood and not for generalized anxiety require further investigation. While we propose desensitization and racial socialization, we concede that these explanations are speculative at best, and research is needed to understand why desensitization might matter for anxiety symptoms but not for depressive symptoms after the experience of perceived unnecessary negative encounters.

Third, stressful events proliferate to others whose lives are linked to that of immediate victims (Pearlin & Bierman, 2013). Research exploring the impact of traumatic and other stressful police encounters on the mental health of families and friends of victims is needed. This is important for advocating for policies to end racialized police violence, for developing interventions and identifying mental health resources to support Black communities impacted by police brutality. Finally, there is a lot about exposure to police brutality that we do not have data for. For example, seeing a viral video of how a person who looks like you is killed by the police might trigger emotional and psychological responses that ultimately impact mental health. Better data on different kinds of exposure are needed, as is research on how these exposures shape mental health. Federal investment in the systematic collection of national data on the prevalence of police brutality, including injuries, psychological intimation, neglect, and other vicarious forms of police violence is important.

Clinical and Policy Implications

These findings demonstrate that Black people, especially persons between the ages of 18 and 24, and those with activity limitations might be at greater risk for poor mental health due to police brutality. Black patients might face increased risk for depression and anxiety because of police brutality and heightened vigilance. Hypervigilance is a response to anticipated stressors, such as police brutality. When a Black person is murdered by the police or otherwise experiences police brutality, it is common for public discourse to consist of questions such as why they did not listen, why they did not avoid confrontation with the police, and so forth. However, Black people are already hypervigilant when it comes to police encounters. Questions about what they could have done or not done that might shift blame to victim might only worsen mental health among people already in a heightened state of vigilance. In cases where hypervigilance might protect Black people from immediate risk of being killed by the police, our findings suggest that this hypervigilance is associated with increased odds of depression and anxiety, further harming mental health. Therefore, we urge policy makers to work toward building a society where hypervigilance is unnecessary for Black people to survive.

Improving access to resources including social and emotional support that might buffer the impact of police brutality on mental health is important. For example, clinicians should consider examining the extent to which experiencing police brutality, the anticipation of potential exposure to police brutality, and hypervigilance impact the mental health of their Black patients as part of the clinical assessment. These are daily stressors that disproportionately impact Black people. Acknowledging such stressors in clinical assessments is necessary for addressing them. We call on clinicians and public health practitioners to identify specific resources that might make a difference in alleviating the chronic and traumatic stress of police brutality, and to become informed advocates for eliminating police brutality and heightened vigilance—salient sources of stress that impact the well-being of Black adults.

Lastly, our findings highlight the importance of broad policy actions to reimagine policing. The current system disproportionately perpetrates violence against Black people, thus increasing morbidity and mortality (Alang et al., 2017). We echo calls made by the American Public Health Association in their 2018 policy statement to reallocate funding from police departments to community-based programs that are grounded in racial and restorative justice practices, and that address harm, crime, violence, and other indicators of structural inequality such a homelessness (American Public Health Association, 2018).

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