Examining Officer Activities and their Influence on Resident Perceptions During a Hot

Spot Policing Project in Tucson, Arizona

by

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ABSTRACT

This thesis addresses two research questions: how are police officer activities in high crime areas influenced by training on procedural justice?, and how do differences in the activities among trained and untrained officers help explain changes in the perceptions of residents about police procedural justice and police legitimacy? Written activity logs used by police officers during a hot spots policing project in Tucson, AZ were transferred to a database and coded for the types of activities officers were taking part in. Surveys administered to residents before and after the project were used to create scales for procedural justice and police legitimacy. These data revealed that police officers trained in procedural justice emphasize different principles in their activities than untrained officers. Procedural justice trained officers did not speak to as many citizens as officers who did not receive additional training, nor did they engage with the community as much, but they did perform more foot and high-visibility patrols. The findings also reveal that resident perceptions are minimally affected by such training and their perceptions of procedural justice and police legitimacy are not significantly hurt. Based off these findings, recommendations for moving forward with procedural justice training include emphasizing how the department would like to see their officers behave and making clearer objectives part of the training. Future research should focus more on better understanding how resident perceptions can be influenced by officer activities.

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CHAPTER 1

INTRODUCTION

Hot spot policing is a strategy that has recently received an increase in attention and has become a commonplace strategy for police departments to implement and for researchers to study (Braga et al., 2019). The benefits of hot spots policing in terms of deterring crime are well-known and supported by numerous studies replicating its application in various forms, but side effects of this treatment may be cause for concern and yet have had less attention dedicated to them (Weisburd & Telep, 2014). Specifically, there is a lack of knowledge on the impacts hot spots policing may have on communities and how it may affect the perspectives of residents in those communities toward the police.

The purpose of this thesis is to collect and present the knowledge currently available about hot spots policing and provide additional findings to topics in this area of study that do not have as much research dedicated to them, such as the relation police activities in hot spots have to resident perceptions of police procedural justice and police legitimacy. To do so, this thesis uses data from one site of a multi-site randomized trial of procedural justice training in hot spots. In the trial, police officers were divided into two groups, each of which was randomly assigned to patrol 20 hot spots. They were instructed to patrol these hot spots as they regularly would. The difference between the groups was that one group received 40 hours of training in procedural justice while the other group received just a brief training on hot spots policing. The intervention was in place for nine months.

The current evidence base for hot spots policing is favorable, but there remain gaps in our knowledge (see Weisburd & Telep, 2014). There is reason to believe hot spots policing could benefit police departments in numerous ways, such as deterring crime and identifying geographical areas that require more attention. However, there are still issues with the application of this strategy, mainly the potential for residents perceiving the intensified attention as aggressive targeting that is potentially discriminatory (Rosenbaum, 2006).

Therefore, the goal of this thesis is to begin to close the gap in knowledge between what makes hot spots policing effective and what can be done to maintain or improve positive perceptions of the police among residents. By considering resident perceptions, police departments seeking to implement hot spots policing strategies may do so and ensure their officers are behaving in a manner that does not degrade the police legitimacy they have built in their communities.

To achieve this goal, this thesis seeks to answer two questions: How do the activities of police officers trained in procedural justice and working in hot spots compare to those of untrained police officers? How do differences in the activities among trained and untrained officers help explain changes in the perceptions of residents about police procedural justice and police legitimacy? The hypotheses of this thesis are: 1. that police officer activities will focus more on interacting with residents outside of the context of emergency calls when police officers are trained in procedural justice; and 2. that resident perceptions of police legitimacy will improve among residents of hot spots that received the procedural justice treatment.

A brief review of the literature on this topic will provide some background on police legitimacy, procedural justice, hot spots policing, officer activities, and resident perceptions. I then describe the methods and results, and discuss the findings and their implications.

CHAPTER 2

LITERATURE REVIEW

Procedural Justice

Tyler (2004) observed that procedural justice plays a critical role in establishing the legitimacy of police officers. He argued that how legitimate police officers are perceived to be is directly influenced by how citizens view the manner in which officers expressed their authority. Procedural justice in this thesis will reflect Tyler's definition and refer to the fair treatment of citizens by police officers. Ideal procedural justice would manifest as police officers serving as objective street arbiters, actively seeking to give citizens a voice and only making a decision once the accounts of all involved parties have been recorded.

Procedural justice is more easily understood and adhered to when broken down into more tangible elements. Tyler (2004) proposed the following four elements as key to understanding actionable procedural justice: first, participation of all involved parties is key to establishing fairness and avoid being seen as showing preference to one party over another. Surprisingly, Tyler finds that the outcome of an encounter with an officer does not affect whether a civilian feels they participated, as long as they felt their side of the story was taken into account.

Second, neutrality is important to help maintain the perception that police officers are being fair to all parties. To establish neutrality, Tyler suggests officer be transparent about their decision-making process, making sure to demonstrate to involved parties that the decision being made is not based on the officer's personal beliefs.

Third, officers must keep the dignity of involved parties intact to maintain their cooperation. Tyler observes here that police officers may likely be the closest interaction some civilians have with the law and it is important for them to feel their issues are important.

Fourth, and again emphasizing neutrality, it is important for civilians to know the intent of police officers in their decisions and to trust their motives. Again, being transparent about their intentions, such as caring for the well-being of involved individuals, helps police officers establish themselves as objective and benign mediators.

A key end goal of police legitimacy and procedural justice is compliance, which according to McCluskey (2003), is the willingness of a civilian to obey law enforcement requests. He reasons that if civilians are treated fairly, or in a procedurally just manner, they will perceive the police to be more legitimate and be more likely to comply. While compliance has been the focus of a large body of research related to procedural justice (Nagin & Telep, 2020), compliance will not be delved into any deeper within this thesis, since it is not the focus of subsequent analyses.

Although procedural justice may lead down a slow and steady path to developing police legitimacy, unfair treatment of civilians can destroy years of trust in a matter of moments (Skogan, 2006) and hurt a department's police legitimacy in the eyes of civilians. However, Maguire, Lowrey and Johnson (2017) find that although the effect of procedurally just interactions are not as strong as those of procedurally unjust ones, the difference is not significant enough to claim that procedural injustice is the deciding factor in resident perceptions. Despite these findings, it may be beneficial to assume that the mistake of one officer could cost the entire department years of effort. Worden and

McLean (2017) observe this phenomenon and suggest that although procedural justice

can improve cooperation between police officers and citizens, procedural injustice will

have a harmful and potentially longer lasting effect on a citizen's likelihood to comply in

future encounters. Special care must be taken then to guide police officers through the

elements of procedural justice, such as in the study analyzed in this thesis, which used

training to encourage officers to utilize procedural justice more often.

Police Legitimacy

The nature of procedural justice and injustice is important to understand since

they feed directly into police legitimacy. Studies have found that the ability of a police

officer to secure the compliance of citizens is a direct indicator of whether the police

have police legitimacy as authority figures (Fuller, 1971; Easton, 1975). Fuller (1971)

argues that a law-abiding citizen will have faith in the government to obey its own laws,

but if a branch of the government consistently breaches its own rules, it will undermine

the foundations of the institutions setting and enforcing the law. Easton (1975) attributes

the undermining of institutions to be closer to a citizen's own recognition of common

morals between themselves and the government to be betrayed. From these analyses,

police legitimacy can be understood to be founded upon the faith that authority figures

will establish laws that uphold commonly held principles and will adhere to them itself.

For a more contemporary definition of police legitimacy, however, this thesis

turns to Tyler and Huo (2002: 102), who define police legitimacy as "a quality possessed

by an authority, a law, or an institution that leads others to feel obligated to obey its

decisions and directives voluntarily." The "quality possessed by an authority" would be

the only component of this definition left to explain clearly . To do so, it may be helpful

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to consider the following: if police legitimacy could be simplified as a citizen's willingness to comply, this would not explain citizens who comply begrudgingly. So, by looking at what does and does not seem to affect citizens' perceptions of legitimacy, one might arrive at a clue into what qualities legitimate authority figures hold and illegitimate figures lack.

What has been found to positively affect perceptions of police legitimacy is the dignity and trust that police officers show in their encounters (Solomon, 2019). Solomon clarifies that it is not necessary for police officers to be Officer Friendly at all times, but that simply remaining calm even in the face of agitated citizens was enough to build police legitimacy. Contrary to popular belief, Tyler (2004) does not identify crime fighting effectiveness to be a strong indicator of police legitimacy. More often, Tyler identifies, it is the manner in which law enforcement executes its authority that citizens are more concerned about. Tyler cites a stronger link between fairness and police legitimacy than between effectiveness or outcome and police legitimacy. Weisburd (2016) found similar findings with hot spots policing tactics, which citizens in the studied communities indicated had little to no effect on their attitudes towards police legitimacy. But this is not to say that all implementations of hot spots policing are ineffective at building or maintaining trust among the community. Weisburd points to a project which focuses on training police to prevent crime while maintaining fair treatment of the communities being policed. This program will be discussed more in-depth in sections to come.

Hot Spot Policing

      Hot spots policing is a versatile model of policing with a variety of definitions,

but all revolve around some degree of increased police resources focused on a small area.

Hot spots policing can be implemented as simply, as a regular patrol with increased time

spent in hot spots, as seen in Sherman and Weisburd's 1995 study, where they define hot

spots as "very small clusters of high-crime addresses" (p. 626). The definition used in this

thesis is similar to Sherman and Weisburd's. In this study, a small cluster will be a single

street block including the intersections at either end. Although hot spots policing has no

agreed upon definition, it can and has been broken down into its vital components. All

implemented models of hot spots policing share at least the following two characteristics:

the focus of resources in a specific, small geographic area, and these specific areas have a

high concentration of crime (Weisburd and Telep, 2014).

      By identifying similarities between different applications of hot spots policing, it

becomes easier to identify comparable instances of it. However, beyond the similarities

listed above, there is little else that restricts how hot spots policing may be implemented.

Simply put, there is no decidedly correct way to implement hot spots policing, and this is

where replicability concerns may arise. However, since its development, hot spots

policing has been studied in a variety of implementations and contexts and there is robust

support for its ability to deter crime. In a 2019 meta-analysis, Braga, Turchan,

Papachristos, and Hureau analyzed the results of 78 tests of hot spots policing

interventions, which all adhered to the two criteria of focused police resources and small

high-crime clusters of addresses. They found a favorable effect of hot spots policing on

the reduction of crime in high crime areas, as well as a diffusion of these positive effects

to neighboring areas. Despite the promising effects of hot spots policing on reducing crime, the current study recognizes that assessing the impacts of hot spots policing is not complete unless residents are aware of and content with the effects being produced.

Resident Perceptions in Hot Spots Policing Studies

With all its focus on crime, the research on hot spots policing's effect on resident perceptions offers no consistent answers. Early bodies of research found that residents enjoyed the increased presence of police officers in their neighborhoods (Chermak et al., 2001), and it was not found that residents would develop negative sentiments towards police officers, nor did they believe police officers to be more likely to harass them. These studies also note that general deterrence strategies may be better suited for improving resident perceptions, while specific deterrence strategies have proven to help reduce crime rates but may be damaging to resident perceptions.

Later studies found that aggressive hot spots policing tactics may be harmful to perceptions of police by making hot spots residents feel more like targets (Rosenbaum, 2006). By definition, hot spots policing is an intensive focus of enforcement and related police activities in smaller areas where residents are more likely to experience the effects of policing strategies, which may feel to them like police abuse. Rosenbaum notes that the data behind police-initiated contacts—often stop-and-frisks—from New York demonstrate a disproportionate percentage of those being searched to be innocent low-income minorities. In this instance, focused police resources served only to offend vulnerable populations and worsened relationships between police and their communities.

These types of observations are supported empirically, and cautionary studies of the application of hot spots policing often warn against becoming too aggressive.

Weisburd, Telep, and Lawton (2014) analyzed the increase of stop and frisk in a time of decrease for police numbers in New York's police department. While they found that stop and frisk activity was concentrated in hot spots, they emphasize that programs like Operation Impact implemented in New York might do more harm than good in the long run, since aggressive enforcement of stop and frisk often targeted young minority populations and could be detrimental to police legitimacy.

The relationship between stop and frisks and police legitimacy is also observed in Tyler, Fagan, and Geller (2014) where they performed phone interviews with men between 18 and 26 years of age in New York City. Their findings suggested that perceptions of police legitimacy among young men were influenced by the fairness they witnessed in street stops such as stop and frisks, but also by the number of street stops they witness or experienced. They found that an increase in intrusions by police in the lives of young men was correlated with a decrease in perceptions of police legitimacy, but an even more potent of a predictor was fairness. No matter how many stop and frisks an individual experienced, if they perceived police to treat them with respect and dignity, they did not think less of police in terms of police legitimacy.

An even greater body of research finds no correlation between increased police presence in hot spots and resident perceptions of the police, or at least not a straightforward relationship as some may expect (Kochel & Weisburd, 2017; Ratcliffe et al., 2015; Weisburd et al., 2011). For example, Kochel and Weisburd (2017) find that residents in treated hot spots do develop resentment towards police officers, but these sentiments erode after treatment is removed. The findings of Weisburd, Hinkle, Famega, and Ready (2011), on the other hand, find that residents do not take notice of increased

police presence or shifts in police behavior, but they are more likely to take greater notice of disorder. Weisburd et al. reason that residents are not affected by hot spots policing unless directly involved; otherwise, they are tending to their private lives.

Braga and Bond (2009) conducted interviews with residents after an experiment analyzing the effectiveness of a SARA model (Scanning, Analysis, Response, Assessment) application to hot spots in Lowell, Massachusetts. Their findings identified an increase in interactions between police officers and residents and the residents' acknowledgment of a diminishment of disorder; however, residents claimed to not have noticed a change in police behavior or demeanor. This may suggest that despite increases in patrols and interactions, the problem-oriented policing strategies implemented were not obvious enough for residents to take notice at the street level. Braga and Bond (2009) share their belief that incorporating resident interviews into police-strategy application experiments would add another layer of useful information to this type of study. With this in mind, a closer look at the nature of police-resident interactions may help understand the reactions of residents.

Officer Activities in Hot Spots Policing Studies

In some instances of hot spots studies that look at police officer activities, a program for officers to adhere to is not clearly defined. There is not much research to point to where officers' activities are observed in the context of a hot spots policing strategy. For example, Sherman and Weisburd (1995) suggested simply increasing the time officers were present in hot spots but did not make any recommendations on what kinds of activities officers should partake in during their patrols. In other instances, an intervention may be well-developed and defined, but the execution may lack commitment

and distort the results. Police departments have established a reputation for being resistant to change. Famega and colleagues (2017) faced this issue in a study of broken windows policing in hot spots, where they focused their experiment on measuring how well police officers implemented the intervention policies, instead of simply evaluating their outputs. Most notable in this study is the resulting interviews with officers. These interviews suggest that supervisors were more concerned with meeting a quota and passed that concern onto their patrol officers. It also suggested the officers may fabricate records if they believe they are wasting their time. And perhaps most detrimental, officers admitted to returning to their old methods of policing instead of implementing the program when they engaged residents in investigative activities such as traffic stops (Famega et al., 2017). Although most studies analyzed here focus on interventions, not many focus on ensuring the proper implementation on behalf of the officers. This could explain the consistent lack of positive effect on resident perceptions, seeing as how officers may revert to old habits, and the lack of change perceptions could reflect residents' not perceiving any changes in officer behavior.

Recent Work on Resident Perceptions in Hot Spots Policing: Efforts to Build Trust

Aside from being a prescribed element of applied procedural justice, having a well-defined outline for officers to follow or refer to in interactions with citizens may be beneficial to the public eye. Most current research on procedural justice training has focused on the effects on police attitudes or outcomes such as use of force which are not as common. A small but growing evidence base suggests that procedural justice training and may be useful to improving resident perceptions of police (Nagin & Telep, 2020), which, if implemented in conjunction with hot spots policing, could expand or at least

shift the usefulness of hot spots policing beyond crime deterrence. However, procedural justice to improve resident perceptions of the police does not have to be a complex readjustment for police departments. Small steps taken by patrol officers to interact in a positive manner with residents may improve public relations as effectively as more complex applications. By having police officers make unannounced, scripted visits to resident homes that only lasted a few minutes, for example, Peyton et al. (2019) found substantial improvements to resident perceptions, with greater rates of improvement being found among minority communities. Their simple application also benefits from being inexpensive compared to community meetings and other organized events or collaborations, which also tend to reserve public interactions for a specialized branch of the department rather than common patrol officers.

Other studies that explored the relationship between community engagement and police strategies and behavior in hot spots have found different results, some less favorable but still pointing to a beneficial outcome. Kahn and colleagues (2019) found that although non-investigative police and public interactions increased the number of reported positive interactions with police in hot spots, it did not decrease the reports of negative interactions nor improve the perceptions of residents. It should be noted that the experiment in this study was only three months long, and Kahn and colleagues note this may not have been sufficient time for an effect to develop. However, Kahn and colleagues conclude that these findings disprove a commonly held belief that increased police-public interactions cause an increase in negative attitudes.

In some instances, the increase in negative attitudes from increased interactions is a product of the structure of the applications themselves. Weisburd et al. (2020) found

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that interventions such as "Assets Coming Together" (ACT) may increase the collective

fear of crime in a community and do little to improve perceptions of the police. This does

not indicate that ACT was not effective in accomplishing what it was applied to do, but

simply that increased police traffic is interpreted as increased crime by residents who are

unaware of the intervention in place. What all three of the aforementioned studies agree

on, however, is the acknowledgement that perhaps not enough time was allotted for the

increase in interactions to have an effect on resident perceptions.

Concluding Thoughts

The subject of hot spots policing is a complex one with numerous moving parts,

and although there has already been extensive research into many aspects of it, there is

still plenty of room for further study of this policing strategy. With the variety of forms

hot spots policing can take, it is important to establish expectations for the foundational

concepts to understand which may facilitate a successful implementation. Key concepts

for this thesis include procedural justice, police legitimacy, officer activities, and resident

perceptions. Procedural justice has its own set of principles for success, but not adhering

to these strictly may cause a greater negative effect. Establishing police legitimacy is

essential for any policing strategy but in hot spots policing, the increased interaction with

a narrower population of residents makes balancing the behaviors that lead to police

legitimacy more difficult. Officer activities will often be the focus of experiments and

controlling or guiding them in some manner will facilitate implementation of hot spots

policing. Officers though are only so familiar with the concepts they are trying to

implement and may deviate from them unwittingly. Thus, the impacts of programs may

be reduced if at the end of the intervention residents did not perceive a meaningful

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change in police activities or express a greater confidence in their presence. This final

observation is the reason for this study, to analyze the effect of police officer activities on

resident perceptions and in doing so perhaps assist future studies in creating meaningful

change from police officer interventions.

CHAPTER 3

DATA AND METHODS

Data

The data for this project come from a hot spots policing study carried out in Tucson, Arizona. It was performed as part of a multi-site experiment—funded by Arnold Ventures —of which one of the lead investigators was Dr. Cody Telep. The Tucson portion of the experiment began in July of 2017 and ended in March of 2018. The purpose of the study was to identify the effects of hot spots policing when there was an intentional emphasis on the procedurally just treatment of residents by police officers on resident perceptions of the fairness and police legitimacy of officers. Leading up to the experiment, data were collected on the amount and type of crime each segment was experiencing. In the experiment itself, eight police officers were placed in two groups of four and randomly assigned 20 hot spots (also called segments) to patrol full-time as they regularly would for nine months. The difference between the two groups was that one group was trained for 40 hours in procedural justice (procedural justice group) while the other group received only a brief introduction to the project and hot spots policing (standard condition group). All data are linked to a particular segment and since there are 40 segments, the total sample size is 40. Although a sample size of 40 may be relatively small compared to other studies, small sample sizes are common among studies in hot spots considering police departments do not have an abundance of geographical space from which to provide hot spots for researchers to experiment in (see Braga et al., 2019).

Police Officer Activities

The data for police officer activities is a complete record of the activities police officers reported performing as they went about their routines. Officers completed a daily report on a fillable PDF that I transferred to an Excel database. In these reports, they recorded basic information like the date and time, but also the segment they were in, what they did, how much time they spent there, how many citizens they spoke to, and if there were other officers present. There is a total of 5,213 observations in the documents combined. Each observation refers to an officer visit to a hot spot and includes the activities they engaged in while present. These data were transferred from Excel into a STATA dataset file.

The information in these reports included the segment IDs used to identify each hot spots, the treatment the hot spot was assigned to (procedural justice vs. standard condition), the number of crime incidents that occurred in the year before the intervention, the number of total visits officers made, and the activities that took place when officers visited. The segment ID and officer group variables are in a nominal form. The number of visits and number of crime incidents are continuous. Activities were initially recorded as written descriptions by police officers but were then coded into categories. The activities coded into categories are the data values that will be primarily used for this study.

Independent variable. In this study the independent variable is whether a hot spot segment was patrolled by police officers with procedural justice training. Presence of procedural justice training is coded in the data as "treatment." A segment with a treatment value of "0" was patrolled by the police officers who received no additional

training (standard condition group), while segments coded as "1" were patrolled by officers who received the 40-hour procedural justice training.

Dependent variable. The first part of this project will consider multiple activities that were undertaken by police officers in hot spots segments as the dependent variables. The values of these dependent variables will be the count of the activities done during the nine-month intervention. For example, activity "A" may have a value of "2," which would indicate that police officers engaged in activity "A" twice. Dependent variables will include citizens spoken to, engagement with citizens, and types of patrol.

I took the transcribed Excel sheets and coded each activity into one of 15 categories. A shortened list of these categories—only five of these will be used here— makes up the dependent values being used for the first part of this study.

Citizens spoken to. Citizens spoken denotes the total number of citizens police officers spoke to in a segment over the course of the intervention as reported on their activity logs.

Community engagement. Community engagement is composed of the counts of two baseline variables, community engagement and community events. Community engagement may range from simply interacting with individuals while on patrol to playing basketball with kids. Community events are distinguished from community engagement only in their official nature. Community events were typically organized by the community or other third party and police officers took part in some role or other. However, these were uncommon enough to merit being placed under the same broader category.

Foot patrol. This is the first of three patrol-oriented variables, all of which involve police officers actively patrolling an area or policing certain behaviors without serving a call for service. Foot patrols were performed when officers exited their patrol car and walked around a neighborhood or building.

Parked patrol. Police officers who engaged in parked patrols simply parked and watched both vehicle and pedestrian traffic for illegal or suspicious activity.

High-visibility patrol. This type of patrol refers to police officers who patrolled an area from somewhere where they were clearly visible, acting as a deterrent.

Control variables. Originally, to accurately estimate models, I considered it necessary to control for the amount of crime experienced by each segment leading up to the hot spots intervention, the number of visits each hot spot experienced, and the amount of time each visit lasted. The length of each visit was dropped as a variable, since length of visits and number of visits are highly correlated ($r = 0.912$). Another variable deemed useful to control for is the sector each hot spot was in or "division" since the activities officers engaged in may vary depending on the part of the city they are in.

This decision was made to use control variables, even though this is a randomized experiment, following the example of studies with a similar focus to this one (data (Taylor et al., 2011; Koper et al., 2013). Although the sample size here is small, it was thought that the possible drawbacks were outweighed by the benefits of reducing error variance and addressing any imbalances that may be present between the groups.

Thus, the following variables were controlled for since it was expected that they may have also have a significant impact on the observed outcomes:

Sector. Tucson is divided into four sectors for the officers assigned to this intervention, and this division was present before the intervention was initiated. Considering these divisions may have been a part of their original routines, sector will be controlled for to ensure that the concentration on any given sector does not skew the influence of training on outcomes. Divisions in Tucson are composed of South, West, East, and Midtown sectors. Midtown serves as the reference group.

Visits. Much in the same vein as sector, the number of visits to a segment may affect the effects of procedural justice and could impact outcomes, since more visits provide more opportunities to engage in activities.

Pre-intervention incidents. When first assigned to their groups, police officers were provided data gathered from the year before the project began on the amount of crime experienced by their assigned segments. Crime experienced was a measure of the number of total incidents on each segment. It is believed that having this information readily available would most likely have influenced the decisions of police officers when considering what segments they believed needed the most patrol. Police officers may have believed that patrolling these areas more often would allow them to be ready in case a call came in.

Resident Surveys

Prior to the hot spots intervention, a survey was administered in-person to a random sample of 7-10 residents on each segment in which residents 18 and older could participate if they had lived in the neighborhood at least 3 months. This survey was meant to gauge resident perceptions of police procedural justice and police legitimacy as well as their views about their community. Once the hot spots policing intervention was

completed, this survey was completed again with similar conditions. With both surveys

completed, the data were aggregated to the street segment level for each wave (pre- and

post-intervention) and shared with me for analyses to examine changes in perceptions of

procedural justice and police legitimacy among residents in each block. The survey

included a total of 328 residents in the pre-intervention wave and 301 residents in the

post-intervention wave. About half of the same residents were interviewed in both survey

waves.

Independent Variables. In this second phase of the results, the main independent

variable will remain treatment (procedural justice vs. standard condition). Other

independent variables will be citizens spoken to, engagement, and the three patrol

variables (foot, high-visibility, and parked). These variables will account for the type of

intervention, as well as the kinds of activities officers engaged in at each segment. These

variables are predicted to have the greatest impact on whether residents' views changed

regarding police procedural justice and legitimacy.

Dependent Variables. The dependent variables in this section will be the

differences between pre- and post-intervention measures of procedural justice and police

legitimacy, specifically the mean on each block. There will be three dependent variables:

procedural justice on the block, police legitimacy on the block, and police legitimacy

citywide. All three of these variables were measured in a similar fashion, though the

number of questions for each varies. Surveyed residents were asked a number of Likert

scale questions on views of police with possible answer choices ranging from strongly

disagree to strongly agree. Procedural justice on the block was measured by taking the

average score of up to 12 questions relating to procedural justice for residents who

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responded to 7 or more of those questions (i.e., respondents who refused to answer or answered "don't know" to more than 5 of these questions were dropped from these analyses). These questions have been provided in Table 1 and cover key components of procedural justice such as the officer's ability to remain neutral, grant the resident respect, and provide reasoning for their decisions. Questions were drawn from Sunshine and Tyler (2003). The scale had high reliability based on pre-intervention data (alpha = 0.918).

Table 1. Procedural Justice on the Block Questions

Questions
a. Police officers explain their decisions to the people they deal with
b. The police are easy to talk to
c. Police officers don't listen to all of the citizens involved before deciding what to do (reverse coded)
d. Police officers make decisions to handle problems fairly
e. The police provide opportunities for unfair decisions to be corrected
f. The police use rules and procedures that are fair to everyone
g. The police would treat you with respect if you had contact with them for any reason
i. Police on my block treat people with dignity and respect.
j. The police sincerely try to help people with their problems.
k. Police on my block make decisions based on facts and the law and not on their own personal opinions.
m. Police officers address citizens in a respectful manner and an appropriate tone.
n. The police would help me if I called them.

strongly disagree = 1, strongly agree = 4

Similarly, police legitimacy on the block was measured by taking the average of up to 6 questions as long as respondents answered at least 4. These questions are provided in Table 2 and gauge residents' willingness to adhere to police officer authority and their evaluations of police behavior. These questions were all asked about the police who work on the resident's block and drew from questions previously used by Sunshine

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and Tyler (2003) and Gau (2014) to measure resident perspective of police legitimacy.

The reliability for this scale was also sufficiently high (alpha = 0.780).

Table 2. Police Legitimacy on the Block Questions

Questions
a. Most police officers who come to my block do their job well.
b. The police are generally honest.
c. You should accept police officers' decisions even if you think they are wrong
d. The police are concerned with respecting citizens' rights
e. The police should always be respected.
g. The police always have the right to make people obey the law.

strongly disagree = 1, strongly agree = 4

In the same manner, police legitimacy citywide was measured using up to 5

questions as long as at least 3 of those were answered. The questions for police

legitimacy citywide are provided in Table 3 and ask residents to identify their feelings

towards the city police department in general, again drawing from questions used by

Sunshine and Tyler (2003). The reliability for this scale was also high (alpha = 0.929).

This study acknowledges the current debate in the literature regarding measures of

legitimacy (Bottoms & Tankebe, 2012) but has decided to follow the models created by

Sunshine and Taylor for the purposes of this study.

Table 3. Police Legitimacy Citywide Questions

Questions
a. I am proud of the Tucson Police Department
b. I agree with many of the values that the Tucson Police Department stands for
c. The work of the Tucson Police Department encourages me to feel good about our city.
d. I have confidence in the police officers who patrol my city.
e. I trust the officers in the Tucson Police Department

strongly disagree = 1, strongly agree = 4

Control Variables. Considering the small sample size used in this study and the

large number of independent variables, it was decided that it would be best to minimize

the number of control variables for the resident survey analyses. In the models for

resident surveys the only control variables remaining from the officer activities models is

visits since after testing different models with the other control variables and their effects,

it was the only variable found to be statistically significant and meaningfully impact

model fit for this section.

Descriptive statistics for all independent, dependent, and control variables are in

Table 4. A correlation matrix of all variables (see the Appendix) does not suggest major

concerns about collinearity

Table 4: Descriptive Statistics for Independent, Dependent and Control Variables

	Mean	*Standard Deviation*	*(Min., Max.)*
Treatment	0.5	0.506	(0, 1)
Citizen Spoken To	109.725	65.725	(27, 332)
Engagement	11.15	8.457	(3, 40)
Foot Patrol	3.275	3.566	(0, 13)
High-Visibility Patrol	24.425	15.629	(3, 53)
Parked Patrol	4.8	3.383	(0, 18)
South Sector	0.225	0.423	(0, 1)
West Sector	0.15	0.362	(0, 1)
East Sector	0.255	0.423	(0, 1)
Pre-Study Incidents	56.425	32.35	(30, 183)
Visits	85.075	28.029	(42, 159)

Procedural Justice on the Block Mean Difference	0.035	0.219	(-0.623, 0.478)
Police Legitimacy on the Block Mean Difference	0.022	0.188	(-0.385, 0.396)
Police Legitimacy Citywide Mean Difference	0.027	0.245	(-0.543, 0.733)

Figure 1. Proposed Relationship Between Treatment and Variables
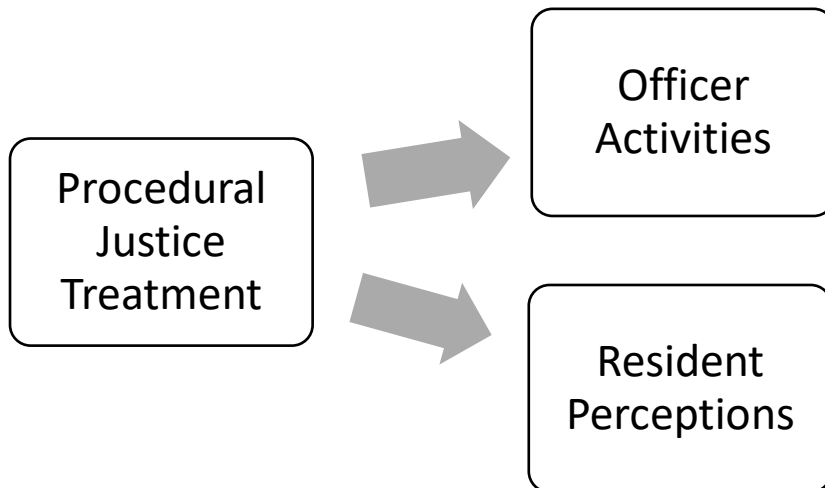
In Figure 1 is a simplified diagram of the proposed relationship between procedural justice treatment and the variables of interest to this study. The hypotheses presented propose that procedural justice treatment will affect the mindsets of police officers and lead to them altering the focus of their patrols. Procedural justice treatment also is also predicted to affect the way focused police presence is applied, making it less

aggressive and minimizing the development of negative attitudes among residents towards the increase in police. The procedurally just officer activities also are predicted promote more procedurally just interactions with residents, which would have a positive effect on resident perceptions.

Analytic Approach

The first phase of the study will use OLS regression models with citizens, community engagement, and the patrol variables as outcomes. The second phase of the results for resident surveys will use the same approach as with officer activities. The section will also consist of regression models with tables to illustrate the findings. Goodness of fit models such as R-squared scores and F-tests will be provided in each table's notes.

CHAPTER 4

RESULTS

The results section will be divided into two parts, with the first part analyzing data

collected from the police officer activity logs and the second part analyzing the data

collected from resident surveys in relation to the activity log findings. In the activity logs

section, the dependent variables that will be analyzed with the treatment variable as the

independent will be citizens spoken to, community engagement, and the patrol variables.

These five variables along with the treatment variable will be the predictors in the

resident surveys section. Here, the dependent variables will be procedural justice on the

block mean difference, police legitimacy on the block mean difference, and police

legitimacy citywide mean difference.

Police Officer Activity Logs

First, the citizens spoken to variable is presented in Figure 2 with a basic bar

graph to show the mean number of citizens each group spoke to by block. On average,

the procedural justice group spoke to significantly fewer individuals per hot spot over the

course of the intervention ($t = 1.185$, $p = 0.244$).

Figure 2. Mean of Citizens Spoken to per Hot Spot by Treatment
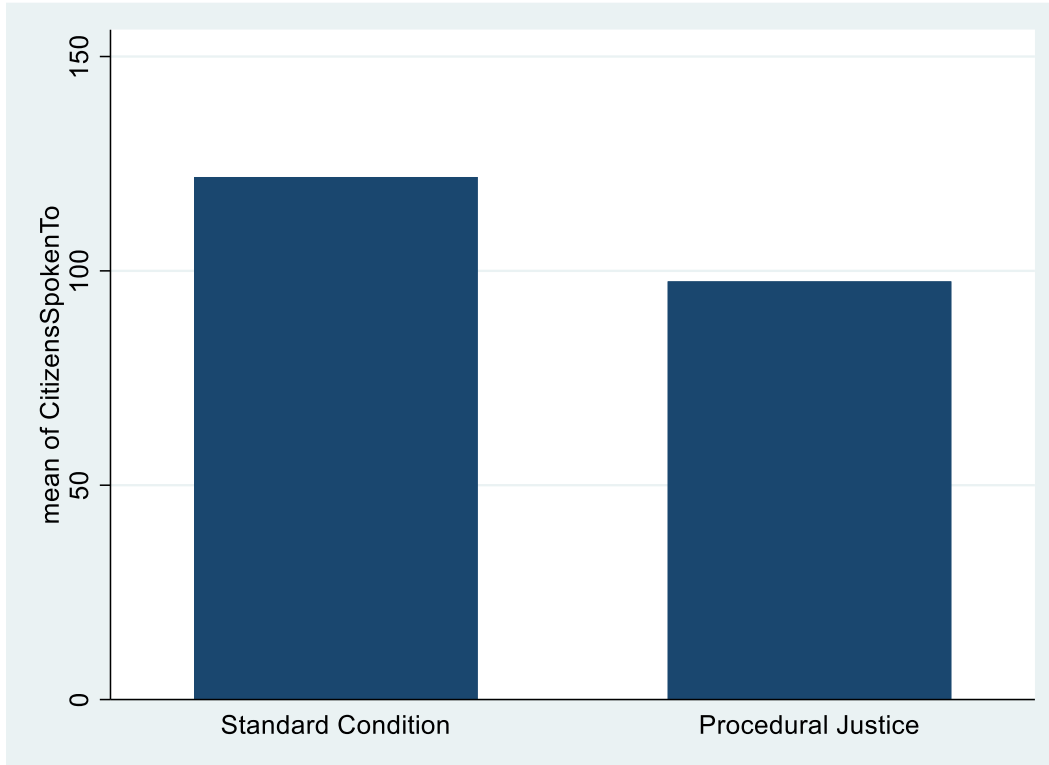
A linear regression was used to test if the procedural justice group significantly predicted the number of citizens spoken to, and the results demonstrate a strong significant negative relationship between the treatment variable and the number of citizens spoken to (Table 5). This means that the procedural justice group spoke to fewer residents during their visits patrolling hot spots.

Table 5. Citizens Spoken To OLS Regression Model

Citizens Spoken To	Coefficient	SE	p-value
Treatment	-41.042	8.417	0.000
South Sector	8.035	10.995	0.470
West Sector	10.628	12.577	0.404
East Sector	0.401	10.886	0.971
Pre-Study Incidents	0.200	0.137	0.156
Visits	2.054	0.159	0.000
Constant	-59.292	15.178	0.000

n= 40; F-test: p = 0.0000; R-Squared: 0.866

Now we will move on to engagement, beginning again with a basic bar graph in Figure 3. The procedural justice group is shown to have a lower average number of engagement activities per hot spot ($t = 3.203$, $p = 0.003$).

Figure 3. Mean of Engagement Activities per Hot Spot by Treatment
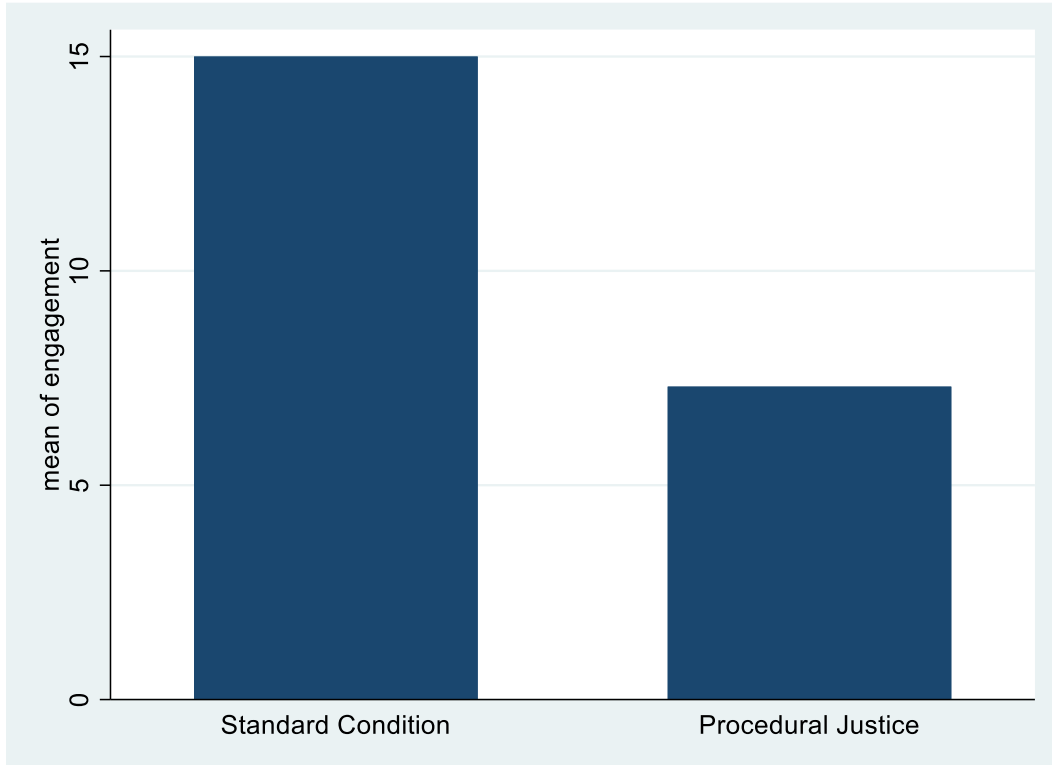
A linear regression was used to test if the treatment group significantly predicted the number of engagement activities officer are involved in, and the results demonstrate a significant negative relationship between treatment group and the number of engagement activities (Table 6). This means that the procedural justice group officers involved themselves with less community engagement activities within the hot spots they patrolled.

Table 6. Engagement OLS Regression Model

Engagement	Coefficient	SE	p-value
Treatment	-8.312	2.255	0.001
South Sector	3.406	2.946	0.256
West Sector	0.735	3.370	0.829
East Sector	6.196	2.917	0.041
Pre-Study Incidents	-0.071	0.037	0.062
Visits	0.195	0.043	0.000
Constant	2.436	4.067	0.553

n= 40; F-test: p = 0.0001; R-Squared: 0.527

Lastly, the patrol variables are analyzed and tested. First, like before, bar graphs are presented in Figure 4 to display the means of the two groups by hot spot. As can be observed, the procedural justice group reported on average more than twice as many instances of engaging in foot (t = -5.632, p = 0.000) and high-visibility patrol (t = -8.466, p = 0.000) activities, but less parked patrols (t = 2.487, p = 0.017).

Figure 4a. Mean of Foot Patrol per Hot Spot by Treatment
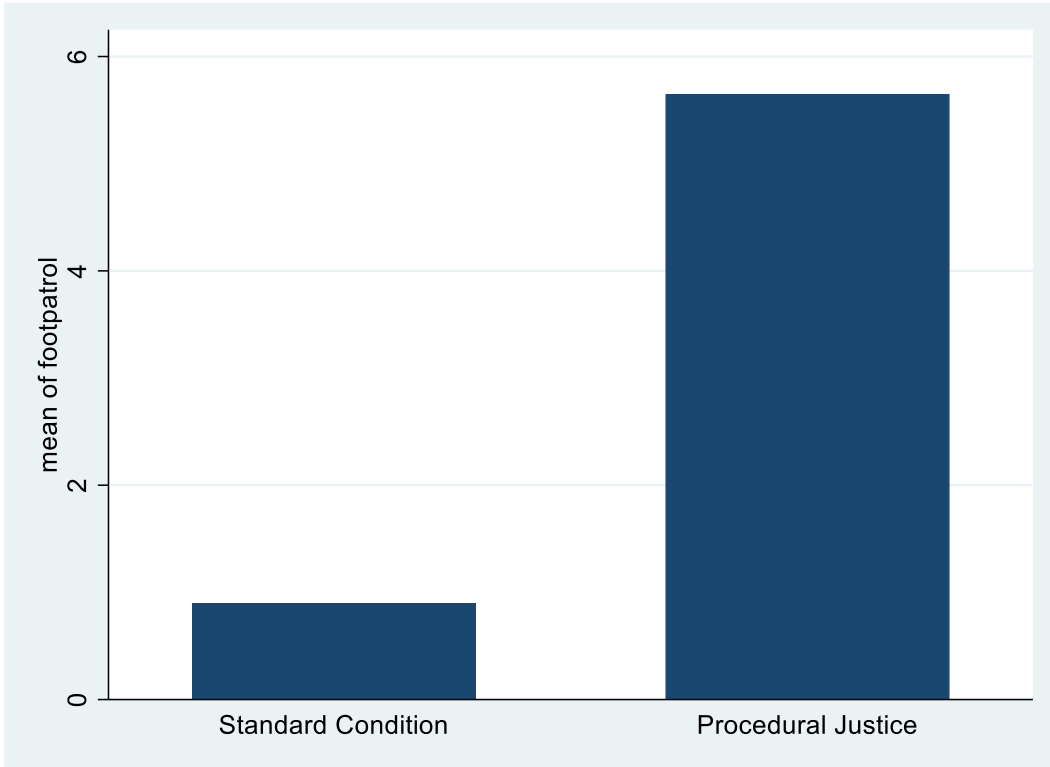
Figure 4b. Mean of High-Visibility Patrol by Hot Spot by Treatment
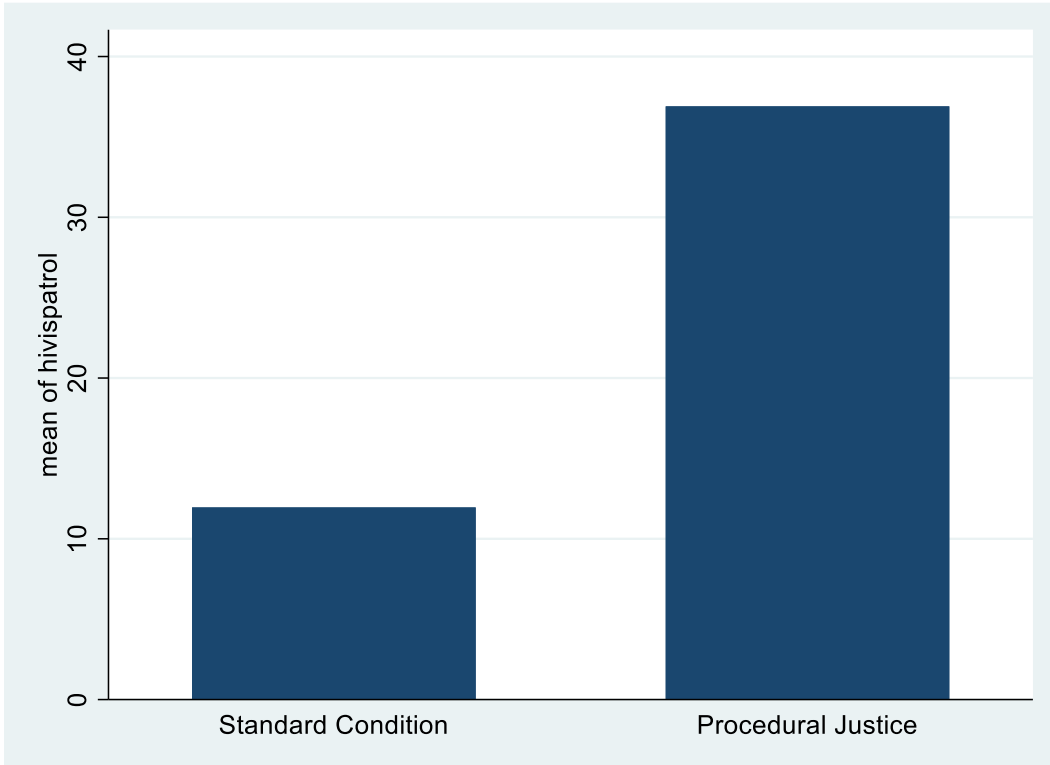
Figure 4c. Mean of Parked Patrol per Hot Spot by Treatment
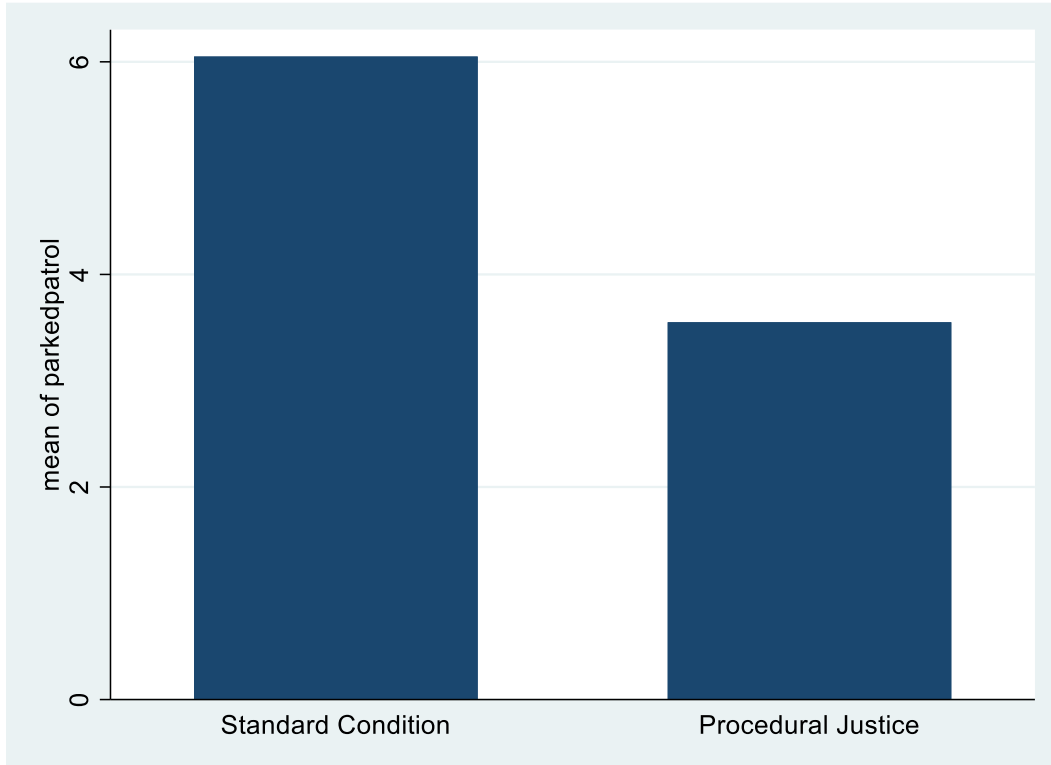
A linear regression was used to test if the treatment assignment significantly predicted the number of instances of foot patrol officers performed, and the results demonstrate a significant positive relationship between the procedural justice group and the number of foot patrols performed (Table 7a). This means that the procedural justice group exited their vehicles at a higher rate when they patrolled their assigned hot spots.

Table 7a. Foot Patrol OLS Regression Model

Foot Patrol	Coefficient	SE	p-value
Treatment	4.536	0.844	0.000
South Sector	0.570	1.102	0.609
West Sector	1.016	1.261	0.426
East Sector	0.974	1.091	0.379
Pre-Study Incidents	0.019	0.014	0.172
Visits	0.023	0.016	0.161
Constant	-2.524	1.522	0.107

n= 40; F-test: p= 0.0001; R-squared: 0.546

A linear regression was used to test if the treatment group significantly predicted the number of instances of high visibility patrol officers performed, and the results demonstrate a significant positive relationship between the procedural justice group and the number of high visibility patrols performed (Table 7b). This means that the procedural justice group were clearly visible to residents at a substantially higher rate, on average, when they patrolled their assigned hot spots.

Table 7b. High Visibility Patrol OLS Regression Model

High Visibility Patrol	Coefficient	SE	p-value
Treatment	23.438	2.903	0.000
South Sector	-3.930	3.793	0.308
West Sector	3.231	4.338	0.462
East Sector	0.481	3.755	0.899
Pre-Study Incidents	-0.040	0.047	0.401
Visits	0.135	0.055	0.020
Constant	3.826	5.236	0.470

n= 40; F-test: $p < 0.0000$; R-squared: 0.720

Finally, I tested whether treatment group predicted the number of instances of parked patrol officers performed (Table 7c), and the results demonstrate a significant negative relationship between the procedural justice group and the number of parked patrols performed. This means that the procedural justice group were less likely to sit in their vehicles without driving around when they patrolled their assigned hot spots.

Table 7c. Parked Patrol OLS Regression Model

Parked Patrol	Coefficient	SE	p-value
Treatment	-2.485	0.876	0.008
South Sector	3.931	1.145	0.002
West Sector	0.524	1.309	0.692
East Sector	0.063	1.133	0.956

Pre-Study Incidents	-0.023	0.014	0.120
Visits	0.019	0.017	0.259
Constant	4.735	1.580	0.005

n= 40; F-test: p= 0.0016 R-squared: 0.457

Resident Surveys

Turning to the resident survey outcomes, a linear regression was used to test if the

treatment group significantly predicted change in the resident perceptions of procedural

justice at the block level, and the results demonstrate a weak non-significant negative

relationship between the procedural justice group and the perceptions of residents (Table

8). This means that residents were unlikely to note a change in the behavior of police

officers in relations to procedural justice when police officers are trained in procedural

justice. These regressions also included the officer activities previously analyzed, but

none are significant except for high visibility patrol. This type of patrol increases resident

perceptions of procedural justice, though the magnitude of the effect is small.

Table 8. Procedural Justice on the Block Mean Difference OLS Regression Model

Procedural Justice	*Coefficient*	*SE*	*p-value*
Treatment	-0.107	0.135	0.433
Citizens Spoken To	0.004	0.002	0.085
Engagement	-0.000	0.006	0.960
Foot Patrol	-0.006	0.014	0.691
High Visibility Patrol	0.014	0.006	0.034

Parked Patrol	0.020	0.012	0.114
Visits	-0.009	0.005	0.084
Constant	0.045	0.165	0.786

n= 40; F-test: p = 0.4299; R-squared: 0.137

The next analysis tested if the treatment group significantly predicted change in resident perceptions of police legitimacy at the block level (Table 9). Here the results again demonstrate a weak non-significant negative relationship between the procedural justice group and the resident perceptions of police legitimacy at the block level. This means that residents were unlikely to report believing the police officers in their neighborhoods to be a more legitimate authority when they implemented procedural justice training into hot spots policing strategy. The officer activities do not have a significant effect here either, except for high-visibility patrol, which indicates that resident perceptions of police legitimacy increase when officers patrol from high-visibility vantage points or while driving.

Table 9. Police Legitimacy on the Block Mean Difference OLS Regression Model

Police Legitimacy on the Block	Coefficient	SE	p-value
Treatment	-0.174	0.116	0.141
Citizens Spoken To	0.003	0.002	0.099
Engagement	-0.001	0.005	0.838
Foot Patrol	-0.010	0.012	0.398
High Visibility Patrol	0.012	0.005	0.033

Parked Patrol	0.009	0.010	0.414
Visits	-0.008	0.004	0.099
Constant	0.120	0.142	0.403

n= 40; F-test: p = 0.4391; R-squared: 0.116

Finally, a linear regression is performed to test if the treatment group significantly predicted changes in the resident perceptions of police legitimacy of police at the city level (Table 10). The results demonstrate a weak non-significant negative relationship between the procedural justice group and the resident perceptions of police legitimacy citywide. This means that residents were unlikely to report believing their city police department to be a more legitimate authority when they implemented procedural justice training into hot spots policing strategy. At the citywide level, it appears that no officer activity has a significant effect on resident perceptions, although the effect for high-visibility patrol does approach statistical significance.

Table 10. Police Legitimacy in the City Mean Difference OLS Regression Model

Police Legitimacy Citywide	Coefficient	SE	p-value
Treatment	-0.089	0.146	0.545
Citizens Spoken To	0.004	0.002	0.120
Engagement	0.006	0.006	0.331
Foot Patrol	-0.007	0.015	0.649
High Visibility Patrol	0.014	0.007	0.052
Parked Patrol	0.018	0.013	0.175

Visits	-0.009	0.006	0.127
Constant	-0.059	0.179	0.746

n= 40; F-test: p = 0.2451; R-squared: 0.194

CHAPTER 5

DISCUSSION

With the findings in mind, this section will discuss the impact of procedural

justice training on police officer activities (citizens spoken to, community engagement,

and patrol) and resident attitudes. The expectation was that the training would prove to be

effective at cementing procedural just practices in police officer behavior. But the impact

of this training is complicated, and the outcomes in terms of both officer activities and

resident perceptions suggest changing behavior and perceptions is more difficult than

expected. As these impacts are discussed, knowledge gathered during the data analysis

phase of this thesis will be incorporated to explain the results, whether expected or not.

Impacts of Procedural Justice Training on Police Officer Activities

Citizens spoken to seems to illustrate a clear picture of how officers spend their

time among the residents of their assigned hot spots. At first glance, it may appear that

untrained officers were more inclined to be friendly towards residents, but it is important

to note that the citizens spoken to variables was recorded solely as a quantity with no

additional information on the encounters. There may be discrepancies between the two

groups as to how they decide which encounters were recorded in the number of citizens

they spoke to. Although they were not dispatched to calls for service, officers could take

calls in their assigned hot spots and often did, particularly in the standard condition

group. If these officers recorded the encounters from calls for service, their number of

citizens spoken to could have been inflated by suspects, victims, and witnesses they

questioned at the scene of a call. Since these encounters have no description attached to

them, there is also no way to measure whether the officers engaged in a manner that

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would benefit resident perspectives of police legitimacy. Although the standard condition group had a greater quantity of citizens spoken to, the procedural justice group may have engaged citizens in a non-investigative manner and applied all the recommendations of their procedural justice training.

Community engagement runs similarly to citizens spoken to, with the standard condition group engaging with the community more often than the procedural justice officers. This was an unexpected result, especially since the training for procedural justice officers emphasized engaging residents of hot spots in non-investigative encounters. However, this difference is brought to question by the results of the patrol variables. The patrol variables indicate that the standard condition group performed many more parked patrols than the procedural justice group, while the procedural justice group police officers performed more foot and high visibility patrols. This indicates that the procedural justice group officers were actively out and about among hot spots residents, and even though they do not report as many citizens spoken to, their apparent lack of engagement allows us to assume that some of this may be attributed to their method of recording—a limitation which will be discussed more in-depth in the limitations section—more so than their actual behaviors.

Impacts of Procedural Justice Training and Police Officer Activities on Resident Perspectives

The results from the resident surveys were unexpected. While none of the survey models showed statistically significant results for treatment, the coefficients were negative, which could suggest that training police officers in procedural justice will reduce resident perspective of procedural justice and police legitimacy. Since the surveys

were provided before and after the intervention, the residents surveyed in the second round may not be the same as those in the first round. Some residents may have moved away or become uncontactable or simply refused to participate in the second round. The loss of these participants could have impacted the findings for procedural justice and police legitimacy. Another factor could have been human error, such as indifference or anecdotal influence. Residents taking the survey may not have strong feelings towards procedural justice and police legitimacy or may not have been very aware of the program. If the residents came across anecdotes from a third party, for example, about events in other locations experienced by friends or seen in the media, these kinds of accounts may have influenced their responses. But there is no reason to believe this would have happened differently across the two groups. However, the results from the surveys are not strong enough to claim that procedural justice training is ineffective in impacting resident perceptions of police legitimacy.

Limitations

Chief among the limitations in this study is the method of recording police officer activities. Police officers were instructed to record their activities in activity logs—as described in a previous section—but there was no emphasis on the exact wording they should use. As a result, coding of the activities was made difficult by the variety of ways police officers worded their activities. Differentiating between ambiguous activities that were worded similarly or omitted details could potentially have influenced the data produced. Officers in one group may have referred to a certain activity in one way, while the other group referred to the same activity in another. There is a strong possibility some activities may be coded in different categories when both groups meant the same activity.

While using a more rigid rubric for categorizing activities may limit the effects of wording on the data, perhaps providing options rather than open-response activity logs may prove more efficient.

Another limitation in the method of recording lies in the citizens spoken to and engagement measures. There is a discrepancy between the two in that number of citizens spoken to is recorded just numerically. This means that if a police officer is responding to a call and marks that they spoke to 10 people, there is no way to know the nature of those interactions. Engagement, on the other hand, is descriptive in nature, but it relies on the memory and bias of the police officer to recount encounters. One example of this issue, while not a focus of these analyses, is that standard condition officers were far more likely to mention administrative duties in their activities. The standard condition group officers reported being preoccupied by paperwork at a larger rate than procedural justice officers. Not only that, but they also reported performing their patrols while parked more often, and often reported that they did their paperwork while performing parked patrol. Thus, while they may have done more community engagement work, they also spent more work sitting in a patrol car doing paperwork. It could be that after officers tallied an encounter in the citizens spoken to section, they recorded details of the encounter in the activity section, which would cause that encounter to appear in the data twice (once in citizens spoken to and again in engagement). On the other hand, procedural justice officers may have only tallied up individuals spoken to (for the citizens spoken to question) but did not reiterate having spoken to them in their activity description, which led to less engagement activity being recorded.

Finally, the small sample size of this study limited the extent to which predictors could be analyzed in multivariate models. A larger sample size would have allowed for more control variables to be tested without concerns about overfitting the model. Additionally, the small sample size limits statistical power. A larger sample size would have increased power and facilitate identifying statistically significant impacts (Weisburd and Britt, 2014).

Future Research

The research gathered here faces many limitations, and so the recommendations prescribed here is that future research attempt to address those issues which may make applying this type of intervention ambiguous in any way.

First, it is recommended that future research in this area attempt to limit the freedoms officers have in recording their daily activities. For less intensive methods, perhaps providing a simple list of options created with the input of officers may allow them to record their activities without having to rely on their memory or personal linguistic style.

Second, a strong focus on upfront clarity about the expectations officers will be held to should be incorporated. For officers who will be trained in procedural justice, it is important that a detailed and well-outlined training be provided. But it is also recommended that regular reminders of those expectations or evaluations about how well they are being adhered to also be performed. This is to prevent police officers from recidivating into old policing techniques instead of applying the program.

Finally, although this thesis attempted to analyze resident perceptions to a degree further than previous research, it is strongly recommended that future research continue

to focus on resident perspectives. Hot spot policing has proven to be an effective strategy for reducing crime when applied correctly, but evaluations of hot spots policing—or any policing strategy— should also consider effectiveness in positively affecting resident perceptions of police.

Conclusion

This thesis sought to answer two questions: How do the activities of police officers trained in procedural justice working in hot spots compared to untrained police officers?, and how do differences in the activities among trained and untrained officers help explain which officers may have contributed most to any shift in the perceptions of residents? The results obtained from the analysis performed in this thesis suggest that there is a clear method of obtaining this information and if implemented correctly, it is completely possible to record differences between procedural justice trained and untrained officers. The results also suggest that how these differences affect the perceptions of residents is more complicated to capture and perhaps the program was not as effective at influencing perceptions. The hypothesis of this thesis was that officers would focus more on interacting with residents outside of the context of emergency calls when they were trained in procedural justice and that resident perceptions of police legitimacy would be better among residents of hot spots that received the procedural justice treatment. However, the results from the collected data does not demonstrate a strong or significant relationship between the procedural justice training provided and the perceptions of police legitimacy among residents. More research is needed to further examine how procedural justice training in hot spots affects both officer activities and resident perceptions.

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APPENDIX A

VARIABLE CORRELATION MATRIX

Appendix Table. Variable Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Legitimacy Citywide	1												
2. Legitimacy Block	.683	1											
3. Procedural Justice Block	.753	.782	1										
4. Treatment	-.074	-.201	-.003	1									
5. Citizens Spoken To	.234	.080	.105	-.189	1								
6. Engagement	.313	.121	.108	-.461	.584	1							
7. Foot Patrol	-.032	-.189	.007	.675	.063	-.240	1						
8. High-Visibility Patrol	.025	-.050	.092	.808	-.125	-.398	0.640	1					
9. Parked Patrol	.269	.146	.217	-.374	.239	.449	-.212	-.400	1				
10. South	.103	.157	.316	-.060	.085	.277	-.042	-.151	.534	1			
11. West	.032	.026	-.009	.140	.002	-.100	.146	.206	-.101	-.226	1		
12. East	.072	-.045	-.110	-.060	-.077	.141	.026	-.042	-.147	-.290	-.226	1	
13. Pre-Study Incidents	.002	.039	-.012	.010	.355	-.125	.228	.009	-.239	-.129	-.036	.040	1
14. Visits	.177	.005	.078	0.140	.869	.365	.317	.317	.061	.046	.004	-.084	.304