Assessing Impacts of Focused Deterrence on Gang-Involved Gun Violence: A Literature Review of Methodologies in Focused Deterrence Research

Sandy Wu

Watts College of Public Service & Community Solutions, Arizona State University

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Dr. Ronald Glensor

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Introduction

The goal of focused deterrence is to discourage offending behaviors by making high-risk individuals aware of severe punitive consequences, while offering incentives for desistance. Also known as "pulling-levers policing," evidence suggests that this strategy is especially effective for gang-involved gun violence (Braga et al., 2018). Interventions typically use most or all of the following: (1) identification of high-risk offenders; (2) offender notification meetings; (3) provision of social service resources to facilitate non-violent lifestyles; (4) community support; and (5) increased arrests, prosecutions, and sentencing lengths for those who continue to engage in violence (RAND, n.d.).

Although evidence continues to support this strategy, there are still major limitations regarding methodologies in focused deterrence research (Braga, 2012; Braga et al., 2018). Because reliable impact estimates are vital for future programs and policies, this literature review will primarily assess how focused deterrence research has been conducted and how it might be improved. As Braga (2012) remarked, focused deterrence is still a developing area of research, and refinements must continually be made.

To understand how current research is conducted, the first section of this paper will review four evaluations of focused deterrence interventions that targeted gang-involved gun violence. The second section will place these studies in context to each other, within the broader focused deterrence literature, and analyze their strengths and weaknesses. Research gaps and recommendations will also be discussed.

Existing Evaluation Research

Chicago's Project Safe Neighborhoods (PSN)

Papachristos et al.'s (2007) evaluation of Chicago's Project Safe Neighborhoods (PSN) measured the impact of focused deterrence on neighborhood-level gun violence. This study used a quasi-experimental design and measured effect sizes across the intervention's four components: offender notification forums, increased federal prosecutions, longer federal prison sentences, and increased gun seizures.

Treatment neighborhoods were selected by political actors because they had the highest rates of gun violence. The authors used non-random selection to choose control neighborhoods that were similar to treatment neighborhoods in crime rates and demographics. However, precautions were taken to ensure they were geographically and socially distinct to prevent contamination between treatment and control groups (Papachristos et al., 2007).

Outcome measures included rates of homicide, gun homicide, and gang homicide. PSN's four components served as independent variables: (1) percentage of offenders that attended notification forums; (2) number of prosecutions; (3) number of gun seizures; and (4) length of prison sentences. Propensity score matching and growth curve models were used to analyze rates of homicide and aggravated assault over time.

Papachristos et al. (2007) found statistically significant negative relationships for forum attendance, prosecutions, and gun seizures. In other words, as the dosage of these PSN components increased, homicide and gun homicide rates decreased. The only independent variable that showed no effect was the length of prison sentences. Most notably, treatment neighborhoods experienced a 37% decrease in homicides, and offender notification forums had the largest, statistically significant association to this decrease.

Boston's Operation Ceasefire

Braga et al. (2014) assessed the impacts of a reinstituted version of Boston's Operation Ceasefire on gang-involved gun violence. According to the authors, a previous evaluation did not provide strong evidence that treated gangs had changed their offending behaviors after program implementation. Therefore, this paper strove to produce more robust findings using a stronger quasi-experimental design. Propensity scores matched treatment and comparison gangs, and growth curve regression models estimated effect sizes for gun violence in treatment and control gangs.

Braga et al. (2014) found a statistically significant 31% reduction in total shootings for treated gangs, compared to untreated gangs. An exploratory analysis of 20 quarterly observations for 16 matched treatment gangs provided additional support for program effectiveness by demonstrating that the largest and statistically significant decreases in shootings for 13 of the 16 treatment gangs occurred in the same quarter as program implementation or in the quarter immediately after.

Kansas City No Violence Alliance (KC NoVA)

Fox and Novak (2018) evaluated the impacts of Kansas City's focused deterrence intervention on homicides and gun violence. This study used police records to collect data on homicides and gun-involved aggravated assaults from 2009 through 2016. The intervention spanned January 2014 through December 2016.

Program impacts were estimated using two approaches: a quasi-experimental design and a synthetic control method. In the first analysis, negative binomial regression models were used to compare homicide rates before and after program implementation. In the second analysis, the authors predicted homicide rates for a synthetic control – that is, a Kansas City that had never been exposed to the intervention. To do this, Fox & Novak (2018) used the FBI's Uniform Crime

Report to collect yearly homicide data from 70 comparable cities with populations greater than 250,000 from 1985 through 2016. The synthetic control's predicted yearly rates of homicides and gun-involved aggravated assaults were then compared to the real Kansas City's reported rates for the intervention period.

Findings showed that the real Kansas City experienced 21% fewer homicides in 2014, 1% fewer homicides in 2015, and 22% more homicides than the synthetic control in 2016. Results from the synthetic control method confirmed results from the negative binomial regression models. Overall, KC NoVA produced a significant reduction in gun violence for the first year of implementation, but deterrent effects deteriorated in the second and third years. During the third year, homicide rates returned to pre-intervention levels, and gun-involved aggravated assaults surpassed pre-intervention levels (Fox & Novak, 2018).

Oakland Ceasefire

Using a quasi-experimental design, Braga et al. (2019) measured direct and spillover effects of focused deterrence in Oakland using two different units of analysis: gangs and census block groups. Their methodological goal was to assess whether group-based units (e.g., gangs) could better detect changes in offender behaviors than place-based units (e.g., cities, neighborhoods).

Rates of fatal and nonfatal shootings were collected from Oakland Police records for a study period of January 2010 through December 2017. The intervention was implemented in 2013. Growth curve regression models were used to estimate program impacts for four outcome measures: total shootings, gang-involved shootings, suspected gang-involved shootings, and gang shooting victimizations. To assess direct and spillover deterrent effects, outcomes in treated gangs and blocks were compared to untreated gangs and blocks, respectively.

Statistically significant relationships were found between the intervention and all outcome measures. Compared to untreated census block groups, treated blocks experienced a 20% decrease in total shootings. Compared to untreated gangs, treated gangs experienced a 26% decrease in gang-involved shootings, a 30% decrease in suspected gang-involved shootings, and a 23% decrease in gang shooting victimizations.

Most notably, there was a nonsignificant decrease in shootings in control census block groups surrounding treated areas, compared to census block groups surrounding untreated areas (Braga et al., 2019). However, the authors noted a statistically significant decrease in shootings for untreated gangs that had social connections with treated gangs. This finding is noteworthy because it indicates an observed spillover deterrent effect that was only detected through group-based analysis, as opposed to place-based analysis.

Strengths, Weaknesses, Research Gaps, and Recommendations

Strengths: Comparison Group Criteria, Police Data, & Group-Based Units of Analysis

Most studies in focused deterrence literature use quasi-experimental designs to estimate program impacts because political and logistical constraints make it difficult to carry out randomized experiments (Braga, 2012; Braga et al., 2018). One example is the Chicago PSN study. Papachristos et al. (2007) explained that random assignment of treatment groups across Chicago or within selected treatment districts was not possible due to limited resources and political demands, which forced the PSN taskforce to address the most violent districts.

Common risks of quasi-experimental studies include selection bias and valid inferences of causality (Rossi et al., 2019; Shadish et al., 2002; Bottoms & Von Hirsch, 2010; Schweizer et al., 2016). With non-random selection, precautionary measures must be taken to prevent contamination between treatment and control groups, which would otherwise distort impact

estimates. As studies have shown, impact estimates can be distorted due to statistically significant spillover effects in untreated groups when social connections exist between treatment and control groups (Tita et al., 2014; Braga et al., 2013; Braga et al., 2019).

The four evaluations I reviewed accomplished this by considering geographic location and pre-existing social connections when selecting comparison groups. However, it should be noted that checking for these connections may not be enough. According to Braga et al. (2018), only two other studies have actively controlled for spillover, and similar designs are needed for more robust findings.

Another strength, which may initially seem like a weakness, is the use of gang-related police data. In evaluation research, there are limitations to police records as data sources due to underreported crimes and police discretion when recording reported incidents (Rossi et al., 2019). However, other studies have found that police data regarding gang activity are valid and reliable sources of gang violence, especially if such data comes from police departments with specialized gang units (Braga et al., 2019; Decker & Pyrooz, 2010; Katz et al., 2000).

Lastly, Braga et al.'s (2019) study on Oakland Ceasefire's spillover effects broke new ground in focused deterrence literature. Years before, Braga et al. (2014) struggled to demonstrate that gangs changed their behaviors following implementation of Boston's Operation Ceasefire. They had attempted to do this by strengthening a prior study's quasi-experimental design using propensity score matching and growth curve models. However, it wasn't until Braga et al. (2019) transitioned from place-based to group-based units of analysis when behavior changes were clearly detected across comparison areas. Since several studies still use place-based units, this insight may improve future research designs and program estimates.

Weaknesses: Research Methodology & Isolation of Program Impacts

One of the greatest limitations of focused deterrence research may be weak methodological rigor, which can lead to overly optimistic findings. In a systematic review of the literature, evaluation studies with the weakest quasi-experimental designs produced the strongest program effect sizes (Braga & Weisburd, 2012; Braga, 2012). Although research designs can be improved through careful selection of comparison groups, there are still other issues to consider, such as the presence of multiple causal factors.

For instance, Papachristos et al. (2007) noted that two other crime interventions overlapped with the Chicago PSN program. This made it difficult to attribute observed effects in decreased gun violence solely to PSN. The authors warned future researchers to carefully analyze program effects in similar environments, where other crime control mechanisms may be at work.

Considering the risks associated with quasi-experimental designs, Braga (2012) stressed the need for more randomized experimental designs. The author acknowledged the political and logistical hardships that often prevent the experimental use of valid treatment and comparison sites. Nonetheless, he insisted that there was enough positive evidence to justify costly experimental studies that examine the strengths and weaknesses of focused deterrence in different contexts.

Although Braga's (2012) advocacy for experimental designs is important, the practical challenge of conducting such studies remains. Perhaps an alternative solution is to use big data modeling, like the synthetic control method, to validate findings produced from quasi-experimental analyses – as the KC NoVA researchers had done.

As you may recall, Fox and Novak (2018) constructed a rigorous design that involved two rounds of analysis. The first round used the traditional approach of propensity score

matching and linear regression models – an approach we have seen in the evaluations for Chicago's PSN, Boston's Operation Ceasefire, and Oakland Ceasefire. However, Fox and Novak (2018) took it a step further by constructing a simulated counterfactual. Results from the synthetic control method were used to compare and confirm results from the initial quasi-experimental analysis. Therefore, the integration of big data analytics to validate initial findings may be a cost-effective way to strengthen the rigor of focused deterrence studies.

Research Gaps: Why Behaviors Change, Recidivism, & Deteriorating Deterrent Effects

Since focused deterrence is a multi-faceted strategy, there is a need for research that clarifies which program components are most effective and why these mechanisms work. Braga (2012) explained that most studies have estimated program impact without breaking down complex interventions into their parts. The author cited the PSN study by Papachristos et al. (2007) as the only rigorous evaluation to have measured effect sizes for each focused deterrence strategy employed during the program. Indeed, the PSN study was significant for demonstrating the pivotal role played by offender notification forums. However, Papachristos et al. (2007) noted they did not evaluate which aspects of the forums led to changes in offender perceptions.

Identifying such details would help us understand why certain mechanisms cause changes in offending behaviors. Papachristos et al. (2007) speculated that changes could have resulted from any number of factors, such as the penal message from law enforcement, support from community groups, testimonies from ex-offenders, or the organization of forums. To answer these questions, offender-level, qualitative data extracted from surveys or interviews may be the best way to gauge how focused deterrence strategies are perceived and experienced by offenders themselves. In general, this type of qualitative analysis is lacking in focused deterrence literature

(Kochel et al., 2022). Clarifying which strategies work and why they work are vital for improving future programs and helping offenders desist from criminal activities.

Another research gap concerns recidivism. As Nagin (2013) argued, severe punishments (e.g., lengthy prison sentences) are ineffective deterrents and may worsen crime problems. The PSN study supports this with their finding that sentencing lengths had no significant effect on offending behaviors (Papachristos et al., 2007). According to Nagin (2013), incarceration exposes offenders to criminal norms, which often increases their likelihood of re-offending after they are released.

Perhaps this can partially explain the deteriorating deterrent effects seen in Fox and Novak's (2018) evaluation of KC NoVA. Although the authors speculated that high gang turnover rates and the loss of the intervention's novelty may be responsible for this effect, perhaps another explanation is the criminogenic effect of imprisonment, as argued by Nagin (2013). In other words, it may be possible that offenders, who were incarcerated via KC NoVA, were later released from prison and displayed more violent behaviors than before. Future research would benefit from explicitly measuring the long-term effects of focused deterrence initiatives, especially as they relate to recidivism.

As further evidence of deteriorating deterrent effects, Grunwald and Papachristos (2017) conducted a follow-up study of Chicago's PSN ten years after program implementation. The authors showed that observed effects in crime reduction were only concentrated in the first few years of the intervention. Such follow-up studies are useful because they provide comprehensive pictures of focused deterrence effects over time. Studying how these programs degrade and what contributes to deterrence deterioration are research areas that should be further explored.

Lastly, a report by RAND (n.d.) cited community support as a key player in deterring re-offending behaviors when police are no longer present. However, the report stated that activities associated with community support are not well documented. If future research can find ways to assess the role of community support in the context of focused deterrence, then perhaps those insights can help us understand how deterioration of program effects can be prevented.

Conclusion

All in all, the literature has produced strong support in favor of focused deterrence and its moderate effect sizes for gang-involved gun violence. However, the methodological rigor of many studies in focused deterrence varies. Since the strongest impact estimates have been produced by weak research designs, it is worth exploring how methodologies on this topic can be improved (Braga, 2012; Braga & Weisburd, 2012). Possible avenues for future methodological refinement include experimental designs, big data analysis as supplements to traditional quasi-experimental analysis, group-based units of analysis, estimating effect sizes of each program component, and integration of qualitative, offender-level data.

Additionally, several research gaps exist. Future studies may benefit from understanding why certain mechanisms cause changes in offender perceptions and behaviors, any unintended program effects associated with lengthy prison sentences and recidivism, deteriorating deterrent trends, and the role of community support for long-term deterrent effects.

Addressing these concerns is important because the implementation of focused deterrence initiatives can have wide-ranging societal implications. Thus, researchers have a public responsibility to produce more robust findings on intended and unintended program effects. These efforts may help us better understand the impacts of focused deterrence and make communities safer long after interventions have ended.

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