ORIGINAL RESEARCH

# Emergence of Gun Violence as a Patient Priority

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***Purpose:*** **Gun violence is a growing public health epidemic that disproportionately affects underserved and minority communities. Our study sought to document patient experiences of community gun violence as a theme that emerged in the context of interviews exploring community-level factors influencing patients' engagement in primary care within the context of a larger study on cardiovascular health.**

***Methods:*** **We completed semistructured qualitative interviews of individuals with uncontrolled hypertension recruited from primary care practices serving underserved communities in metro Richmond, Virginia that were participating in a larger study on improving cardiovascular health.**

***Results:*** **Of 19 individuals interviewed, 11 discussed without prompting the negative effects of gun violence in their community. Themes that emerged included both the acute and chronic traumatic experience, the physiologic and cognitive effects of gun violence and the negative effects on ability to manage heart health.**

***Conclusions:*** **The effects of gun violence on not only cardiovascular health but also all aspects of health emerged unprompted in qualitative interviews about community level factors influencing management of cardiovascular health. Given the widespread negative effects of experiencing gun violence on health, family physicians could play an important role in identifying and managing the effects of gun violence. Future studies on how primary care clinicians can address gun violence in the caring for their patients comprehensively are needed. (J Am Board Fam Med 2022;35:961–967.)**

***Keywords:*** **Cardiovascular Diseases, Gun Violence, Medical Anthropology, Mental Health, PTSD, Primary Health Care, Public Health, Qualitative Research, Social Determinants of Health, Virginia**

## Background

Gun violence continues to be a national public health epidemic in the United States.[1,2] According to the Centers for Disease Control and Prevention, nearly 40,000 firearms related deaths occurred in the US in 2020.[3] Tens of thousands more suffer nonfatal gun injuries.[4,5] In the US, individuals are 25.2 times more likely to be killed by a firearm than in other high-income nations.[6] Disparities in gender, race, and ethnicity are also significant. Men comprise the vast majority of firearm death victims and firearm injuries (85% and 88%, respectively), while nonwhite individuals are more likely to die from firearm-related homicide than whites, with homicide being the leading cause of death for non-Hispanic black and Hispanic individuals 10 to 29 years old.[7,8]

Gun violence is a complex biopsychosocial disease that has biological, behavioral and social aspects.[9] A growing body of evidence links exposure to violence in 1's environment to adverse health effects, including emotional trauma and stress-related conditions.[10] People who have been exposed to violence may experience symptoms of posttraumatic stress disorder (PTSD), depression, anxiety, substance abuse disorders, chronic pain syndromes, or chronic health problems such as diabetes or heart disease.[11,12] In particular, recent data suggest that gun violence is linked with significantly poorer cardiovascular outcomes.[13,14] Despite the known

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linkages between gun violence and health, health care professionals have historically had a limited role in addressing gun violence and calls to expand this role have been controversial.[15] Part of this stems from lack of research into effective interventions within the health care system as well as insufficient medical education on gun violence.[16–18]

Family physicians could play an important role in screening for, identifying and addressing gun violence in their patients.[19–21] As a specialty that supports the comprehensive health care of individuals and integrates biological, clinical and behavioral sciences,[22] family medicine is ideally suited to caring for patients who experience gun violence. This is especially important as emerging evidence demonstrates how gun violence affects prevalence and control of other diseases and whole person health.[9] However, few family physicians are routinely screening for and addressing gun violence and they often underestimate the effect of experiences of gun violence.[23]

Our article describes patient experiences of gun violence as a focus that emerged from a qualitative interview study examining community-level factors influencing patients' engagement in primary care within the context of a larger study on managing cardiovascular health. The goal of this study is to inform practice improvement and translational science efforts in primary care practices serving communities afflicted by gun violence.

## Methods

### *Study Design*

We conducted a qualitative interview study that was a supplement to the Heart of Virginia Healthcare study, funded through the Agency for Healthcare Research and Quality EvidenceNOW: Advancing Heart Health Initiative. Heart of Virginia Health care was 1 of 7 funded collaboratives that focused on improving aspirin use, blood pressure control, cholesterol management and smoking cessation in small and medium-sized primary care practices. Details of the larger study are described elsewhere.[24,25] In our qualitative study, we sought to assess community-level factors influencing the ability of patients with uncontrolled hypertension to manage their overall heart health. Specifically, the goal of this study was not to inquire about the effect of gun violence but to better understand the influence of social determinants on practice capacity for change.

### *Setting and Study Recruitment*

We used a subsample of practices participating in Heart of Virginia Healthcare from the metro Richmond, Virginia area, with a focus on practices that served underserved populations with a high proportion of ethnic/racial minorities. With a greater metropolitan population of 1.2 million, the City of Richmond is the capital of the Commonwealth of Virginia and has 46.9% of the city's population identifying as Black/African American and 6.9% identifying as Hispanic/Latino. In addition, 23.2% of individuals live at or below the federal poverty line.[26] From the participating primary care clinics, patients with self-reported uncontrolled hypertension were recruited for our study from waiting rooms using study flyers. Interested patients were directed to contact our research team via e-mail or telephone to schedule interviews. After completing the interviews, patients were given a $20 gift card to compensate them for their time.

### *Data Collection*

Between January and April 2018, a team of qualitative researchers conducted semistructured interviews with patients over the phone that lasted on average 45 minutes. The interview guide used by all interviewers included prompts to ask about perceptions of community environment, area-specific challenges and resources, understanding of heart healthy behaviors, patients' relationship to their primary care clinic and their experience receiving treatment for hypertension. The guide did not specifically prompt about experiences with gun violence. Interviews were audio recorded and transcribed.

### *Data Analysis*

Two members of the research team then coded the qualitative data with Atlas.ti using a thematic and immersion-crystallization approach.[27] Codes were initially derived from the interview guide and relevant literature on the socioecology of health and were expanded as additional themes emerged in the data. While initially reading through the transcripts and constructing our codebook, one of the emergent themes that became readily apparent across interviewees was the patient experience of gun violence. This appeared in the form of direct and indirect experiences of neighborhood gun violence. We therefore decided to add codes to capture these experiences, as well as codes for all direct and indirect consequences of experiencing gun violence.

Research team members then cycled between independent coding and group discussion to identify and codify these emergent themes and resolve any discrepancies. This article presents a subset of patient responses to interview questions on community-level challenges and risk factors for controlling blood pressure. Although not specifically asked about, it was in this portion of the interview that participants reported experiencing gun violence in their neighborhoods and its effect on their heart health and overall sense of wellbeing. The Virginia Commonwealth University Institutional Review Board approved this study.

## Results

### *Demographics*

We interviewed 19 individuals, of which 100% were black and/or African American, 47% were female and 74% had Medicaid as their primary insurance (Table 1). Participants had a median age of 52 years of age. Of the 19, 11 discussed gun violence as a key community-level challenge without prompting.

### *Interview Findings*

Table 2 summarizes the findings from the qualitative interviews on the effect of gun violence in the community. Several themes that emerged included the acute and chronic trauma experience, the physiologic and cognitive responses to violence and the effect on heart health.

**Table 1. Demographic and Socioeconomic Characteristics of Patient Sample Interviewed on Experiences of Community-Level Factors Influencing Health, January–April 2018**

| Characteristic | Patients (n = 19) |
|---|---|
| Median age at time of study | 52.0 |
| Race and ethnicity | N (%) |
| Non-Hispanic Black or African American | 19 (100) |
| Non-Hispanic White | 0 (0) |
| Non-Hispanic Other | 0 (0) |
| Hispanic/Latino, any race | 0 (0) |
| Women | 9 (47) |
| Insurance status | |
| Commercial | 0 (0) |
| Medicaid | 14 (74) |
| Medicare | 4 (21) |
| Uninsured | 1 (5) |
| Unemployed | 9 (47) |
| Live in area with greater than average poverty rate | 19 (100) |

### *Chronic Trauma Experience*

Respondents reported an overwhelming sense of chronic insecurity, vulnerability, and worry for their physical well-being while living in public housing neighborhoods on the North Side and East End of Richmond. To them, the threat of danger was constant and pervasive outside the walls of their homes. Respondents described it as "terrible" and "crazy," causing them to persistently feel "unsafe" and "scared." Although respondents described once enjoying public activities, like sitting on the front porch, talking with neighbors, or taking a walk, these were no longer possible given concerns about gun violence. This was a chronic source of trauma, during both day and night, as respondents worried about the threat of errant bullets hitting them during drive-by shootings or exchanges of gun fire between feuding parties. Similarly, as one man described, there was also the persistent possibility that they too would be targeted for violence. "If I walk down the street, if my blood pressure up a little bit and I stagger, they think you drunk. You sit down, and that is the first thing out here in these projects: 'Oh, he dropped, let us get him.' And that is a miserable feeling."

### *Acute Trauma Experience*

Several respondents reported directly experiencing or witnessing gun violence. One man we spoke to described a harrowing episode in which he witnessed a young girl get shot and killed during a drive-by shooting. "We was cutting the grass and next thing you know, in front of us, they opened fire on this vehicle. They shot a girl right next to where we was cutting. We stopped, hopped off the lawnmowers and we were trying to get away." Another man described being the victim of a mugging from an unexpected aggressor. "A little boy, no more than about 10 or 11 years old, pulled up on me with a gun and robbed me… They said, 'Give me what you got in your pockets.' I had about 3, 4 pennies."

### *Physical Response to Trauma*

Several individuals described immediate physical impacts of being chronically exposed to this kind of gun violence related trauma. While many individuals described being "stressed" by the violence in

**Table 2. Findings About the Effect of Living in Areas with Gun Violence From Interviews on Experiences of Community-Level Factors Influencing Health January–April 2018**

| Theme | Key Findings | Illustrative Quotes |
|---|---|---|
| Chronic trauma experience | Feeling chronically unsafe in community | "Basically, I don't feel safe where I'm living." (Participant 3) |
| | General sense of insecurity and danger | "Back in the day, you can walk down the street, you can sit on your porch and go to sleep. Now, you scared to even sit on your porch, scared you gonna get hit by a bullet or something." (Participant 7) |
| | | "I don't go outside at night. I mean, it ain't safe in daytime no more, neither. It's just crazy, all this crazy shooting going on. It's terrible." (Participant 16) |
| | | "You wanna at least feel safe where you live at. Where I used to live at, I was used to sitting outdoors on the porch or on the back or on the front. You know, I liked my neighbors and everything. It was very nice. And then when I moved here, it was completely different. I have to ask people to move from off my porch 'cause they'll be on my porch doing things they shouldn't be doing, or there a crowd of people on the side of my house." (Participant 10) |
| | | "If I walk down the street, if my blood pressure up a little bit and I stagger, they think you drunk. You sit down, and that's the first thing out here in these projects: 'Oh, he dropped. . .let's get him.' And that's a miserable feeling." (Participant 2) |
| Acute trauma experience | Witnessing random acts of gun violence | "We was cutting the grass and next thing you know, in front of us, they open fire on this vehicle. They shot a girl right next to where we was cutting. We stopped. . .hopped off the lawnmowers and we were trying to get away." (Participant 16) |
| | Being targeted for gun violence | "A little boy, no more than about ten or eleven years old, pulled up on me with a gun and robbed me. I ain't have nothing but some change. They said, 'Give me what you got in your pockets.' I had about three, four pennies." (Participant 2) |
| Physical response to trauma | Prompts or exacerbates elevated heart rate and blood pressure | "Where I live at, it's a whole lot of activity going on, illegal activity, enough to keep your blood pressure up." (Participant 7) |
| | | "You see somebody running around. . .you know, running with a gun. I guess they done shot someone or gonna shoot somebody. I mean, then you don't know if they gonna target you or you gonna get hit by accident. I mean, your heartbeat (thumps hand on chest to mimic a racing heartbeat). . ." (Participant 13) |
| Cognitive response to trauma | Hypervigilance of environment | "You got to worry so much. If you come out and walk to the store, you got to worry about getting robbed or somebody beating you up for no reason 'cause they prey on the older folks." (Participant 8) |
| | Mistrust/paranoia | "That's the feeling. Paranoid. You leave from one section, you all right. . .and you get in another section, you start getting paranoid, you start worrying, watching your back." (Participant 12) |
| | Hyperaroused state | "They can't shoot worth a damn. So, you know. . .it's all the innocent people get killed." (Participant 13) |
| | | "It's kinda eerie 'cause you always gotta watch your back. Even riding on the bus. . . A few months ago, somebody got shot on the bus." (Participant 8) |
| | | "It's mostly young folks killing each other. I might say, 'Oh, eff you, man.' Next thing I know, I might get shot just for disrespecting him." (Participant 2) |
| Impact on heart health behavior | Restricts ability to exercise, access food and fill prescriptions | "I hate going to the store during the daytime. 'Cause you know, nowadays they shooting in the daytime. They don't care no more." (Participant 8) |
| | Prompts or exacerbates unhealthy coping behaviors | "If you're intimidated by what's going on outside, that means that you're reluctant to get out and exercise. And with the things happening out here, people are fearful of getting out to exercise or go to the store to buy something healthy. So, sometimes people just, you know, wanna stay in their homes." (Participant 3) |

their communities, a few explicitly mentioned heart-related responses. One elderly woman who lived alone described how being constantly surrounded by "all this activity" is "enough to keep your blood pressure up." Another man described how seeing gun violence, or even someone "running with a gun…[who] done shot someone or gonna shoot somebody" causes his heartrate to jump erratically. "You do not know if they gonna target you or you gonna get hit by accident" he told us, thumping his hand on his chest to mimic a racing heartbeat.

#### *Cognitive Response to Trauma*

In addition to the immediate physical impact, chronic exposure to gun violence seemed to contribute to negative cognitive effects among respondents. This was generally described as a constant state of "worry," but it manifested in a way that irrevocably altered their everyday interactions with people and places. Strangers were not to be trusted, as seemingly benign altercations could quickly turn deadly. "I might say, 'Oh, eff you, man.' Next thing I know, I might get shot just for disrespecting him." Activities of daily life were also conducted with a tacit yet persistent fear of violence. "If you come out and walk to the store, you got to worry about getting robbed or somebody beating you up for no reason," one man told us. And as another woman described, "it is kinda eerie 'cause you always gotta watch your back." In addition, this kind of ever-present threat of violence contributed to a deep sense of paranoia. "That is the feeling, paranoid," as one man told us. "You leave from one section, you all right…and you get in another section, you start getting paranoid, you start worrying, watching your back."

#### *Impact on Heart Health Behavior*

The threat of gun violence had pernicious, indirect effects, as well. Due to the fear of witnessing or falling victim to violence, respondents reported spending the majority of their time sheltered inside their homes. This meant that trips to the grocery store to purchase fresh food and other necessities became fewer and more infrequent. As one woman told us, "I hate going to the store during the daytime. 'Cause you know, nowadays they shooting in the daytime." As a result, she only shopped at a grocery store several miles from her home. But having no car, this was only achieved when she could catch a ride with a friend. Another woman described this sheltering in place effect even more succinctly. "If you are intimidated by what is going on outside, that means that you are reluctant to get out and exercise. And with the things happening out here, people are fearful of getting out to exercise or go to the store to buy something healthy. So, sometimes people just, you know, wanna stay in their homes."

## Discussion

Our study shows how gun violence emerged unprompted as a patient priority for more than half of the individuals in interviews focused on cardiovascular health management in an urban, underserved setting. This study builds on other studies that have explored how increased exposure to gun violence is associated with poorer cardiovascular outcomes and explores some of the possible linkages and etiologies.[13,14] When asked about how their community environment affected their heart health, respondents reported living with constant fear, worry, insecurity, and stress. These feelings resulted from long-term exposure to violence committed in their neighborhoods, witnessing shootings and their aftermath, as well as being targets of gun violence themselves. This exposure impacted patients physically, with elevated heart rate and chest complaints; and cognitively, with chronic feelings of paranoia, hypervigilance, mistrust, and hyperarousal, conditions associated with post-traumatic stress disorder. In addition to these effects of exposure to gun violence, people reported challenges with adhering to recommended heart health behaviors, such as accessing fresh food and prescribed medications and engaging in regular exercise.

Much attention has focused on screening for and addressing social determinants of health in primary care.[28,29] Gun violence not only manifests as traumatic stress in patients, but it also constitutes its own form of and exacerbates other social determinants of health. For patients with cardiovascular issues, the inability to safely leave one's home to fill prescriptions, purchase fresh food or exercise on a regular basis directly undermines heart healthy behaviors. In addition, exposure to gun violence may also cause or aggravate mental health issues, potentially leading to unhealthy coping behaviors, including the use of alcohol or tobacco products. Because violence and traumatic stress affect patients and present to family physicians in many different

ways, it is vital that they are understood and mitigated as part of a comprehensive population health strategy.

Furthermore, our study demonstrated that it is difficult for primary care clinicians to successfully engage patients in other initiatives - in our case, improving management of cardiovascular health - without first addressing patients' concerns about the underlying issues of violence and safety in their communities and how these concerns might impact patients' daily lives. To successfully engage in patient-centered care, whether it is to improve cardiovascular health or comprehensively address whole person health, primary care clinicians who work in communities with high rates of gun violence could potentially address gun violence within the context of providing comprehensive primary care.

Future research is needed to investigate how primary care clinicians can best screen for, identify and address gun violence and its effects within the context of primary care. Particularly, more research is needed to understand the effect of gun violence on cardiovascular disease, other chronic conditions, and whole person health. Given the complex nature of gun violence, such interventions may include partnerships with community organizations, engagement of behavioral health clinicians and advocacy for policies that reduce gun violence in underserved communities.

Our study has two main limitations. First, we interviewed patients from selected primary care practices in one city in the United States. Findings may not be generalizable to other settings and may not be representative of the experiences of all patients. Second, since we did not prompt patients with questions about gun violence, there may be a self-selection bias. We do not know if those who did not speak about gun violence had similar experiences.

As gun violence worsens in the US, not addressing its impact on people's health is not an option. Failing to address the impact of gun violence on primary care populations contributes to and risks worsening health inequities. For example, quality improvement and practice transformation initiatives targeting heart health outcomes may prove ineffective due to gun violence as a continued source of traumatic stress and barrier to initiating changes to health behavior. Finding effective ways that primary care clinicians can help to address this patient identified concern of gun violence in their neighborhoods can not only improve heart health but also improve overall health outcomes and whole person health.

*To see this article online, please go to: http://jabfm.org/content/35/5/961.full.*

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