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The Art and Science of Urban Gun Violence Reduction: Evidence from the Advance Peace Program in Sacramento, California

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Abstract: Urban gun violence is a critical human health and social justice issue. Strategies to reduce urban gun violence are increasingly being taken out of the domain of police and into community-based programs. One such community-driven gun violence reduction program analyzed here is called Advance Peace. Advance Peace (AP) uses street outreach workers as violence interrupters and adult mentors to support the decision making and life chances of those at the center of urban gun violence. We reported on the impact Advance Peace had on gun violence and program participants in the City of Sacramento, California, from 2018–2019. Using an interrupted time series model, we attributed a gun violence reduction of 18% city wide and up to 29% in one of the AP target neighborhoods from the intervention. We also found that of the 50 participants in the Advance Peace Sacramento program 98% were alive, 90% did not have a new gun charge or arrest, 84% reported an improved outlook on life, all received cognitive behavioral therapy, and 98% reported that their AP outreach worker was one of the most important adults in their life. Advance Peace is a viable community-driven, urban gun violence, and healing-focused program.

Keywords: gun violence; racism; trauma; public health; safety; toxic stress



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1. Introduction

Urban gun violence is a public health equity issue for communities of color, particularly in the United States [1,2]. In the US in 2019, 73.7% of all murders occurred by firearm and 88.5% of murders occurred in metropolitan areas [3]. According to the US Centers for Disease Control, the victims of urban gun crime are overwhelmingly young Black males between 15 and 34 years old [4]. For example, in 2019 the gun homicide rate for Black males between 15 and 34 years old was 81.5/100,000; for all Black males it was 37.7/100,000; 21/100,000 for all Blacks; 11/100,000 for Whites of all ages; 6.5/100,000 for Latinos of all ages; and <2/100,000 for Asian Americans [4]. According to the 2021 US CDC report “A Public Health Crisis Decades in the Making: A Review of 2019 CDC Gun Mortality Data”, 53% of all firearm homicide victims were Black males, Black men were eight times more likely to die by firearm homicide than the general population (all sexes), seven times more likely to die by firearm homicide than Latino men, and the rate of firearm violence for Black males 15–34 years old was more than 20 times higher than White males of the same age group (the second most impacted group) [5].

Urban gun violence is driven by unaddressed structural racism, including but not limited to government disinvestment in racially segregated neighborhoods, legalized workplace and school segregation, dehumanizing policing, and mass incarceration of people of color. All of these factors have combined to perpetuate intergenerational trauma and gun violence victimization experienced by Black, Indigenous, and People of Color (BIPOC) [6]. These traumas contribute to toxic stress that has an adverse biologic impact on the body and brain [7–10]. As many commentators have noted, city life breaks down

when violence threatens the use of public space and reducing gun violence is viewed as a fundamental characteristic of furthering anti-racist, abolitionist, health promoting, and reparations-focused social and institutional reforms [11–13].

In 2020, the United States experienced the biggest one-year increase in homicides, with over 72% of homicides committed with a firearm, 23% attributed to arguments, 46% of victims were under 30 years old, and 56% of victims were Black or African-American [14]. Importantly, research over the past decade has dispelled the myth that urban gun violence is a community-wide issue and instead revealed that much gun violence is extremely concentrated in very particular places and among very small networks of people [15]. As a 2017 UK Guardian news investigation revealed, of the over 13,000 firearm homicides in the US, more than half were in just 127 cities and in those cities, just 1200 neighborhood census tracts, equal to about an area of 42 square miles [16]. The Guardian report stated, “Though these neighborhood areas contain just 1.5% of the country’s population, they saw 26% of America’s total gun homicides” [16]. In Chicago, a study across majority African-American neighborhoods found that 41% of all gun homicides occurred among less than 4% of the area’s population [17]. Lurie and colleagues also found that in cities like Chicago, Minneapolis, Buffalo, and Jacksonville, less than 1% of the population is involved in gun activity, dispelling the myth that certain urban neighborhoods or population groups are violent [18].

Building from these findings, community-based urban gun violence reduction models, sometimes known as focused deterrence, have aimed to be narrowly focused on the small number of likely perpetrators of gun violence in a city [19]. They renounce the abandonment of public services in impoverished urban neighborhoods and the aggressive policing, intensive surveillance, and mass incarceration that has dominated America’s approach to urban violence. Community-based interventions explicitly invest in abandoned neighborhoods by hiring adult community residents to engage with the young people often at the center of gun violence and offer them a suite of supports and services that can help address traumas and contribute to healthier, non-violent decisions and ultimately improve neighborhood living conditions [20–25]. This paper evaluated one such community-driven urban gun violence reduction program called Advance Peace. The Advance Peace program in Sacramento, California, as we showed in this paper, builds upon community-driven, public health informed approaches to urban public safety [26–28].

2. What Is Advanced Peace?

Advance Peace (AP) (<https://www.advancepeace.org/>) (accessed on 10 January 2022) is a model of gun violence reduction that focuses on healing those at the center of gun violence in a city by using everyday intensive mentorship and engagement by formerly incarcerated, adult street outreach workers called Neighborhood Change Agents (NCAs) [22]. Advance Peace enrolls the people that have the most influence over gun use in a city, as identified after intensive street outreach and knowledge gathering, and enrolls them in what they call the Peacemaker Fellowship. The Peacemaker Fellowship is an intensive 18-month program where clients, now called fellows, receive seven-days-a-week mentorship from an NCA, who also works with the fellow to develop a Life Management Action Plan (LifeMAP). The LifeMAP is a road-map for action, defined by the fellow themselves, and includes short, medium, and long-term goals and actions they want to accomplish. The NCAs help the fellow achieve their LifeMAP goals through life coaching, culturally responsive counseling, and delivering or referring them to supportive services, such as cognitive behavioral therapy and substance abuse and anger management counseling. The Advance Peace program also includes weekly group life skills classes, social service navigation supports, job skills and internships, group travel opportunities, and meetings with a ‘circle of elders’. After participating in the Peacemaker Fellowship for at least six months and making progress on LifeMAP goals, a fellow becomes eligible for a monthly allowance of up to \$1000. The AP model was used in Richmond, California, and in less

than ten years reduced gun crime by over 55% [29]. In 2017, Advance Peace was invited by the City of Sacramento to bring the program to that city to help reduce gun homicides.

Sacramento is the capital of California and was one of the most violent cities in California in 2015; gun homicides had increased more than 39% from 2014 to 2015 [30]. Almost all of the gun violence, according to then Director of Sacramento's Gang Prevention & Intervention Task Force Khaalid Muttaqi, was being driven by a handful of young men engaging in retaliatory 'turf' wars protecting their neighborhood's name and credibility [31]. The Sacramento city council approved the launch of AP in January 2018 and AP worked for six months to identify the first cohort of Peacemaker Fellows, or clients. The 18-month Peacemaker Fellowship was launched in July 2018 and ended December 31, 2019. Three neighborhood gun crime 'hot spots' were identified by the City of Sacramento for AP to focus its outreach approach, called Del Paso Heights, Oak Park, and South Sacramento (Figure 1). The Advance Peace Sacramento program from 2018–2019 had a total budget of \$1.4 M, with \$500,000 provided by the City of Sacramento and the remainder funded by private philanthropy and individual donations [31]. In this paper, we ask: did AP have an impact on gun homicides and assaults in the three target neighborhoods as well as the entire city of Sacramento? What interventions did the Advance Peace program deliver to address urban gun violence? Who were the program participants and what impacts did the program have on them? What challenges did the Advance Peace program encounter in-the-streets that may have impacted its ability to reduce gun violence?

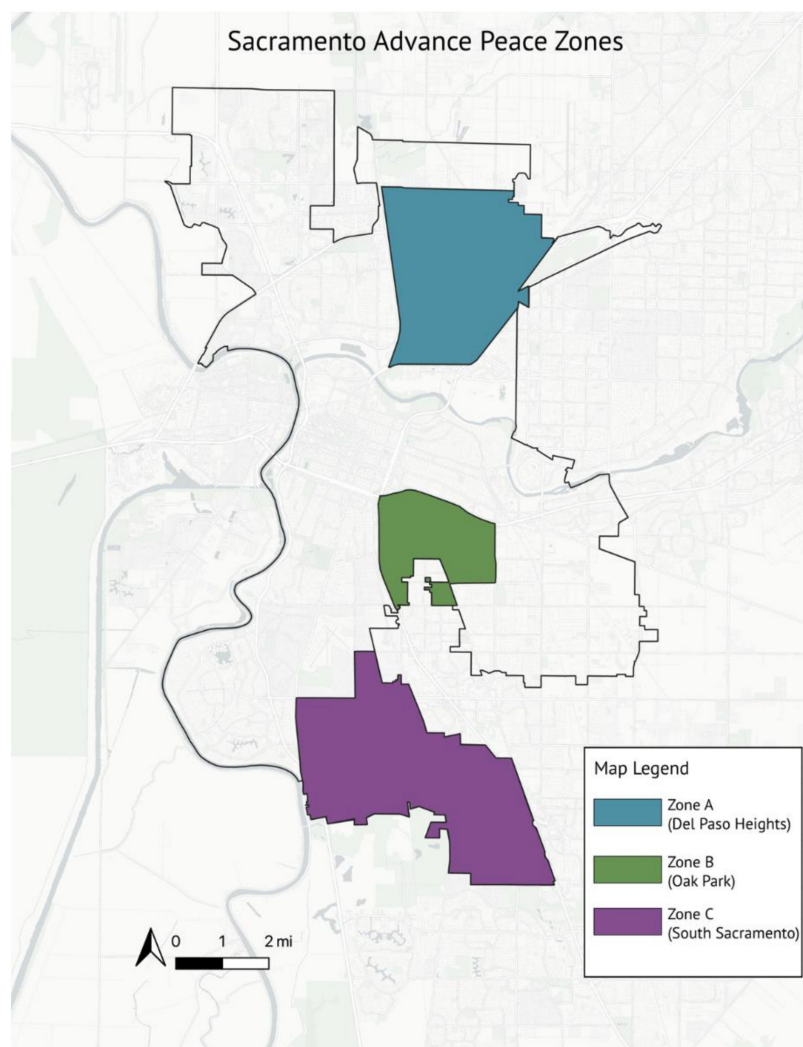


Figure 1. Map of Sacramento, California and the Advance Peace Zones.

3. Data Sources and Methods

We used mixed methods to evaluate the effect of the Advanced Peace program in Sacramento. First, city-wide geolocated data for gun homicides (CA Criminal Code 187) and firearm assaults (CA Criminal Code 245) were obtained from the City of Sacramento Police Department from January 2014 through December 2019. Population data were obtained from the US American Community Survey for Sacramento for years 2014–2019. Second, we analyzed data from weekly activity logs entered by each Neighborhood Change Agents (NCA) into a phone-based App. These activity logs included all outreach worker engagements, referrals, conflicts mediated, and fellow activities. Data were also entered into the App about weekly referrals, services, and engagements with each fellow enrolled in the Peacemaker Fellowship. There were 50 Fellows enrolled in the Advance Peace program. During enrollment, each fellow was interviewed by their assigned NCA and asked a series of questions based on the Life Stressor Checklist–Revised instrument, which identifies whether or not (yes/no) each fellow had experienced a stressful event [32]. Each NCA entered intake question responses (i.e., previous arrest, gun injury, etc.) into the App. The NCA activity log data in the App also captured the frequency and time spent each week interrupting street conflicts, including the type of conflict interrupted. The NCAs also included descriptive notes about their weekly engagements and activities in the App. All App data were reviewed and analyzed, including generating summary data and descriptive statistics. At the conclusion of the Fellowship, each fellow was interviewed by the UC Berkeley evaluation team about their orientation toward conflict resolution, their outlook on life, how stable and safe they feel in their lives, and questions about and how they would rate the Peacemaker Fellowship program itself.

Third, Advance Peace allowed a member of the research team to attend weekly staff meetings. In these meetings, Sacramento NCAs discussed challenges and strategies used to support fellows, mediate conflicts, and strategized about how to ‘cool the temperature’ of violence on the streets. A research team member took notes and used these notes to inform our identification of key themes or strategies used by outreach workers to engage their fellows, mentor them, and interrupt street gun conflicts. Informed consent and confidentiality agreements were obtained prior to meeting participation. Key themes that emerged after nine months of these meetings and which were used to organize and categorize interview and focus group data described below included: fellow recruitment challenges; identifying traumas that adversely impact fellow behavior; mediating/interrupting street gun conflicts; ensuring service referrals are effective and sustainable; and goal setting using the LifeMAP.

Fourth, we conducted interviews with the six Advance Peace outreach workers in Sacramento three times each year for the two-year period. At each interview, NCAs were asked to describe the challenges and successes of their street outreach work and to describe how their assigned fellows were progressing through the Peacemaker Fellowship. Each interview lasted one hour and was recorded. On three occasions, focus groups were held asking the same questions with all NCAs. Transcripts for all interviews and focus groups were created and read through by a member of the research team that did not conduct the interview or attend the focus group. All members of the research team discussed key themes and agreed on specific transcript quotes that captured the meaning of each theme. All individual identifiable information was removed from all data to protect confidentiality. Participants were not compensated by the research team but all interviews were conducted during their paid time of employment by AP.

Finally, Advance Peace Sacramento provided us with the monetary cost of the program over the two years. We also obtained data on the economic impacts of a gun shooting with an injury and fatality in Sacramento from the National Institute of Criminal Justice Reform (<https://costofviolence.org/reports/sacramento-ca/>) (accessed on 15 December 2021). These costs include the police and emergency response, the trauma center care and surgery, the police investigation and public defender, pre-trial incarceration of suspects, victim’s family supports, and other costs. We used these data to estimate a benefit-cost ratio of the program based on shootings and homicides prevented by Advance

Peace. All research methods were approved by the University of California, Berkeley, Institutional Review Board.

3.1. Gun Crime Analyses

We used the count of gun homicides and assaults during the time period of the AP intervention and five year period of 2014–2019 to calculate the rate of firearm homicides and assaults per 100,000 people. We then calculated the percent change in the annual rate of gun homicides and assaults. To evaluate the change in gun violence during similar time periods of program implementation, we compared the total incidences of gun homicides and assaults during the period of program implementation (July 2018–December 2019, or the 18 months of the Peacemaker Fellowship) to the mean of three 18-month time periods prior to program implementation: January 2014–June 2015, July 2015–December 2016, and January 2017–June 2018. We also explored whether or not the ‘AP Zones’, or the areas targeted for the intervention, had different rates of violence than non-AP zones in the city. Thus, we calculated the change in gun-violence for the entire city and in the specific Advanced Peace intervention zones: Del Paso Heights, Oak Park, and South Sacramento.

To account for time-varying confounding, we use the Interrupted Time Series model (ITS) to estimate the total gun homicides and assaults that would have occurred absent the AP intervention [33]. We fit a series of ITS models from January 2014–December 2019 with three outcomes aggregated by month: gun homicides, gun assaults, and gun homicides and assaults combined. To explore the geographic specificity of impact, we ran the ITS models for all three outcomes for two geographic areas: all AP intervention zones and city-wide.

The time periods prior to July 2018 were used to establish an underlying trend, which was “interrupted” in July 2018 with the introduction of Advance Peace to the three zones in Sacramento. The intervention period was designated as July 2018 to December 2019. A hypothetical scenario in which Advance Peace was not implemented and the trend of gun violence continued from previous years without change was calculated as the counterfactual. The counterfactual provides a comparison for the evaluation of the impact of the intervention [34]. All ITS models used the formula below to estimate the predicted gun violence outcomes per month (Y):

$$\hat{Y} = b_0 + b_1 \cdot \text{Time} + b_2 \cdot \text{AP} + b_3 \cdot \text{TimeSinceAP} + e \quad (1)$$

where:

- \hat{Y} is the predicted gun violence outcome per month.
- $b_1 * \text{Time}$ is the trend of gun homicides and assaults before the AP intervention (January 2014–December 2017). Time is a continuous variable which indicates the months passed since 01/2014.
- $b_2 * \text{AP}$ is the immediate change in gun homicides and assaults trend after the AP intervention started in July 2018. AP is a binary dummy variable indicating observation collected before (=0) or after (=1) the policy intervention.
- $b_3 * \text{TimeSinceAP}$ is the sustained change in gun homicides and assaults trend after the AP intervention started in July 2018. TimeSinceAP is a continuous variable indicating time passed since the intervention has occurred (before intervention has occurred TimeSinceAP is equal to 0).

We hypothesized that the presence of the AP intervention in the targeted zones would result in an immediate reduction in crime rates at the beginning of intervention due to an interruption in current practices, as well as a sustained decline during the 18-month intervention period as AP increased their community influence.

3.2. Results of Advance Peace Sacramento on Gun Violence

We found that over the four-year period before the AP intervention, Sacramento averaged 24.25 gun homicides per year and 264.75 gun homicides and assaults combined. During the two-year intervention period, Sacramento averaged 24 gun homicides per

year and 243.5 gun assaults and homicides combined. However, we observed that during the full year of program implementation in 2019, the rate of gun violence was the lowest since 2014 (41/100,000 people). In comparison with the mean annual rate of gun violence between 2014 and 2017 (53.6 per 100,000 people), the gun violence rate during 2019 (41 per 100,000 people) was 23% lower (Table 1).

Table 1. Annual rate and count of gun homicides and assaults in Sacramento, California, January 2014–December 2019.

Year	Gun Homicides	Gun Assaults	Gun Homicides + Assaults	City of Sacramento, CA Population	Gun Homicides + Assaults Rate (100,000)	Annual Change in Rate
2014	19	183	202	485,193	41.63	NA
2015	31	252	283	490,715	57.67	38.52%
2016	24	280	304	495,200	61.39	6.45%
2017	23	247	270	501,890	53.80	−12.37%
2018	29	247	276	508,517	54.28	0.89%
2019	19	192	211	513,620	41.08	−24.31%

We plotted the monthly trend of gun homicides and assaults in Sacramento along with the rolling six-month average (solid line) for all AP Zones and the entire City, shown in Figure 2. We also noted the beginning of the Advance Peace, 18-month Fellowship (dashed line, July 2018). We observed a precipitous decline at the launch of the intervention in July 2018, which came after six months of intensive street outreach to identify the Peacemaker Fellows.

Table 2 compares the total number of gun homicides and assaults during the 18-month program implementation to the mean of the total number of gun homicides and assaults for three 18-month time periods before the AP intervention. In the AP intervention zones, there were 18.2% less gun homicides and assaults during the 18-month intervention period in comparison with the mean of the three 18-month time periods prior to the program implementation. City wide, the program is associated with an 8.3% reduction in gun violence compared with the same pre-intervention time-periods. Gun homicides and assaults were 8.7% higher in non-AP zones during the period of program implementation compared with the mean gun homicides and assaults for the same timeframe prior to program implementation.

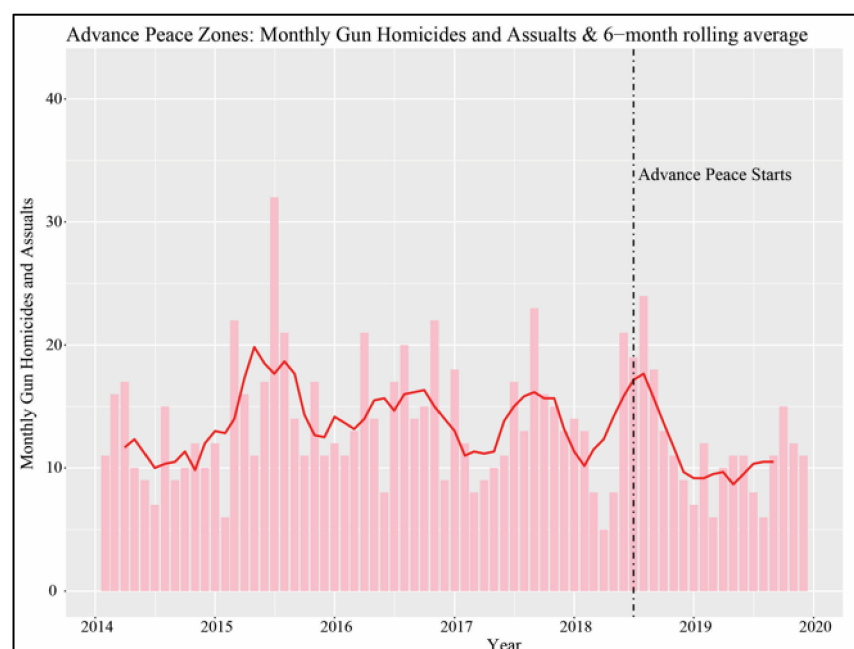


Figure 2. Cont.

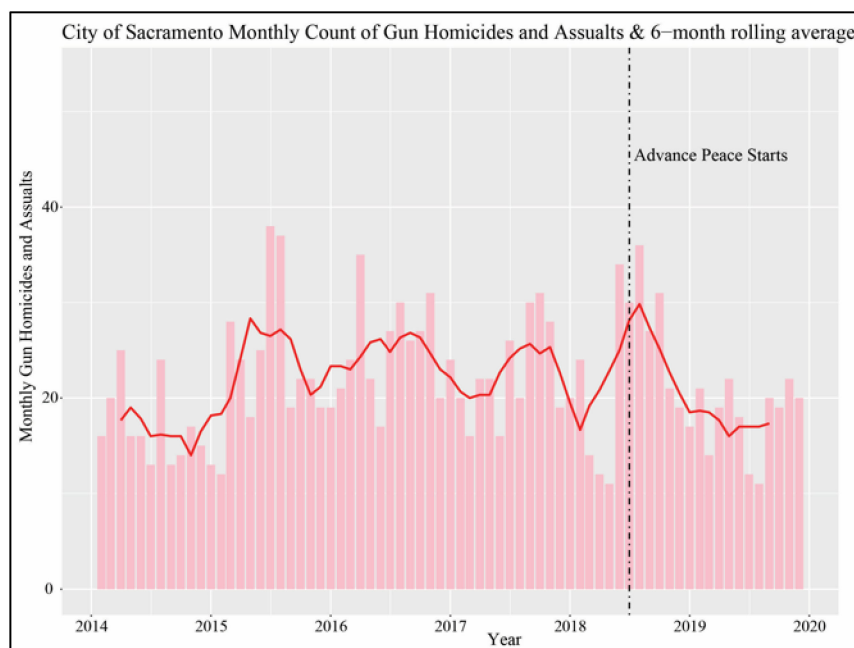


Figure 2. Monthly plots of gun homicides and assaults in Sacramento: All AP Zones (top) and Citywide (bottom), 2015–2019.

Table 2. Comparison between the mean gun homicides and assaults during the 18-month time periods prior to the Advance Peace Intervention and during the timeframe of the Advance Peace Intervention, in specific AP zones and non-AP areas.

Area	Mean, 18-Month Periods January 2014–June 2018	18-Month AP Fellowship (July 2018–December 2019)	Absolute Change	Percent Change
All Advance Peace Zones (combined)	248.3	203	−45.3	−18.2%
Del Paso Heights	104.0	74	−30.0	−28.8%
Oak Park	47.3	38	−9.3	−19.7%
South Sacramento	97.0	91	−6.0	−6.2%
Non-Advance Peace Zones	146.3	159	12.7	8.7%
City wide	394.7	362	−32.7	−8.3%

We present the outcomes of six ITS models comparing the change in gun violence before and after program implementation in Sacramento in Table 3. We found that during the program implementation period there was a statistically significant reduction in gun assaults ($-0.778, p < 0.01, CI(-1.32, -0.23)$) and gun assaults and homicides combined ($-0.814, p < 0.01, CI(-1.4, -0.23)$) across the entire City of Sacramento. In both cases, the 95% confidence intervals include only negative values, indicating high confidence that the AP intervention is associated with gun violence reduction at the city level. The associations for gun homicide reductions in just the AP-zones, while negative, were not statistically significant at the 95% CI.

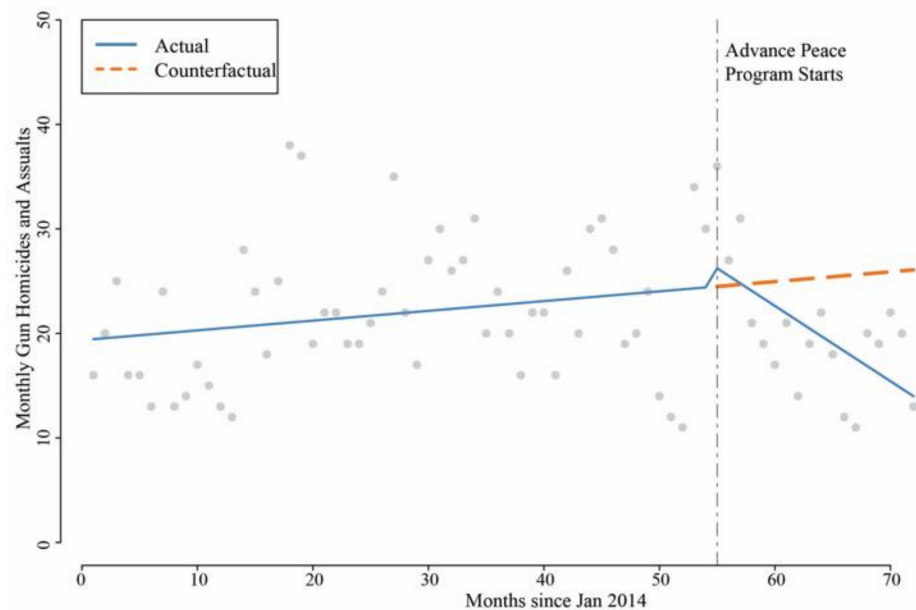
Table 3. Interrupted time series analysis: slope change after intervention by geographic area January 2014–December 2019.

Area	Gun Homicides: B	Gun Homicides: SE	Gun Assaults: B	Gun Assaults: SE	Gun Homicides + Assaults: B	Gun Homicides + Assaults: SE
City-Wide	−0.036 CI(−0.19,0.12)	0.07931	−0.778 * CI(−1.32,−0.23)	0.2741	−0.814 * CI(−1.4,−0.23)	0.2915
AP Zones only	−0.048 CI(−0.16,0.06)	0.05634	−0.32 CI(−0.73,0.09)	0.2062	−0.367 CI(−0.82,0.09)	0.2282

* $p < 0.01$.

We then plotted the results of the ITS models for all gun homicides and assaults for the entire city and just the AP zones (Figure 3). In both visualizations, the x-axis denotes the number of months after January 2014, and the y-axis is the total count of monthly gun homicides and assaults combined. July 2018 is noted by a dashed line to indicate the beginning of the Advance Peace intervention.

Interrupted Time Series Analysis: City of Sacramento, Gun Homicides & Assaults



Interrupted Time Series Analysis: Sacramento Advance Peace Intervention Zones

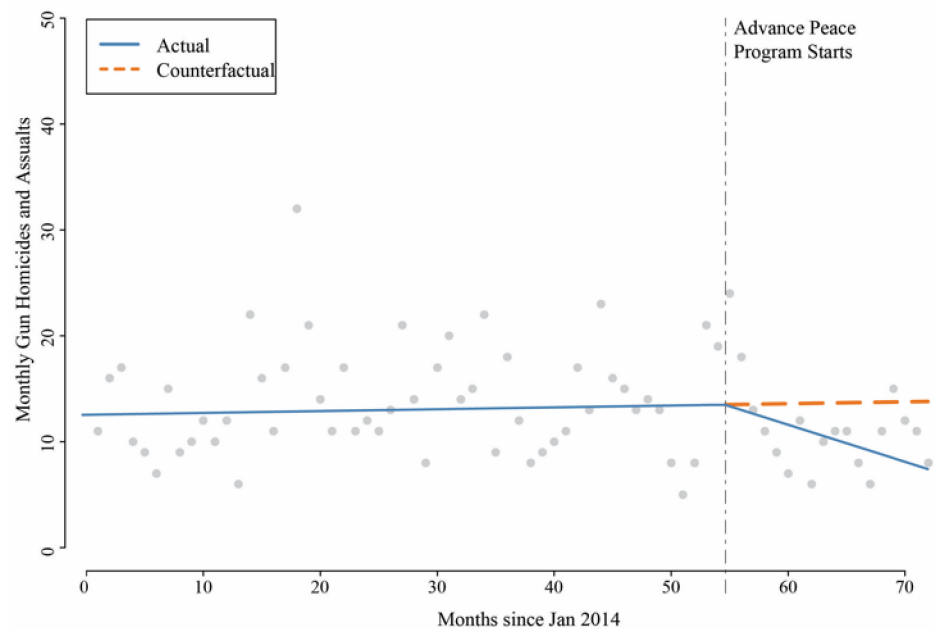


Figure 3. Visualization of Interrupted Time Series Analyses of gun homicides and assaults, Sacramento, before and after Advance Peace intervention (**top**: City-wide; **bottom**: Advance Peace Zones).

The city-wide ITS showed that since 2014, the trend of gun violence had been increasing. Following the AP intervention in July 2018, we observed a sustained decline in gun homicides and assaults. The model showed that absent the AP program, the trend of gun

violence would have continued to increase, resulting in an estimated excess of 93 gun violence incidences for the 18-month AP intervention period.

The ITS fitted only for the AP zones showed that prior to the AP intervention there was a more gradual increase in gun violence compared with the city-wide trend. After the AP intervention in July 2018, we observed a sustained decline in gun homicides and assaults. The model showed that absent the AP program, the trend of gun violence would have continued to increase, resulting in an estimated excess of 56 gun violence incidences for the 18-month AP intervention period, which accounts for more than half of the total incidence estimated city-wide.

3.3. Impacts of the Advance Peace Program on Participants

As mentioned above, the crux of the Advance Peace intervention is the intensive, 18-month Peacemaker Fellowship. The Fellowship begins after six months of street outreach to identify the people in the city that are most influential in perpetrating gun violence and are at the center of gun violence activity. Advance Peace enrolled 50 Fellows in the Peacemaker Fellowship from July 2018 through December 2019. At intake, the Fellows are interviewed by their assigned NCA to document their life history, some traumas they may have faced, and likely challenges they will encounter during the program period. We present a subset of those questions for the 50 Advance Peace Sacramento Fellows enrolled from 2018–2020 (Tables 4 and 5). From these data, we determined that the majority of fellows were African-American males with an average age of 24 years.

The participants entered the Advance Peace program with a series of traumatic life events, including homelessness, food insecurity, and school suspensions; 96% were previously incarcerated, 84% had a previous gun injury, and 80% reported that a parent is or was incarcerated. These findings suggest a high likelihood of violence-related trauma among the Advance Peace Fellows.

Table 4. Advance Peace Sacramento, fellow participant profiles at intake.

Fellow Characteristic	% Yes	<i>n</i>
African American	96%	48
Male	98%	49
Unemployed	82%	41
Finished High School	52%	26
Ever suspended from school	88%	44
Was/is in foster care system	38%	19
Is a parent	70%	35
Was/is/ever homeless	74%	37
Was/is/ever food Stamp recipient	74%	37
Prior gun arrest	66%	33
Prior incarceration	96%	48
Parent is/was incarcerated	80%	40
Previous gunshot injury	84%	42

Table 5. Advance Peace Sacramento, participants post-fellowship.

Fellow Characteristic	% Yes	<i>n</i>
Alive	98%	49
New gun injuries	6%	3
New gun arrest/charge	10%	5
Received assistance for food and/or housing	90%	45
Received Cognitive Behavior Therapy (CBT)	100%	50
Received Life Coaching	100%	50
Received mental health counseling	80%	40
Received anger management counseling	64%	32
Attended group life skills classes/ healing circles	98%	49
Received job readiness /paid internship/employment	38%	19
Attended out-of-town excursions or transformative travel	84%	42
Reported improved mental health/outlook on life	84%	42
Reported having a caring adult to talk to, such as an NCA, when faced with a difficult situation	98%	49
Reported peaceful resolution of a conflict that previously might have resulted in gun use	90%	45
Rated AP outreach worker one of most important adults in life	98%	49

At the conclusion of the Peacemaker Fellowship, the data and exit interviews suggested some indicators of healing were present. Tragically, one fellow was killed by a gunshot, three had a new gunshot injury, and five were arrested for a gun-related charge during the program. Almost all fellows had received basic life-supporting assistance in the form of food and housing, and all reported receiving CBT and Life Coaching; 84% reported improved mental health or life outlook, and 98% had a trusting adult to talk to about difficult life events and rated their AP outreach worker as one of the most important adults in their life. All but one fellow reported participating in group life skills classes and healing circles, where Advance Peace trained facilitators worked with groups of fellows to discuss the causes of their trauma, ways to address it, and other life-affirming skills like non-violent communication and conflict mediation.

Qualitative data highlighted other impacts the Advance Peace Program had on Fellows. For example, one NCA reflected on a call he received from a fellow a few hours after a life skills class:

He called me to say that he saw another fellow out of bounds [in a rival's neighborhood]. His brother had just been shot and they suspected it was someone from that rival 'hood. His homies were like, 'let's go'. My fellow's crew rolled up on him, but they'd just had a life-skills class together. Instead of shootin' him, my fellow told them he was cool, sayin' 'that's my sucka partner' and he got outta there smooth.

Eighty-four percent of fellows participated in out-of-town excursions, or what Advance Peace calls transformative travel. Only fellows that were attending life skills classes and making progress on LifeMAP goals after six-months in the Fellowship were eligible for these travel opportunities. The fellows also needed to agree to travel with a rival, who also happened to be a program participant. One NCA described the 'transformational' aspect of the travel experience for their fellows:

At first he was like, 'no way, I ain't traveling with that fool'. So we told him 'Ok, you can't go'. But he ain't never traveled like that, stayin' in a hotel, eating a steak dinner at a restaurant, you feel me? So he eventually reluctantly agreed. The first few hours in that van, man they didn't even look at each other. Then they found out they was listening to the same music and liked the same sports teams. After we checked into the hotel, these former rivals who wanted to kill each other a few weeks earlier, were in the pool acting-out like six-year olds. They could be the little kid they were never allowed to be. The guard and tuff exterior came down. By the end of the trip, they were smilin' and talkin' no problem.

The NCA activity logs entered into the App revealed the number and duration of fellow engagements, conflicts mediated, service referrals, and other supports and activities delivered to their assigned fellows. From these logs, we calculated the following for the Advance Peace Sacramento 2018–2019 program period:

- 10,858 engagements on the streets of Sacramento (these were not unique people, but the number of times an outreach worker engaged with a person);
- 16,146 h of community engagement;
- 857 service referrals for participants in the program (these could be for housing, food, drug or anger management counseling, etc.), and;
- 1657 h spent on accompanying participants to social services.

Based on the above data and the 50 enrolled fellows, each fellow received an average of 217 engagements (10,858/50), or 12 engagements per month for 18 months (217/18), and an average of 322 h of engagements, or about 18 h per month over the 18 months. Each fellow received an average of 17 service referrals and 33 h of one-on-one accompaniment to the services during the program period. Describing how his LifeMAP impacted his life, one Sacramento fellow reflected:

Now I got a plan for writing and releasing music and getting a driver's license. As soon as I'm up in the morning, my whole day is set up. It's basically put me on a program where I don't have time to be in the streets. They want to see us living and being people, not being a statistic.

The following quotes from NCAs highlight the types of engagements they have with their fellows and how they aim to provide immediate supports and longer-term healing services:

NCA#1: I finally got fellow into my car. His dad got out of prison (who I'll be also working with) and the three of us went to lunch. We talked about some new goals and things he wanted to work on. He opened-up to his dad about the pain of missing his childhood and how everyone expected him to be just like his dad and wind up in prison. After we left, I took him to the DMV and paid for his ID. It is his first time having one. After a long day, I let him cut my hair with the new set of clippers we bought him. I'm just makin sure he doesn't act out like everybody expect him to and be like his dad and wind up in prison.

NCA#2: Picked up fellow when we got word he was going through some things and was walking the streets by his self. To keep him from self-destructing and knowing he's an active gang member, I knew he was vulnerable and could possibly be killed walking around in rival territory. We picked him up and took him to eat and vent. We got him to talk about his album and got his anxiety down. He said he was fighting with his people where he stay. We got his belongings and made some calls to find him another safer place to stay. It's temporary for now, so we need to find him housing.

NCA #3: Fellow's mother texted me notifying me that she had confiscated a gun from him. I drove to his house where we all met and discussed the situation for over 2 h. Fellow assured me that he had no intention of inserting himself into the gang activity going on in the city. I counseled him on the consequences of getting caught with a firearm and how the false sense of power can impair one's ability to make rational decisions. I described my

story and how I never left home without it, but I wound up inside for over twenty years. He seemed to be receptive and able to grasp the counseling I had given him. I will speak with him every day this week.

3.4. Street Violence Interruptions

As noted above, another key aspect of the Advance Peace program is using street outreach to interrupt gun violence, which were also recorded in the App by each NCA in their weekly activity logs. From these activity logs, we determined that during the AP Sacramento intervention, the NCAs accomplished the following:

- Mediated 202 community conflicts (these are general street-level conflicts, domestic disputes, etc., that could have escalated into gun violence);
- Responded to 66 shootings (this is when an NCA arrives at the scene of a shooting to de-escalate any potential immediate retaliation), and;
- Interrupted 58 imminent gun violence conflicts (these are conflicts where guns are present and an NCA gets in the middle of a dispute and prevents a possible homicide or shooting with an injury).

Interrupting conflicts and stopping a potential gun homicide saves lives and money. For example, we were informed by the Advance Peace Sacramento organization that the two-year intervention cost was approximately \$1.4 million. According to the National Institute of Criminal Justice Reform, the cost of one shooting with an injury in Sacramento was estimated to be \$888,000 and one homicide shooting cost about \$2.4 million (<https://costofviolence.org/reports/sacramento-ca/>) (accessed on 15 December 2021). We found that Advance Peace prevented between 58 (gun conflicts interrupted) and 93 (modeled) shootings, resulting in anywhere from \$51–223 million in savings. In other words, for every dollar spent on Advance Peace, Sacramento received approximately \$36–159 dollars in return. While we can never put an economic cost on human life, the Advance Peace program, with all that it delivers, seems like a rational investment for any city.

The NCAs described how they interrupted gun violence and helped keep the peace in Sacramento:

Scenario A (direct quote from NCA):

The team had heard about a shooting in the circle area. As we responded we found that a young black man had been killed. After looking into the situation, I found out that the young man was a valley hi piru that associated with zilla. In today's gang bang culture there was a huge threat for retaliation from multiple sides. The team was very aggressive on speaking to all sides and a situation that seemed like a guaranteed retaliation never happened.

Scenario B (direct quote from NCA):

There was conflict between two Norteño sets and a factor (a well-known shotcaller) was shot. The victim survived and let the streets know that he was coming back for blood. The accused side denied that they were involved but felt like since they were being accused, they would take the offense. I spoke with both sides intensely and although both sides still had dislike for the other, they agreed not to retaliate with gun play.

Scenario C (direct quote from NCA):

A well-known local rapper was captured in the video of an all-out brawl. The video had the city braced for what they believed was an inevitable gang war, especially since the local rapper just happened to be the younger brother of one Sacramento's most notorious rappers. While the rest of the city rushed out to purchase flashlights, batteries, bottled water and canned goods, Advance Peace NCAs immediately met with influential street actors and real O.G.'s. close to the situation. One of our fellows believed we could calm the situation if we could get the main characters involved to agree to one-on-one fades (fist fight). Several meetings took place arranged and facilitated by AP NCAs with the

main players involved. A fellow also took a leading role to get everyone involved to agree to one-on-one fades. No further incidents took place.

4. Limitations

This study used mixed methods to describe the likely impacts Advance Peace had on participants and gun crime over a two year period from 2018–2019 in Sacramento, California. While we attribute success in both mentoring fellows and reducing gun crime to Advance Peace, there may be alternative explanations. We did not measure if other possible changes in Sacramento, such as poverty rates, neighborhood gentrification, or firearm availability, may be contributing to the reductions in gun violence we found. However, even if these factors were present, they did not suddenly change at the outset of the AP intervention in July 2018 when we observed the start of a sustained decline in gun violence. We also know of no other program in Sacramento, from the Police Department or grassroots anti-firearm violence programs, that began and operated at the same time as AP. Our qualitative data suggested that AP was the only program during this time period reaching the most influential people at the center of gun violence in Sacramento and providing this same population with intensive case management and life-affirming opportunities. Another limit to our study might be that our data from fellows and NCAs were self-reported. There may be some bias in these self-reports but, again, we have no reason to believe the data inaccurately portray the work and experiences of NCAs. We also heard from Fellows that no other programs or adults were as consistently and intensively pursuing them or engaging them with services and opportunities.

5. Discussion

The data presented here suggested that the Advance Peace intervention can reduce gun violence and help deliver healing supports to individuals largely ignored and criminalized by most urban institutions. The gun violence reductions were significant across the entire city and within the targeted Advance Peace zones. The results were unlikely due to what criminologists call ‘incapacitation’, or the direct removal of violent offenders from society during the intervention, since 44 of the 50 Advance Peace participants were still alive and/or not incarcerated. AP has demonstrated a model of urban public safety that does not rely exclusively on the force and punishment used by police.

The Advance Peace results seem robust and consistent with those achieved by other urban gun violence programs that use street outreach workers as mentors and violence interrupters. One of the mostly widely cited programs, called Cure Violence (originally Chicago CeaseFire), also used time series analyses to explore neighborhood scale changes in gun violence from 1997 through 2007 [35]. In four of the seven Chicago CeaseFire intervention sites, there was a 16–28% reduction in shootings, but the study did not distinguish between firearm homicides and injury shootings. This program found that shifts in gun use tended to occur when participants received job readiness and employment opportunities, focused on obtaining a high school degree, and while receiving regular anger and substance abuse counseling. The program evaluation highlighted that most street-outreach and mentorship time was spent on “mundane yet practical issues” of getting participants’ official forms of identification, like a driver’s license, social security card, and birth certificate, not discussing how to leave gang life [35].

Another evaluation of the Cure Violence community-based gun violence program in the Crown Heights neighborhood of Brooklyn, New York, found only a six percent reduction in gun crime after program implementation in the target area compared to non-intervention ‘control neighborhoods’ [36]. This program, called Save Our Streets (SOS), evaluated the period from 2010–2012. The SOS Brooklyn program used street outreach workers to mentor high-risk clients and interrupt street conflicts to prevent gun use. The SOS street outreach workers were reported to spend an average of 20 one-on-one hours with each participant over the course of the program. As noted above, Advance Peace spent about 322 h with each client over the same two-year time period, albeit with fifty

participants while SOS enrolled 96. However, the SOS program did not report on changes to or any healing experienced by clients.

Our findings are more consistent with those from the Ceasefire program in Oakland, California, between 2013 and 2017 [37]. This program used an intervention called focused deterrence, which aimed to change crime behaviors through a combination of messages to potential offenders of likely increased punitive sanctions for committing a crime along with some outreach worker mentorship and street-violence interruption. The California Partnership for Safe Communities along with the Oakland Police Department implemented the program. A key difference is that Advance Peace did not work with the Sacramento police in implementing their program. The Oakland program resulted in a 33% reduction in gang-related shootings for those directly treated by the intervention, compared with the pre-intervention years of 2010–2012 [37]. This Ceasefire program also found statistically significant reductions in shootings in treated block group areas relative to untreated areas. The Oakland evaluation did not report on any impacts to program participants beyond gang-affiliated shootings. A similar evaluation in Chicago of a group violence reduction strategy also reported significant reductions in gang member shooting behaviors (23% reduction) in the year after implementation compared with untreated matched comparison gangs, but again did not report on whether and how the program influenced the lives of program participants [38].

6. Conclusions

What sets apart our findings from the Advance Peace Sacramento program are the statistically significant reductions in gun crime along with qualitative and quantitative data on how the program supported healing and life opportunities for program participants. We find that too often the ‘science’ of urban gun violence reduction focuses exclusively on measuring if there was an independent effect from the intervention on firearm activities, but fails to document how this work is done (i.e., the outreach worker activities) or what happens to the lives of participants. We found that Advance Peace invested heavily in their clients in terms of time, engagements, and services, more than we could find in any similarly evaluated urban gun violence reduction program. Advance Peace oriented their engagements with fellows toward what they call ‘healing-centered supports’, including frequent one-on-one mentorship by their adult outreach worker, multiple social service referrals, participating in group life skills and healing circles, and opportunities for excursions and transformative travel. We can only conclude that the frequency, intensity, and diversity of engagements by Advance Peace NCAs with their fellows were the major contributors to the reductions in gun violence we observed in Sacramento.

As cities seek to reduce gun violence and address the legacy of racism, Advance Peace offers a model for urban public safety that combines inter-personal healing and community crime reduction. The program is now operating in Richmond, Stockton, and Fresno, California as well as Ft. Worth, Texas, and in 2022 will launch in Vallejo and Woodland, CA, Rochester, NY, and Lansing, MI, USA.

Advance Peace alone will not transform the poverty, racism, dangerously built environments, and dehumanizing public institutions that contribute to urban trauma adversely impacting BIPOC communities. However, AP may offer one important strategy for how to involve community members that have too often been ignored in policy decisions in generating healing-focused, effective solutions. The Peacemaker Fellowship of Advance Peace sees the humanity in those hard-to-reach people at the center of gun hostilities in a city and offers them what few other social service institutions are willing or seem able to provide. As one NCA told us: “We are breaking the cycle of a response to trauma that says, ‘I don’t give a [damn]’ to a healing approach that treats our most vulnerable to get to a place where they say, ‘Maybe I do?’” Our findings suggested the multiple ways Advance Peace is achieving public safety and healing in urban communities.

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