

BRIEF REPORT

Pervasive Exposure to Violence and Posttraumatic Stress Disorder in a Predominantly African American Urban Community: The Detroit Neighborhood Health Study

Emily Goldmann
Columbia University Mailman School of Public Health

Allison Aiello
University of Michigan School of Public Health

Monica Uddin
Wayne State University School of Medicine

Jorge Delva
University of Michigan School of Social Work

Karestan Koenen
Columbia University Mailman School of Public Health

Larry M. Gant
University of Michigan School of Social Work

Sandro Galea
Columbia University Mailman School of Public Health

Exposure to traumatic events is common, particularly among economically disadvantaged, urban African Americans. There is, however, scant data on the psychological consequences of exposure to traumatic events in this group. We assessed experience with traumatic events and posttraumatic stress disorder (PTSD) among 1,306 randomly selected, African American residents of Detroit. Lifetime prevalence of exposure to at least 1 traumatic event was 87.2% (assault = 51.0%). African Americans from Detroit have a relatively high burden of PTSD; 17.1% of those who experienced a traumatic event met criteria for probable lifetime PTSD. Assaultive violence is pervasive and is more likely to be associated with subsequent PTSD than other types of events. Further efforts to prevent violence and increase access to mental health treatment could reduce the mental health burden in economically disadvantaged urban areas.

Emily Goldmann, Department of Epidemiology, Columbia University Mailman School of Public Health; Allison Aiello, Department of Epidemiology, University of Michigan School of Public Health; Monica Uddin, Center for Molecular Medicine and Genetics, Wayne State University School of Medicine; Jorge Delva, University of Michigan School of Social Work; Karestan Koenen, Department of Epidemiology, Columbia University Mailman School of Public Health; Larry M. Gant, University of Michigan School of Social Work; Sandro Galea, Department of Epidemiology, Columbia University Mailman School of Public Health.

This research was supported by a grant from the National Institute for Drug Abuse (NIDA), National Institutes of Health (NIH).

Correspondence concerning this article should be addressed to Emily Goldmann, Columbia University Mailman School of Public Health, 722 W. 168th Street, Room 1513, New York, NY 10032. E-mail: egoldmann@gmail.com

© 2011 International Society for Traumatic Stress Studies. View this article online at wileyonlinelibrary.com DOI: 10.1002/jts.20705

Studies frequently demonstrate a large burden of exposure to traumatic events among African Americans, particularly in poor urban areas (Alim, Charney, & Mellman, 2006). Findings from the National Crime Victimization Survey (NCVS) show that urban African Americans are more likely than Whites and suburban or rural African Americans to be victims of violent crime such as assault (Federal Bureau of Investigation [FBI], 2008). Additionally, a study of the Detroit metropolitan area reported that non-Whites (who were predominantly African American) had significantly higher odds of experiencing assaultive violence than Whites, controlling for other sociodemographic factors (Breslau et al., 1998).

To our knowledge there have not been any large population-based studies of posttraumatic stress disorder (PTSD) in African American communities. The few studies of PTSD among African Americans collected data from health clinics or focus on African American subgroups (Alim, Graves, et al., 2006). We aimed to fill this gap in the literature by examining lifetime exposure to traumatic events and burden of PTSD symptoms in an urban African American population, using data from a population-based sample of Detroit residents. We anticipated that the lifetime prevalence of probable PTSD would be relatively high given that Detroit has one of the highest rates of violent crime of all large U.S. cities (FBI, 2009) and has been for many years experiencing severe economic decline.

METHOD

Participants and Measures

This study focused on the 1,306 adult (aged 18 years or older) African American participants of the Detroit Neighborhood Health Study (86.9% of the total study population), who took part in a telephone survey that was conducted from September 2008–May 2009. Participants were drawn from a probability sample of households within the city limits of Detroit, and one adult from each household was randomly selected. The overall response rate among eligible persons was 53.0%.

We asked participants about lifetime experience with traumatic events using a list of 20 traumatic events, which were divided into four groups based on type: assaultive violence, other injury or shocking experience, learning about trauma to a loved one, and sudden unexpected death of a loved one (Breslau et al., 1998). We used the PTSD Checklist (PCL-C), a 17-item self-report measure of symptoms of PTSD established by the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychological Association [APA], 1994), to assess criteria B (reexperiencing), C (avoidance and emotional numbing), and D (increased arousal) based on the event reported as the “worst.” Participants rated each symptom on a scale indicating the degree to which they had been bothered by that symptom as a result of the event from 1 = *Not at all* to 5 = *Extremely* (Weathers & Ford, 1996). Those who endorsed one or more Criterion B, three or more Criterion C, and two or more Criterion D symptoms moderately or higher were considered symptomatic. Additional questions assessed the other three *DSM-IV* criteria including Criterion A2 (intense fear, horror, or helplessness in response to the event), Criterion E (duration of symptoms of at least one month), and Criterion F (clinically significant impairment in functioning due to symptoms). An additional PTSD section assessed these criteria again using the PCL-C based on another randomly chosen traumatic event among those who had experienced more than one event. Respondents who met all six criteria for PTSD in either or both sections

were considered to have probable lifetime PTSD. The internal consistency of the PCL-C in this study was $\alpha = .93$. We conducted additional clinical in-person interviews in a subsample of 51 participants, using the Clinician-Administered PTSD Scale for *DSM-IV* (CAPS), to further test the reliability and validity of the PCL-C. We found that the PCL-C had good psychometrics (sensitivity = .24, specificity = .97, positive predictive value = .80, negative predictive value = .72, and an area under the receiver-operating characteristic (ROC) curve = .76). Five of the 51 respondents were identified as PTSD cases using the PCL-C; four of these persons were also identified as having PTSD using the CAPS. Thirteen participants were falsely identified as negatives.

Statistical Analysis

We examined the distribution of key sociodemographic variables among the African American participants of the study, as well as lifetime prevalence of exposure to any traumatic event and to each traumatic event type. We also evaluated risk of PTSD associated with each type of traumatic event by calculating the proportion of individuals that met criteria for probable lifetime PTSD in relation to that particular type of event (in either or both PTSD sections) among those who experienced that event and had PTSD symptoms assessed in relation to that event. Chi-square tests were used to assess the association between experiencing assaultive violence (vs. another type of event) and PTSD symptoms. We used SAS-callable SUDAAN to account for complex survey design (stratified sampling) and weighting (SUDAAN Version 10.0; SAS, Research Triangle, NC). Weights accounted for how contact information was obtained, the probability of being selected from households of different sizes, and the number of telephone lines, all of which helped to make the sample representative of the Detroit population.

RESULTS

Table 1 shows the distribution of sociodemographic characteristics among the study's African American participants. The majority of the sample was 25–64 years old and had attained at least a high school education. Approximately one third of the participants reported household income under \$15,000 in the past year, and almost three fourths were unmarried. The distribution of these characteristics in the overall survey sample was comparable to estimates from the American Community Survey (2005–2007) of the Detroit population. Table 2 presents lifetime experience with traumatic events and PTSD among African American respondents. The large majority had experienced at least one traumatic event; more than half had experienced assaultive violence. Among those individuals who had experienced at least one traumatic event,

Table 1. Detroit Neighborhood Health Study (September 2008–May 2009) Demographic Characteristics

Variable	<i>n</i>	Weighted %
Total	1,306	
Age		
18–24	110	18.7
25–34	119	12.1
35–44	233	15.8
45–54	295	24.3
55–64	285	15.6
65 +	255	13.5
Gender		
Male	545	46.5
Female	761	53.5
Household income		
<\$15,000	394	34.6
\$15,000–\$35,000	316	27.0
+ \$35,000	436	38.5
Educational attainment		
<High school graduate	175	15.2
High school graduate/GED	434	44.8
Some college/college graduate/ graduate school	697	40.0
Marital status		
Married	336	28.0
Divorced/separated/widowed	477	27.5
Never married	493	44.5

Note. *N* = 1,547. This table includes only those participants who reported their race as African American or Black (*n* = 1,306). GED = General educational development.

almost one in five had probable PTSD in their lifetime. Lifetime PTSD was most prevalent when assessed in relation to assaultive violence, in particular being raped and being badly beaten. Experiencing assaultive violence (compared to a nonassault event) was significantly associated with greater prevalence of subsequent PTSD ($p = .01$, not shown in tables).

DISCUSSION

Lifetime experience with traumatic events is near ubiquitous among residents of Detroit, consistent with prior findings (Breslau et al., 1998). We found that the prevalence of exposure to assaultive violence among residents of Detroit city proper was higher than the overall prevalence reported in a prior study of Detroit that included the surrounding Detroit metropolitan area (50.8% vs. 37.7%), but similar to the prevalence among those residing in the central city (54.2%; Breslau et al., 1998), consistent with evidence of a larger burden of violent crime in urban compared to suburban and rural

areas (FBI, 2008). The prevalence of probable PTSD in our study was higher than that found in other population-based studies such as the National Comorbidity Study of noninstitutionalized adults in the United States (7.8%) and the Detroit Area Survey of Trauma among residents of the Detroit metropolitan area (9.2%; Breslau et al., 1998; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Given the relatively high exposure to assault in Detroit and because experiencing assault has been associated with greater likelihood of developing subsequent PTSD than other types of traumatic events in this study and others (Breslau et al., 1998; Kessler et al., 1995; Norris, 1992), it is possible that greater exposure to violence may contribute to the higher levels of PTSD symptoms we found in Detroit.

Our study results are also consistent with findings that African Americans may be at higher risk for PTSD. Earlier population-based studies that compared lifetime PTSD prevalence between racial/ethnic groups found significant bivariable relations between African American race and greater PTSD (Breslau, Peterson, Poisson, Schultz, & Lucia, 2004; Kessler et al., 1999). More recently, two population-based studies of U.S. residents reported a greater burden of lifetime PTSD among African Americans compared to Whites (Himle, Baser, Taylor, Campbell, & Jackson, 2009; Roberts, Gilman, Breslau, Breslau, & Koenen, 2010).

This study benefited from its population-based design. We also conducted a structured assessment of PTSD using a validated instrument. However, assessments of PTSD were made by survey administrators who were not trained clinicians, which prevented us from diagnosing respondents with PTSD and may have influenced the accuracy of case identification. Nonetheless, our clinical reappraisals yielded evidence that the PTSD instrument was valid and highly specific in the sample population. Additionally, our sample includes only individuals with a residential address in Detroit, which may exclude the most socioeconomically disadvantaged, who may have greater exposure to traumatic events. Our study also had a relatively low response rate, which may have introduced bias into our results. This rate is similar, however, to that found in other telephone-based surveys (Galea et al., 2008). We also found no significant differences between key demographic characteristics in our sample and the Detroit Census, providing some evidence that our study was representative.

This study documents exposure to traumatic events and the psychological consequences of this exposure in a predominantly African American urban population. The study findings are particularly salient given the continuous population decline in the city of Detroit and the high rates of poverty and crime that its residents endure. We provide evidence that exposure to traumatic events—in particular, events related to assaultive violence—has the potential to contribute to a large burden of psychopathology in this community. Interventions that reduce violent crime and increase access to mental health treatment may minimize the relatively large burden of mental illness in this population.

Table 2. Prevalence of Lifetime Traumatic Event Experience and Probable PTSD Among African American Detroit Residents

Type of event	All participants		Participants for whom event was assessed ^a		
	<i>N</i>	%	<i>N</i>	<i>n</i>	%
Any traumatic event	1,148	87.2	1,147 ^b	185	17.1
Assaultive violence	685	51.0	391	56	16.7
Military combat	147	9.5	59	5	5.4
Raped	139	9.4	70	22	32.8
Other sexual assault	174	12.0	46	3	4.2
Shot or stabbed	155	13.9	54	2	3.7
Held captive, tortured, or kidnapped	63	5.2	15	3	9.8
Mugged, held up, or threatened with a weapon	453	33.8	148	13	14.2
Badly beaten up	166	12.9	44	11	31.2
Other injury or shocking experience	865	64.5	514	57	13.1
Serious car or motor vehicle crash	355	26.1	115	14	20.9
Any other kind of serious accident or injury	186	15.3	43	6	17.3
Fire, flood, earthquake, or other natural disaster	255	19.9	72	9	13.5
Diagnosed with a life-threatening illness	360	24.2	160	16	9.5
Child of yours diagnosed as having a life-threatening illness	87	5.2	37	5	25.0
Witnessed someone being killed or seriously injured	396	31.1	96	7	8.7
Unexpectedly discovering a dead body	174	13.7	50	4	2.1
Learning about traumas to loved one	788	64.0	425	28	6.0
Raped or sexually assaulted	445	38.2	135	7	6.2
Seriously physically attacked	491	39.5	107	10	7.2
Seriously injured in motor vehicle crash	547	43.7	136	8	5.9
Seriously injured in any other accident	340	28.2	78	4	4.1
Sudden, unexpected death of a close friend or relative	925	70.6	549	49	8.5
Any other extraordinarily stressful situation or event	319	23.4	134	34	26.4

Note. *N* = 1,306. PTSD = Posttraumatic stress disorder.

^aTwo different traumatic events were assessed in separate survey sections to see if the respondent developed PTSD in relation to either or both of those events, among those participants who experienced more than one type of event. ^bFor one respondent, an event described as the “worst” or chosen randomly was not assessed further because the respondent declined to answer questions about symptoms of PTSD related to that event.

REFERENCES

- Alim, T. N., Charney, D. S., & Mellman, T. A. (2006). An overview of posttraumatic stress disorder in African Americans. *Journal of Clinical Psychology, 62*, 801–813. doi:10.1002/jclp.20280
- Alim, T. N., Graves, E., Mellman, T. A., Aigbogun, N., Gray, E., Lawson, W., & Charney, D. S. (2006). Trauma exposure, posttraumatic stress disorder and depression in an African-American primary care population. *Journal of the National Medical Association, 98*, 1630–1636. doi:
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: The 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry, 55*, 626–632. doi:10.1001/archpsyc.55.7.626
- Breslau, N., Peterson, E. L., Poisson, L. M., Schultz, L. R., & Lucia, V. C. (2004). Estimating post-traumatic stress disorder in the community: Lifetime perspective and the impact of typical traumatic events. *Psychological Medicine, 34*, 889–898. doi:10.1017/S0033291703001612
- Federal Bureau of Investigation. (2008). *Crime in the United States*. Retrieved from <http://www.fbi.gov/ucr/ucr.htm>
- Federal Bureau of Investigation. (2009). *Uniform crime reports*. Washington, DC: Author.
- Galea, S., Ahern, J., Tracy, M., Hubbard, A., Cerda, M., Goldmann, E., & Vlahov, D. (2008). Longitudinal determinants of posttraumatic stress in a population-based cohort study. *Epidemiology, 19*, 47–54. doi:10.1097/EDE.0b013e31815c1dbf
- Himle, J. A., Baser, R. E., Taylor, R. J., Campbell, R. D., & Jackson, J. S. (2009). Anxiety disorders among African Americans, blacks of Caribbean descent, and non-Hispanic whites in the United States. *Journal of Anxiety Disorders, 23*, 578–590. doi:10.1016/j.janxdis.2009.01.002
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry, 52*, 1048–1060. doi:

- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., Nelson, C. B., & Breslau, N. (1999). Epidemiological risk factors for trauma and PTSD. In R. Yehuda (Ed.), *Risk factors for posttraumatic stress disorder*. Washington, DC: American Psychiatric Press.
- Norris, F. H. (1992). Epidemiology of trauma: Frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology, 60*, 409–418. doi:10.1037//0022-006X.60.3.409
- Roberts, A. L., Gilman, S. E., Breslau, J., Breslau, N., & Koenen, K. C. (2011). Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psychological Medicine, 41*, 71–83. doi: 10.1017/S0033291710000401
- Weathers, F. W., & Ford, J. (1996). Psychometric review of PTSD checklist (PCL-C, PCL-S, PCL-M, PCL-PR). In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation*. Lutherville, MD: Sidran Press.