

Citizen Perceptions of Body-Worn Cameras: A Randomized Controlled Trial

Final Report

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Table of Contents

Executive Summary.....	4
Introduction	9
Existing BWC Research	9
Impact of BWCs on Citizen Perceptions of Police	10
PERF's 2014 BWC Recommendations.....	10
BWC Pilot Study – Arlington (TX) Police Department.....	10
Expectations of the Study.....	11
Location of the Study	11
Methodology	12
Study Design.....	12
Benefit of the Randomization Approach	13
APD Policy for BWC Use	13
Ensuring Study Fidelity.....	14
Determining Citizen Perceptions	15
Determining Which Citizens to Contact	16
Method of Contacting Citizens	17
Rate of Responses to Survey	17
Characteristics of Survey Respondents	23
Data on Citywide Citizen Complaints	27
Results of the Study.....	27
Differences in Citizen Perceptions.....	27
Within-Group Differences in Citizen Perceptions	29
Changes in Citizen Complaints.....	31
Conclusions	32
What We Learned from the Study	32
Citizen Complaints	32
Contextual Differences in Citizen Perceptions.....	33
Overall Impacts on Citizen Perceptions.....	34
Policy Implications	34
Research Limitations	36
Research Implications	37
Future Research.....	38
References	40

Appendix A. Matrix of PERF’s Recommendations on the Use of BWCs (from Miller and Toliver, 2014)	43
General recommendations.....	43
Recording protocols	44
Download and storage policies	49
Recorded data access and review	51
Training policies	53
Policy and program evaluation	55
Appendix B. Telephone Survey.....	56

Executive Summary

Body-worn cameras (BWCs) have become a central topic of policing reforms within the past few years. In the wake of recent high-profile use-of-force cases, many police departments accelerated their plans to implement BWCs. Conservative estimates suggest up to one-third of police departments in the U.S. are using BWCs, with that count increasing rapidly.

The rapid adoption of BWCs has outpaced research into the impact that this technology has had on policing. Most studies of BWCs to date focus on two main outcomes, namely officer use of force and citizen complaints against officers. Research points towards significant declines in both of these outcomes due to BWC implementation.

However, the impact of BWCs is believed to go beyond officer use of force and citizen complaints. For instance, police officials often note that there is overall public approval of BWCs, and that implementing a BWC program can help increase perceptions of police legitimacy. However, this rationale had not been rigorously tested until the current study.

The Police Executive Research Forum (PERF) conducted a randomized controlled trial (RCT) to assess changes in citizen perceptions due to BWC use. With support from the Laura and John Arnold Foundation (LJAF), PERF was able to conduct this RCT in partnership with the Arlington, TX Police Department (APD). This work builds on PERF's prior work developing an implementation guide for BWC programs and examines the impact that a BWC program has on citizens' opinions of the police.

Expectations of the Study

PERF researchers had three expectations:

1. There was an expectation that there would be *fewer citizen complaints* filed by citizens who interacted with patrol officers who wore BWCs than among citizens who interacted with patrol officers who did not wear BWCs.
2. Citizens who were voluntarily involved with police (i.e. crime victims, witnesses, and people who called the police for service) were expected to have better perceptions of police legitimacy, professionalism, and satisfaction than citizens who were involuntarily contacted by police (i.e. criminal suspects, arrestees, and people pulled over for traffic stops).
3. Citizens who interacted with patrol officers who wore BWCs were expected to have *significantly better perceptions of police legitimacy, satisfaction with their interactions, and views of police professionalism* compared with citizens who interacted with officers who did not wear BWCs.

Study Design

PERF designed an RCT to test these expectations during APD's BWC pilot program, which took place between October 2015 and March 2016. At the time of the pilot study, there were 634 sworn officers in APD. APD is one of the largest police departments to conduct an RCT to examine BWCs. Sworn officers were recruited to participate in the study from across the city's four districts and from the citywide traffic enforcement unit. A total of 84 volunteers were recruited for the pilot program and trained to use BWCs.

Randomization among the 84 officers was done by shift. During each shift, officers were randomly selected to wear or not wear BWCs. This means that in the course of the study, a single officer had some shifts during which he or she wore a camera, and some shifts in which he or she did not. There was a 50% chance an officer would be assigned the BWC during a single shift, akin to a simulated "coin flip." This approach allowed the PERF researchers to be highly confident that any differences in the outcomes of the study between the BWC/no-BWC groups could be attributed to the BWC condition.

Data on Citywide Citizen Complaints

The researchers obtained data from APD on citizen complaints for the entire city during the pilot period (October 2015 – March 2016), as well as for the same six months one year prior to the study (October 2014 – March 2015). APD also provided the complaint data specifically for the group of BWC-trained officers both during the pilot period and for the same six months one year prior to the study.

Determining Citizen Perceptions

To determine citizen perceptions, PERF conducted telephone surveys of individuals who had contact with the 84 BWC pilot officers during the six months of the pilot study. During the survey, citizens were asked to recall their interactions with the APD officer on the specific date of their contact, and were asked to rate how much they agreed or disagreed with the callers' statements, with 1 being "strongly disagree" and 5 being "strongly agree" (See Appendix B). The survey measured three citizen perceptions of officers: legitimacy, professionalism, and satisfaction.

The pool of survey participants was created from documented encounters with APD officers during which a formal report was generated by the police. Based on the date of encounter and the APD officer involved, PERF was able to determine if the officer was wearing a BWC during the encounter. Additional data provided information as to whether the encounter was voluntary or involuntary.

PERF obtained 502 completed citizen perception surveys. The respondent demographics (e.g. sex, race/ethnicity, age) closely mirrored the demographics among all reported encounters, suggesting that the PERF respondent pool is representative of all citizens available to survey. Additionally, these similarities continued within the RCT between the

treatment group (shifts when the officer was wearing a BWC) and control group (shifts when the officer was not wearing a BWC).

Results of the Study

Following are the initial findings of the study, with respect to the three research expectations:

1. Officers who were trained in BWCs during the study experienced a 38% drop in complaints between the year prior to the pilot study and the same six months a year later, during the pilot study. During this time, all other APD officers experienced a 4.1% increase in citizen complaints (see Figure 15). This finding was consistent with the expectations that there would be fewer citizen complaints filed by citizens who interacted with officers who wore BWCs than among citizens who interacted with officers who did not wear BWCs.
2. Individuals with voluntary officer interactions viewed officers as having greater legitimacy, professionalism and satisfaction than individuals who had involuntary officer interactions (see Figure 14), as expected.
3. PERF researchers found no significant differences between citizens' perceptions of officers depending on whether the officer was wearing a BWC (see Figure 13). This was contrary to the expectation that the presence of a BWC would result in better perceptions of police legitimacy, satisfaction with their interactions, and views of police professionalism.

Overall, respondents had favorable impressions of their interactions with Arlington police officers (see Figure 13). With average perception scores typically greater than four out of five, the results are consistent with the Arlington community seeing the local police as legitimate and professional. While BWCs did not improve these perceptions, that may be due in part to the fact that there not a great deal of room for improvement. We cannot rule out a potential positive effect of BWCs if this work were replicated in a jurisdiction without such strong baseline trust in the police.

Policy Implications

Although BWC programs can offer many benefits, they are not a “cure-all” for problems in law enforcement. This work is consistent with a key finding in the previous BWC literature, namely the association between BWC usage and sharp declines in citizen complaints against officers. While citizen complaints were significantly lower among the BWC-trained officers, citizen perceptions were unchanged. Agencies with high levels of citizen satisfaction looking to implement a BWC program with the goal of further increasing community satisfaction might be advised to reconsider deploying BWCs. Given the expenses associated with a BWC program, it is important for police departments to know that a boost in the quality of individual citizen interactions may not be a benefit. Rather

than relying on BWCs to increase perceptions of legitimacy, police departments can explore other activities or programs to help improve citizen perceptions of police.

Research Implications

PERF researchers found no significant differences between perceptions of police officers among citizens who interacted with officers wearing BWCs and citizens who interacted with officers who were not wearing BWCs. However, PERF did find a reduction in citizen complaints against officers wearing BWCs.

These two findings suggest there is no meaningful relationship between citizen complaints and citizen perceptions of police. It may be possible that declines in complaints are not due to improved perceptions of officers, but rather reflect reductions in *unfounded* complaints, or other explanations that are independent of citizen attitudes. Due to the strong methodological design and finding results seen in other BWC program evaluations, we are confident our conclusions regarding citizen perceptions in this jurisdiction are valid.

However, a critical caveat to this finding is that APD appears to benefit from strong citizen satisfaction as a baseline. The results showed there is no measurable impact on perceptions due to BWCs in an agency that was already benefiting from strong community relations. While we conclude that the implementation of a camera program does not produce a boost to citizen perceptions in this context, the outstanding research question is whether BWCs will improve interactions within a jurisdiction with higher levels of tension and distrust of the police. In a more contentious environment, the impact of BWCs might produce a positive or negative reaction, as there is more potential variability in citizen perceptions.

Additionally, the findings call into question the “mutual civility” assumption (the belief that police and citizens are better behaved when under known video surveillance) common in the recent literature. Given the lack of change across individual citizen perception due to BWCs, there is a new research challenge to explain why individuals would alter their behaviors without any alteration of perception, at least in a jurisdiction with strong community support.

Conclusion

This study was an examination of the impact of BWCs on citizen perceptions. This work used an RCT design, the gold standard in research. Two findings were consistent with previous research, namely the decline in citizen complaints among BWC-trained officers and less favorable perceptions of police among citizens whose contact with the police was involuntary. Contrary to expectations, the findings suggest that BWC use does not impact citizen perceptions, either positively or negatively, within Arlington, TX. While the RCT design provides strong confidence in the results (internal validity), the findings may only be generalizable to other agencies with a strong baseline community support. If so, then

agencies already seen positively among large majorities of citizens may not see any additional boost to perceptions of legitimacy, professionalism, and satisfaction.

Taken together, the results highlight that BWCs are not a “cure-all” for problems in policing, but they do have measurable benefits. Police agencies intending to improve citizen perceptions of legitimacy, professionalism, and satisfaction should not assume that implementing a BWC program will contribute to better perceptions, even if BWCs do contribute to other positive outcomes. AS PERF advised in its 2014 implementation guide, police agencies considering BWC deployments should be fully aware of any perceived benefits and drawbacks of this technology. This research builds on that recommendation to improve knowledge regarding BWC implementation. Future research needs to explore the potential impact of BWCs on citizen perceptions within different jurisdictions.

Introduction

In recent years, body-worn cameras (BWCs) have played an increasingly significant role in the national conversation regarding policing practices and reforms. Though some police agencies have been deploying BWCs for a number of years, interest in this technology rapidly grew following controversial use-of-force events in places such as Ferguson, MO and New York City in 2014, which lead to their rapid adoption by police departments across the US (Jennings, Fridell, & Lynch 2014). When police are involved in a controversial incident, community members and the news media want to know if there is BWC footage of the incident, and if the department has not deployed BWCs, community members want to know why. By one estimate, by March 2015 as many as 4,000 to 6,000 police agencies had already adopted or were planning to adopt BWCs (Katz, Kurtenbach, Choate, & White, 2015), and this number continues to grow.

Although many police agencies have rushed to embrace BWCs, little is yet known about the impact this technology may have on outcomes such as officer behavior and police-community relationships (see Jennings, Lynch, & Fridell, 2015; Miller & Toliver, 2014). Understanding these impacts is critical in order to assess the potential value of BWCs, particularly given the considerable financial costs and other challenges that camera deployment can raise. In an attempt to fill this gap in the research, PERF, in partnership with the Laura and John Arnold Foundation (LJAF), designed a study to gain a fuller understanding of citizen reactions to the use of BWCs during their contacts with police officers.¹ Since the Arlington (TX) Police Department (APD) had plans to implement a BWC pilot program, PERF took advantage of the opportunity to carry out an evaluation of the program. Using data gathered from APD and individuals with police contacts, PERF researchers designed and ran a randomized controlled study to determine the difference in citizen reactions to BWCs during voluntary and involuntary police contacts.

Existing BWC Research

Empirical evidence regarding the impact of BWCs is currently limited, though the body of research is growing. Early work on BWCs focused on consolidating and understanding the experiences of early adopters of BWCs, whether through implementation guides (see Miller & Toliver, 2014), evidence reviews (see White, 2014), or warehouses for BWC-related information (see BJA Toolkit, 2016).

Most of the existing BWC research has examined the impact that BWCs have on officer use of force and on citizen complaints brought against officers. The findings in the studies have been consistent. Randomized controlled trials (RCTs) and quasi-experimental design (QED) studies have shown large reductions in officer use of force and citizen complaints due to the deployment of BWCs (Ariel, Farrar, & Sutherland, 2015; Farrar, 2014; Farrar & Ariel, 2013; Grossmith, Owens, Finn, Mann, Davies, & Baika, 2015; Jennings, Lynch, & Fridell, 2015; Katz & Kurkenbach, 2014; Ready & Young, 2015; White, 2014).

¹ This work reflects the findings of PERF and do not necessarily reflect the opinions of LJAF. PERF had full research independence regarding findings and recommendations, and LJAF did not influence any results.

Other research has started to explore additional issues related to BWCs, such as officer perceptions of cameras (Jennings, Fridell, & Lynch, 2014), domestic violence case outcomes (Owens, Mann, & McKenna, 2014), and potential injuries to officers (Ariel, Sutherland, Henstock, Young, Drover, Sykes, Megicks, & Henderson, 2016).

Impact of BWCs on Citizen Perceptions of Police

Thus far, no rigorous studies have looked at the potential impact of BWCs on the community or on citizen perceptions of police. As noted by the President's Task Force on 21st Century Policing, individuals' perceptions of police play an important role in establishing police legitimacy, building trust between police and the community, and ensuring effective, modern policing within the community policing framework (Gill, Weisburd, Telep, Vitter, & Bennett, 2014; President's Task Force on 21st Century Policing, 2015).

In September 2013, the Police Executive Research Forum (PERF) and the U.S. Department of Justice's Office of Community Oriented Policing Services (COPS Office) held a forum that brought together more than 200 police officials, researchers, federal justice officials, and other experts to discuss their experiences with BWCs (Miller & Toliver, 2014). In discussing the potential impact that BWCs might have on police-community relationships and on how individuals view police, two general schools of thought emerged (see Miller & Toliver, 2014; White, 2014). Some people believe that by increasing police agency transparency and accountability, BWCs will **strengthen citizen perceptions** of police legitimacy, but others worry that BWCs may **damage citizen perceptions** of police by undermining the "informal and unique relationships between police officers and community members" (Miller & Toliver, 2014 pg v). Additionally, there is a fear that privacy concerns may inhibit people – particularly crime victims and witnesses – from speaking freely to officers wearing BWCs.

PERF's 2014 BWC Recommendations

In 2014, PERF and the COPS Office released the publication *Implementing a Body-Worn Camera Program: Recommendations and Lessons Learned*. This publication includes recommendations for implementing a BWC program that were based on the discussions that emerged from the 2013 conference, feedback from interviews with more than 40 law enforcement officials and other experts, and a review of existing BWC policies. PERF's policy recommendations on BWCs can be found in Appendix A.

BWC Pilot Study – Arlington (TX) Police Department

In 2014, PERF partnered with LJAF to study a BWC pilot program being implemented by the Arlington, TX Police Department. The purpose of the study was to determine whether the presence of BWCs affects citizens' perceptions of the police, both overall and

specifically across during voluntary and involuntary contacts they have with police officers. Citizen perceptions of BWCs currently represent a major gap in research.

Expectations of the Study

Prior to initiating the study, PERF laid out three expectations for what the study would find related to the use of BWCs and interactions with law enforcement officials.

The first two expectations related to citizen perceptions of BWCs:

4. Citizens who interacted with patrol officers who wore BWCs were expected to have *significantly better perceptions of police legitimacy, satisfaction with their interactions, and views of police professionalism* compared with citizens who interacted with officers who did not wear BWCs.
5. Citizens who were voluntarily involved with police (i.e. crime victims, witnesses, and people who called the police for service) were expected to have better perceptions of police legitimacy, professionalism, and satisfaction than citizens who were involuntarily contacted by police (i.e. criminal suspects, arrestees, and people pulled over for traffic stops).

The third expectation related to previous research findings where BWC use was linked to a decline in citizen complaints:

6. There was an expectation that there would be *fewer citizen complaints* filed by citizens who interacted with patrol officers who wore BWCs than among citizens who interacted with patrol officers who did not wear BWCs.

Location of the Study

The study took place in Arlington, TX in conjunction with the Arlington Police Department (APD). APD has more than 600 sworn officers, and the jurisdiction covers a mix of urban, suburban, and rural communities. The study was part of APD's initial pilot of BWCs among patrol and traffic officers. APD's traffic officers are primarily responsible for the enforcement of motor vehicle violations and do not routinely respond to citizen-generated calls for service.

PERF chose APD to participate in the study for three reasons:

1. APD was interested in assessing a BWC pilot program, as well as using aspects of the PERF report on the evaluation of citizen perceptions in its future decision-making;
2. APD had already secured funding for BWC equipment, training and storage, allowing more resources to be allocated to evaluation; and

3. APD has a history of understanding the value of evidence-based research and evaluation and adopting progressive policing practices. APD personnel are also comfortable working with external partners on research projects such as this.

In a policy statement, APD said it was adopting the use of the BWCs to accomplish the following objectives:

- BWCs allow for more accurate documentation of police-public contacts, arrests, and critical incidents. They also serve to support the accuracy of officer reports and testimony in court.
- Audio and video recordings also support this agency's ability to review probable cause for arrest, officer and suspect interaction, and evidence for investigative and prosecutorial purposes.
- Provide additional information for officer evaluation and training.
- The BWC may also be useful in documenting crime and accident scenes or other events that include the confiscation and documentation of evidence or contraband.

General Orders for the Body-Worn Camera Program Number 209.08

At the time of the pilot study, there were 634 sworn officers in APD. PERF aimed to recruit a total of 50 officers to participate in the study on a voluntary basis. Sworn officers were recruited to participate in the study from across the city's four districts and from the citywide traffic enforcement unit. Each of the patrol districts requested volunteers. A total of 84 officers were recruited, which far surpassed the number of volunteers sought.

APD trained the volunteers in-house on using three different models and brands of BWCs.

Methodology

Study Design

PERF designed a six-month randomized controlled trial (RCT) to determine differences in citizen reactions to officers wearing BWCs or not wearing BWCs, and further explore whether differences extend to voluntary and involuntary police contacts. APD provided PERF with officer schedules so the researchers could randomly select participants in each shift from a pool of officers who were confirmed to be working the shift. The random number generator in Microsoft Excel determined whether each officer in the study would, or would not, wear his/her personally assigned BWC during each selected shift.

As a result, the probability of an officer's selection for wearing a BWC or not during a single shift² was independent of all other shifts. For example, if there was a shift with four officers, anywhere between zero and four officers could have worn a BWC during the shift. Because the researchers randomly selected officers to wear BWCs during each shift, the same officers wore and didn't wear BWCs throughout their various shifts in the course of

² P(1) = .50

the study. For example, during every shift an officer would have an equal probability of being assigned to either wear a BWC or not wear a BWC, regardless of whether the officer had worn a BWC during a previous shift. In other words, there was a 50% chance an officer would be assigned the BWC during a single shift, akin to a simulated “coin flip;” each shift produced a coin flip independent from all previous coin flips, such that officers could have multiple shifts in a row where he/she had the same BWC deployment status.

The study was designed so that the treatment group in the study consisted of shifts when officers wore BWCs. The control group consisted of officers who did not wear them during the shift. Overall, the authors randomized 9,730 officer-shifts across the six months, with 4,893 (50.3%) falling in the treatment and 4,837 (49.7%) in the control condition.

Benefit of the Randomization Approach

The key benefit of using a randomized approach is that it results in the treatment and control groups being essentially equivalent, because officers or shifts are not selected for treatment based on any specific criteria. Using this approach, each officer has an equal chance of being selected to participate in the study during each shift.

Equivalence of the full study’s treatment and control groups limits the possibility that an extraneous factor, such as volunteer bias, will impact whether the officers were selected for participation and how citizens react to their interactions with the officers. Specifically, the potential for whether officers with specific characteristics volunteer to wear BWCs or not during the study is eliminated, as the BWC and no-BWC groups are comprised of the same individuals.

Though it is possible that participating officers may differ from their non-participating counterparts, this does not impact the study condition, as BWC assignment is randomized by shift for only participating officers. This approach allowed the PERF researchers to be highly confident that any differences in the outcomes of the study between the BWC/no-BWC groups could be attributed to the BWC condition.

APD Policy for BWC Use

Six months prior to the initiation of the RCT, PERF helped APD develop a policy to govern its Body-Worn Camera Program (BWCP). The policy was developed based on PERF’s 2014 policy recommendations, which can be found in Appendix A.

APD’s policy includes the following instructions for when and how officers should use the BWCs:

It is the policy of this department that officers shall activate the BWC when such use is appropriate to the proper performance of his or her official duties and where the recordings are consistent with this policy and law. This policy does not govern the use of surreptitious recording devices used in undercover operations. Supervisors will conduct
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random audits of BWC footage to ensure compliance with departmental policy and training.

General Orders for the Body-Worn Camera Program Number 209.08 (A 41.3.8a)

- a. When safe to do so officers shall activate the BWC during all calls for service and law enforcement-related activities to include but not limited to:
 - Any enforcement stop, pedestrian or vehicle
 - Investigations and interviews of criminal acts
 - Arrest
 - Searches
 - Use of force
 - Critical Incidents
 - Pursuits
 - Any encounter with the public that becomes confrontational after initial contact.
- b. Officers should inform individuals that they are being recorded, when it is safe to do so. In locations where individuals have a reasonable expectation of privacy, such as a residence, recording should not be made unless the recording is being made as part of an ongoing investigation or police action resulting from a call for service, offense observed by the officer, or during the execution of an arrest or search warrant.
- c. The BWC shall remain activated until the event is completed in order to ensure the integrity of the recording unless deactivation is authorized by this policy or a supervisor.
- d. If an officer fails to activate the BWC, fails to record the entire contact, or interrupts the recording, the officer shall document why a recording was not made, was interrupted, or was terminated.
- e. If the officer stops recording, the reasoning and circumstances will be made both on camera before recording ceases and later in the written report. The name of the approving supervisor should also be recorded if applicable.
- f. The public shall not be allowed to review the recordings at the scene.

General Orders for the Body-Worn Camera Program Number 209.08 (A 41.3.8b)

Ensuring Study Fidelity

Conformity to the research procedures was maintained in four ways:

1. Prior to the BWC deployment, PERF research team members provided briefings to APD supervisors regarding the importance of fidelity.
2. Randomization to determine which officers would and would not wear BWCs during shifts in the study occurred every other week, to prevent officers from knowing their BWC assignment well ahead of time.
3. A central member of the APD command staff monitored compliance to the research procedures. Because mid-level personnel are often more accessible to monitor compliance, answer questions, and encourage involvement from officers, designating mid-level employees to be project managers is ideal (Henstock & Ariel, 2015).

4. The research team was granted additional access to view BWC footage by date/officer during site visits.

The randomization schedules were deviated from only twice during the study: first, when an officer took unexpected leave; second, during two brief multi-day periods when officers transitioned between camera models. In the former case, since no reports were generated, the overall data was not impacted. In the latter case, reports occurring during the transition periods and when a BWC was assigned were removed from analysis.³

Determining Citizen Perceptions

To learn about the citizens' perceptions of police contacts, PERF researchers conducted telephone surveys of individuals who had contact with APD officers during the six months of the pilot study. During the survey, citizens were asked to recall their interactions with APD officers on the specific date of their contact, and were asked to rate how much they agreed or disagreed with the callers' statements, with 1 being "strongly disagree" and 5 being "strongly agree" (See Appendix B). The survey questions, which were based on PERF's previous work regarding procedural justice (Police Executive Research Forum, 2014a), were designed to assess the citizen's views on the legitimacy of an officer's actions and the professionalism of the officer, as well as the citizen's satisfaction with the interaction. Responses from these citizen contact surveys were used to generate perception indices for each of the three dependent measures: legitimacy, professionalism, and satisfaction.

For example, police legitimacy was determined by how much a citizen agreed that the officer seemed to genuinely care about the well-being of the community, acted in a way that benefitted the welfare of the residents, listened to the individual's story at the time of the interaction, explained his/her actions and decisions about the incident, and treated the individual with respect.

Officer professionalism was determined by the degree to which at the time of the interaction the officer used enforcement powers fairly or appropriately, appeared to follow the law or rules, and used appropriate levels of force, if any, and courteous language.

A citizen's overall satisfaction with the interaction was determined by the citizen's belief that the officer did a good job performing his/her role, and satisfaction with how the officer conducted him/herself.

Individuals were also asked about their level of comfort talking to the officers during their encounters.

³ During transition periods, BWC distribution was uneven as officers traded out cameras for different models. As a result, not all BWC assigned shifts could be followed through; however, all BWC not assigned shifts were followed as normal (even if a BWC had been available). As a result, PERF kept reports from solely the BWC not assigned shifts. Given that the transition periods were less than a week total and only account for about 2% of the sample, keeping these reports did not significantly change the analyses.

Determining Which Citizens to Contact

To determine which citizens to contact as part of the telephone survey, the PERF researchers used reports of documented citizen interactions with police that took place between October 2015 and March 2016. PERF obtained these reports from APD on a rolling basis at approximately two-week intervals beginning in November 2015. The reports included:

- Citizen contact information, including telephone number
- Date/time of the encounter
- Officer ID
- Whether the contact was voluntary or involuntary

After excluding reports that were invalid and otherwise out of scope,⁴ PERF researchers received information regarding a total of 3,339 police-citizen interactions.

The PERF researchers divided the police-citizen contacts into two groups based on the nature of the interactions, which was determined based on the reasons for reporting as recorded in the data. One group included individuals who voluntarily interacted with law enforcement (e.g. crime victims, witnesses, and people who contacted police for service) while the other group of individuals interacted involuntarily with the officers (e.g. criminal suspects, arrestees, and traffic stops).

Based on the nature of the police-citizen interactions and whether or not a BWC was worn by the officer at the time of the contact, all of the individuals in the study were assigned to one of four groups:

- BWC- voluntary
- BWC- involuntary
- Non-BWC- voluntary
- Non-BWC- involuntary

Table 1. BWC Randomization

Contact Type	BWC	No BWC	TOTAL
Voluntary	465	524	989
Involuntary	1,141	1,209	2,350
TOTAL	1,606	1,733	3,339

*Totals do not include cases from a transition period or bad/invalid/non-working phone numbers.

Reports were fairly evenly distributed across BWC status, as would be expected from a random assignment of BWC across shift. However, APD made more involuntary contact reports as compared to voluntary, though the bulk of these were due to traffic enforcement.

⁴ For example, reports from a BWC assigned shift during a transition period or when key information like type of report was missing.

The official reports from APD and the six-month randomization calendar created by PERF staff were used to assemble the contact lists.

Method of Contacting Citizens

Once the researchers received an entire month of citizen contact reports from APD, the data was prepared and provided to the individuals conducting the phone surveys. To avoid bias in the sorting of the calls, a random number generator was used to determine the order in which calls were to be placed. PERF staff members or a PERF contractor began contacting the citizens by phone beginning in November 2015. Callers used phones that were identified by “Police Executive Research Forum” on caller ID. When calls were answered, the callers identified themselves as working with the APD and PERF to conduct a brief survey of individuals who had recent contact with the APD. Prior to beginning the survey, the callers asked the citizen respondents if they had time to hear about the survey. If not, they were asked a good time to call them back. Willing participants were told they may quit the survey at any time and that their names would not be connected to their responses to the questions. The callers obtained the individuals’ oral consent to participate in the survey.

Rate of Responses to Survey

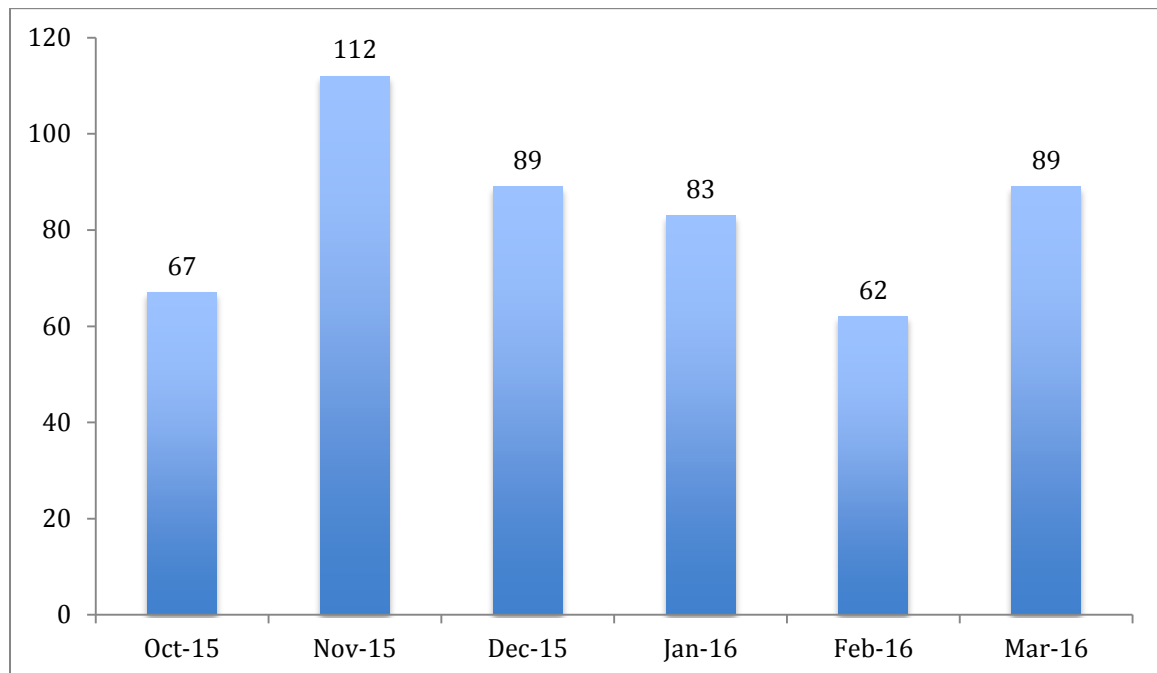
In an attempt to complete as many surveys as possible, PERF conducted three waves of outreach between October 2015 and May 2016. Across all waves, PERF made 5,197 citizen calls.⁵ The researchers obtained completed surveys for 502 cases, yielding about a 15% response rate across the 3,339 valid cases.

Up to three waves of calls were made in an effort to obtain sufficient data on police-citizen interactions. PERF researchers set a goal of obtaining 25 completed surveys within each particular group per month. If insufficient data was obtained in first round of calls, additional rounds of calls were conducted. Calls were not repeated for cases in which callers hung up, refused to participate, claimed they did not have a recent APD contact, or for the 93 cases in which the respondents did not speak English. PERF staff placed calls to individuals in all four groups of individuals from December 2015 through April 2016. Additional calls were made in June 2016 to obtain a sufficient number of survey responses for non-BWC voluntary police contacts.

The numbers of surveys completed during each month of the study are displayed in Figure 1.

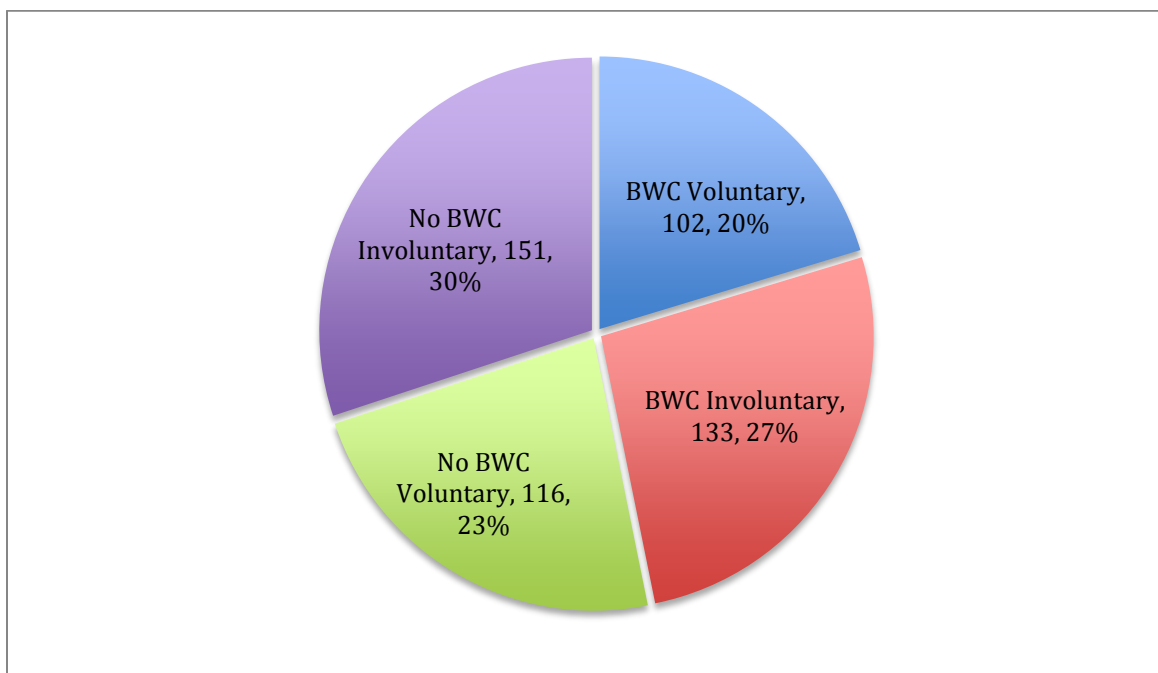
⁵ This number includes multiple calls to the same individual in regards to the same case, which is why this count is larger than the total number of cases, 3,339.

Figure 1. Completed Surveys by Month



The percentages of surveys completed by each group were similar, ranging from 20-30%. These results are shown below in Figure 2.

Figure 2. Completed Surveys by Group, Count, and Percentage of Total



Given the low response rate, the authors explored indications of non-response bias. While traditional surveys rely on high response rates (often more than 70%) to bolster any claim of generalizability within the study,⁶ the general rules of response rate and statistical inference can be relaxed given the strong design of an RCT (see Piquero, Jennings, & Farrington, 2010; Antrobus, Elffers, White, & Mazerolle, 2014). When properly implemented, the RCT design has a high internal validity and low potential for bias. This means results also have strong generalizability within the study, as findings will produce accurate measures and reflect the study population. In other words, due to the strong methodological design and randomization of treatment, RCTs have inherent advantages when it comes to accuracy within the study which can partially override conventional concerns necessary for less rigorous research designs.

Of course, conducting an RCT does not fully eliminate such concerns and researchers should still look for evidence of non-response bias. Antrobus et al. (2014) experienced a similar response rate from contact surveys during an RCT on the impact of procedural justice on citizen attitudes toward the police, using Cochrane and Elffers methods to assess result sensitivity and item non-response, respectively. The Cochrane method assesses the general impact of low response rates by simulating a comparison between treatment and control group *non-responders*. Using this method, threshold values⁷ are generated for treatment and control group *non-responders* based on observed data and theorized differences in pooled variance between non-responders and responders.⁸ The Elffers approach is used to assess the impact of item non-response rates, or the instances where individuals took the survey but did not answer all of the questions. This approach uses three response probability parameters⁹ and known population characteristics to produce unbiased estimates for treatment and comparison groups, which are compared to assess the magnitude of the impact of item non-response bias.¹⁰ Antrobus and colleagues (2014) found no evidence that the results were sensitive to the low response rates. Analysis on this study's data produced similar results: unless one assumed extremely high differences in variance between the experiment and control groups, the overall results were robust; also, item non-response was not an issue as nearly all questions had less than 1% non-response among completed surveys. Additionally, as respondents were obtained through a

⁶ Generalizability within a study is in contrast to generalizability outside of a study. The former is associated with internal validity (e.g. did the study measure its own world accurately), while the latter is associated with external validity (e.g. can the results from the study be applied outside of the study).

⁷Hypothetical 'test statistics', or threshold values for statistical significance, are used to compare treatment and control group non-responders.

⁸ In this case, pooled variance was assumed to be equal.

⁹ Parameters represent: 1) the probability of response for people in the treatment group with the 'expected' response (in this case, improved perceptions were the expected response based on past literature), 2) the responsive tendency difference between treatment and control groups, and 3) the responsive tendency difference between people with the 'expected' (higher perception) versus 'unexpected' (lower perception) response, otherwise referred to as the distortion factor.

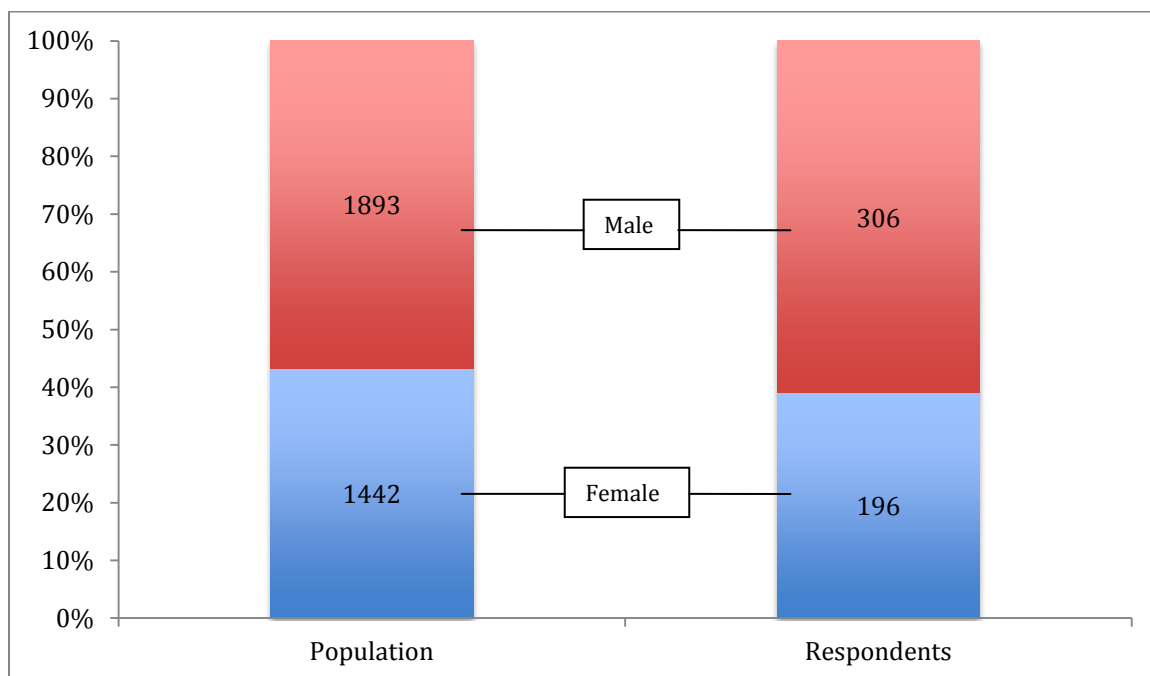
¹⁰ Unbiased estimates are produced for treatment and comparison groups and are re-computed multiple times using different values for the third parameter, or the 'distortion factor'. Estimates are compared across comparison and treatment groups for various values of the 'distortion factor' to assess the impact of item non-response.

population sample, the authors compared the demographics of respondents to the population demographic and found minimal differences reflective of low variances.

The low responses were due to unanswered calls (which made up for approximately half of the cases), hang ups, refusals to participate, claims of not having a recent APD contact, or non-English speaking respondents. Additionally, surveys were attempted only on those cases for which a report was generated, not informal police-citizen interactions. The low rate of responses may also be related to the fact that the individuals the researchers attempted to survey were involved in more serious cases than those for whom a report was not generated. The individuals with reports were likely less willing to respond to calls about their police interactions, possibly because the caller IDs of the researchers read “Police Executive Research Forum”.

Figures 3-7 demonstrate the minimal differences between the demographic characteristics of the larger pool of individuals who had interactions with officers during the study and the smaller group of individuals who responded to the phone survey. This finding strengthens the researchers’ confidence in the results of the survey as these results are highly consistent with limited variation between the population and sample, which is a key metric in assessing non-response bias particularly for an RCT.

Figure 3. Comparison of Sex Across Report Population (N=3,339) and Survey Respondents (N=502)



Since the counts in the population (N=3,339) are different than the sample (N=502), assessing the equivalence relies on the percentage distribution across groups.

Figure 3 shows that while the counts are different, the percentages are quite similar.

The same interpretation applies for Figures 4-7. The proportion of variable attributes (i.e. Male and Female in Figure 3) are similar across demographic categories such as sex (Figure 3), race/ethnicity (Figure 4), age (Figure 5) and case characteristics like district (Figure 6) and time of day for the interaction (Figure 7). These similarities in percentage are consistent with limited non-response bias and limited variation between the population and sample.

Figure 4. Comparison of Race/Ethnicity Across Report Population (N=3,339) and Survey Respondents (N=502)

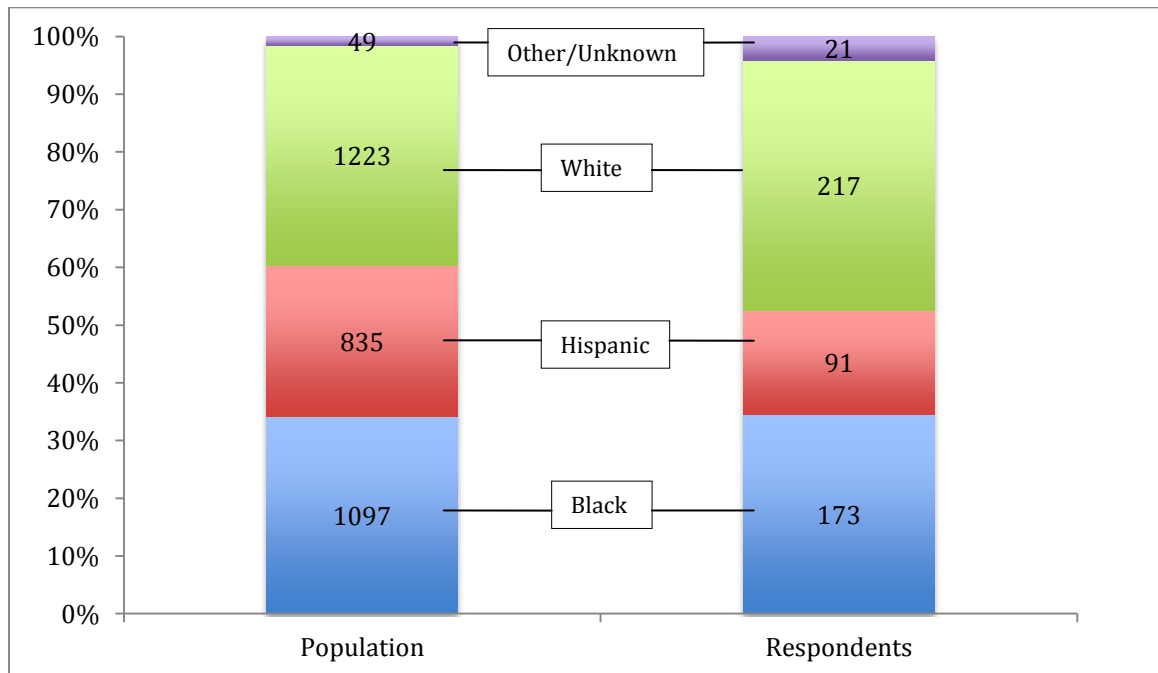


Figure 5. Comparison of Age Across Report Population (N=3,339) and Survey Respondents (N=502)

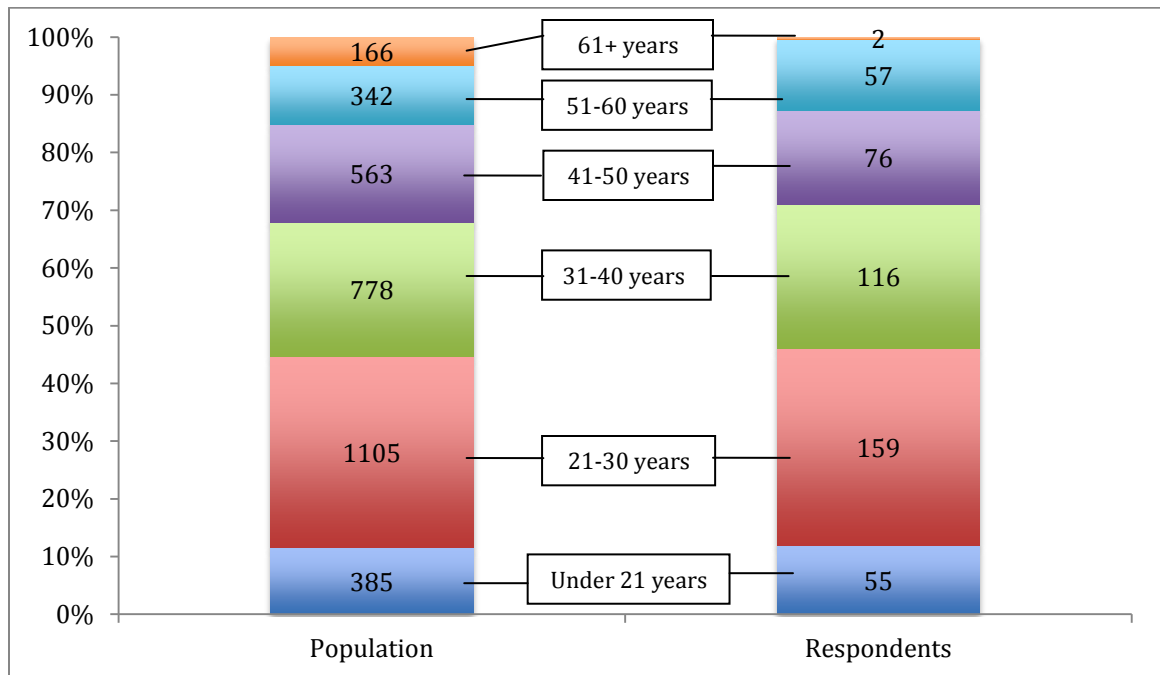


Figure 6. Comparison of APD District Counts Across Report Population (N=3,339) and Survey Respondents (N=502)

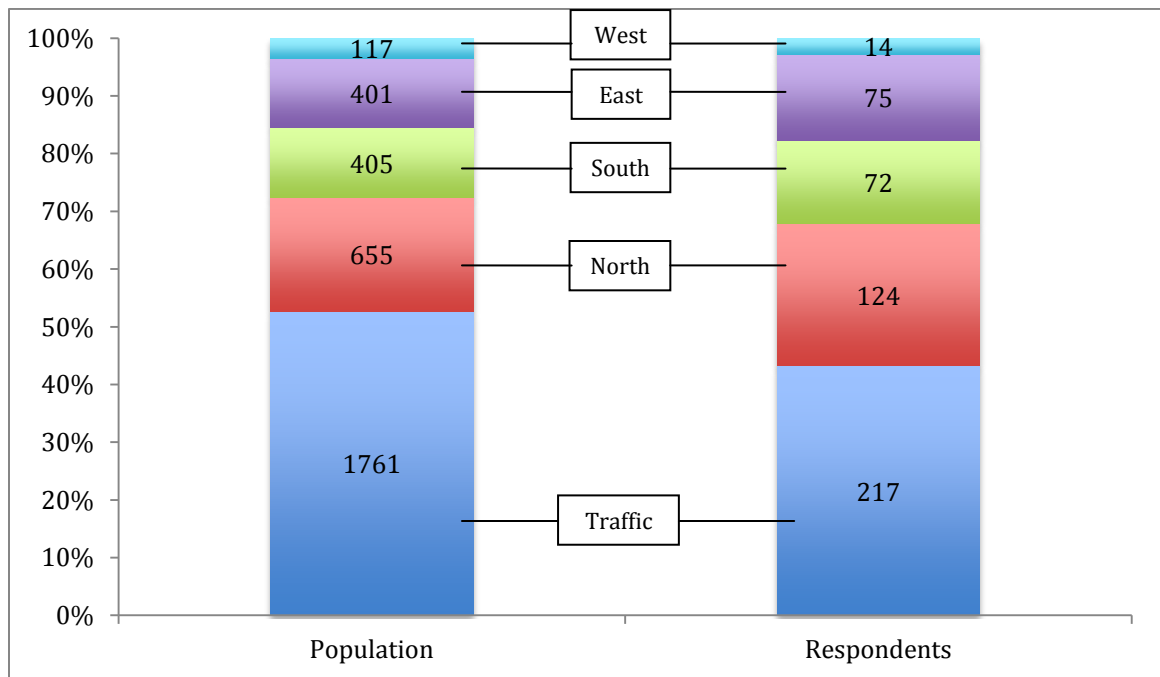
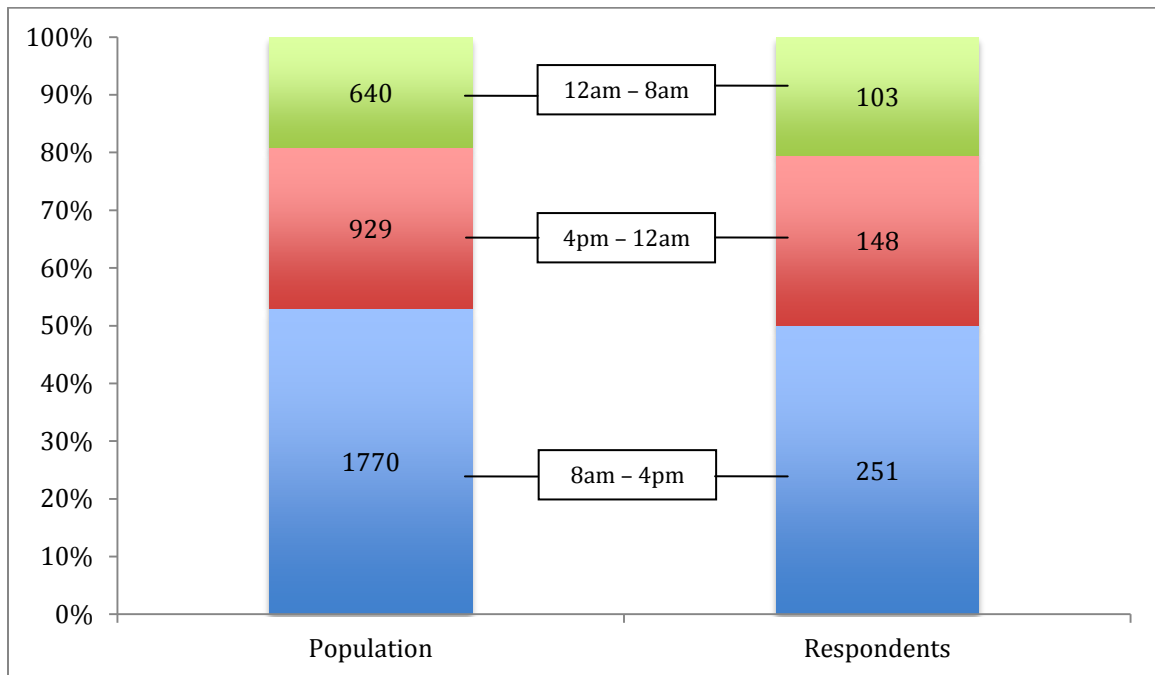


Figure 7. Comparison of Shifts for Police Contacts Across Report Population (N=3,339) and Survey Respondents (N=502)



Characteristics of Survey Respondents

While it is important to assess non-response bias between a population and sample, for an RCT it is also important to validate the equivalence between treatment and control groups. Though any differences can be attributed to chance for a properly implemented RCT, checking the assumption of equivalence is important to determine if unexplained bias may have impacted the RCT design. In order to explore this, various respondent characteristics are broken down by treatment condition and presented in Figures 8-12. Across these figures, extensive similarities between the treatment (BWC used) and control (no BWC used) groups are clear. This is a positive finding as these descriptive results support the necessary assumption of equivalency between the treatment and control groups.

Figures 9-12 compare case and demographic characteristics of survey respondents by treatment condition. As shown on the graphs, the respondents from the treatment condition (BWC used) and control condition (no BWC used) were generally similar in terms of their types of contacts (Figure 9) and demographic characteristics (Figures 10-12). The population of the full sample of respondents (regardless of BWC status) had nearly 15% more involuntary contacts, particularly traffic reports, than each of the groups separately (see Table 1 and Figure 9). Overall, males, whites, and individuals between the ages of 21 and 30 were more commonly reported by APD than females, other

race/ethnicities,¹¹ and other age groups. These differences held across the treatment and control groups, suggesting the two groups are likely equivalent with any differences due to chance.

Figure 8. Count of Respondents per Group (N = 502)

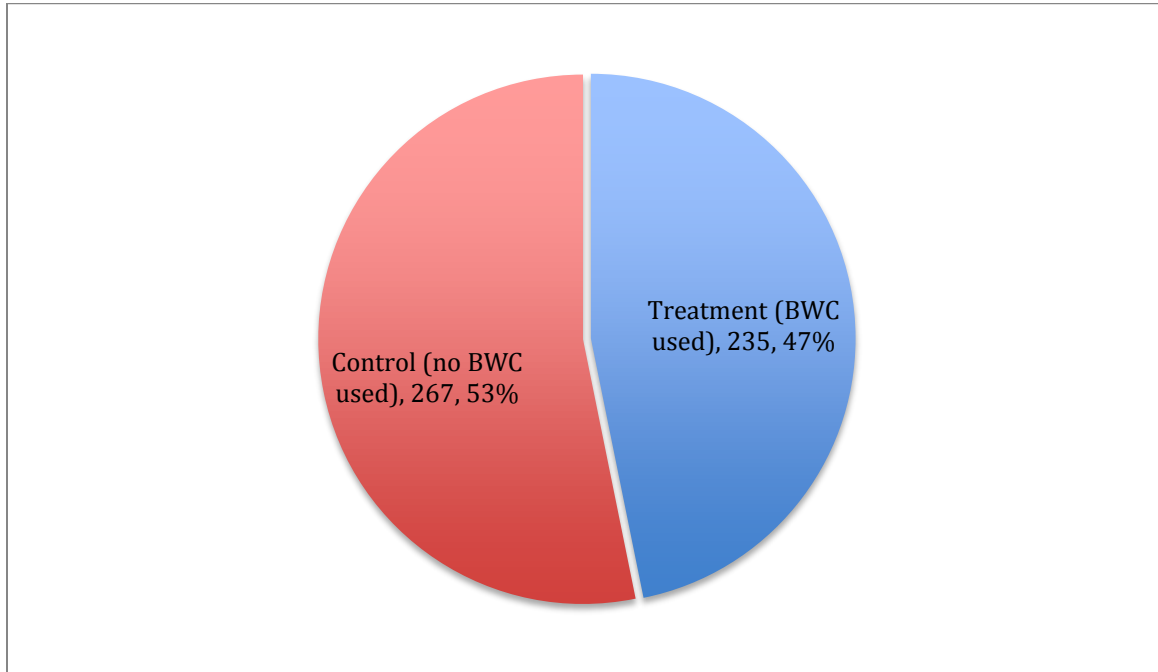
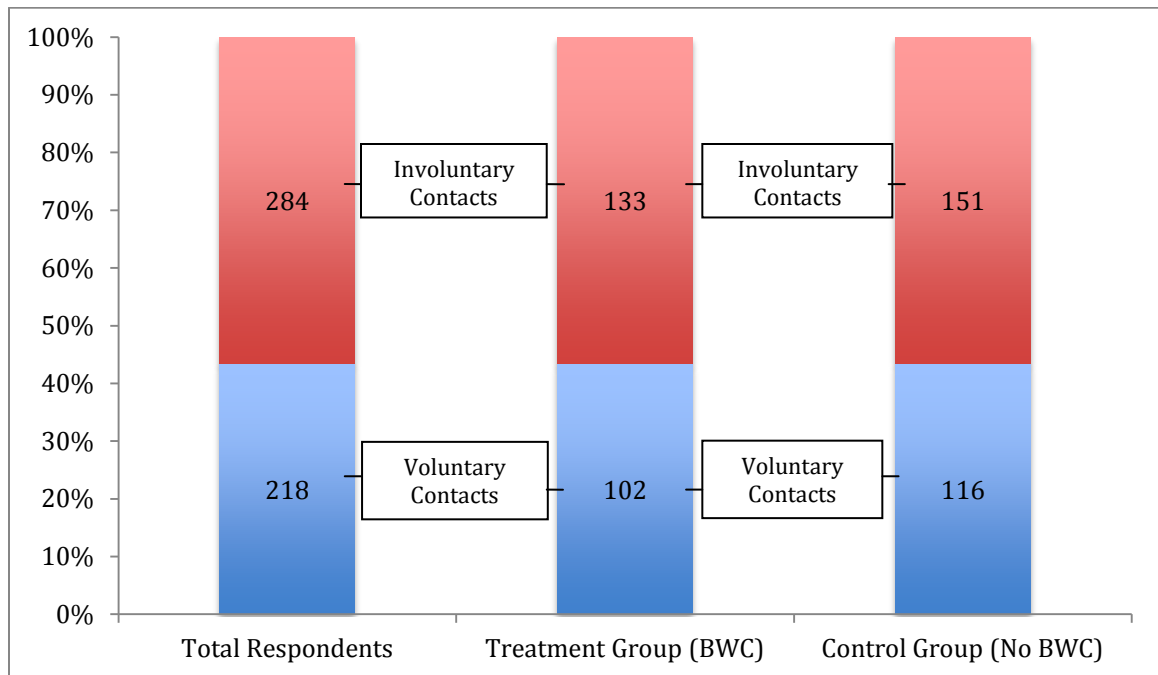


Figure 8 displays raw counts and percentage of the respondents within each group, which is relatively consistent with a perfect 50/50 split expectation from a random assignment of BWCs.

¹¹ Surnames were used to identify Hispanic individuals, as done in previous work by the US Census (Word & Perkins, 1996; Perkins, 1993). Nearly identical results were found when Hispanic surnames were not used in the analyses.

Figure 9. Types of Contacts, Comparing All Respondents (N=502) to Treatment (N=235) and Control (N=267) Groups



The purpose of Figures 9-12 is similar for assessing treatment/control equivalence as Figures 3-7 were included to explore population/sample equivalence. In Figures 9-12, the percentage of total respondents (N=502) is compared to the treatment (N=235) and the control (N=267). While the counts will differ, the percentages should be similar across these three groupings. Similar percentages provide support that unexplained variation or bias are not driving results in the RCT. Figure 9 compares the type of contact (voluntary vs. involuntary), and the percentages are nearly identical across all respondents and the two experimental conditions. Similar percentages across variable attributes are seen in respondents' sex (Figure 10), race/ethnicity (Figure 11), and age (Figure 12).

Figure 10. Sex of Respondents, Comparing All Respondents (N=502) to Treatment (N=235) and Control (N=267) Groups

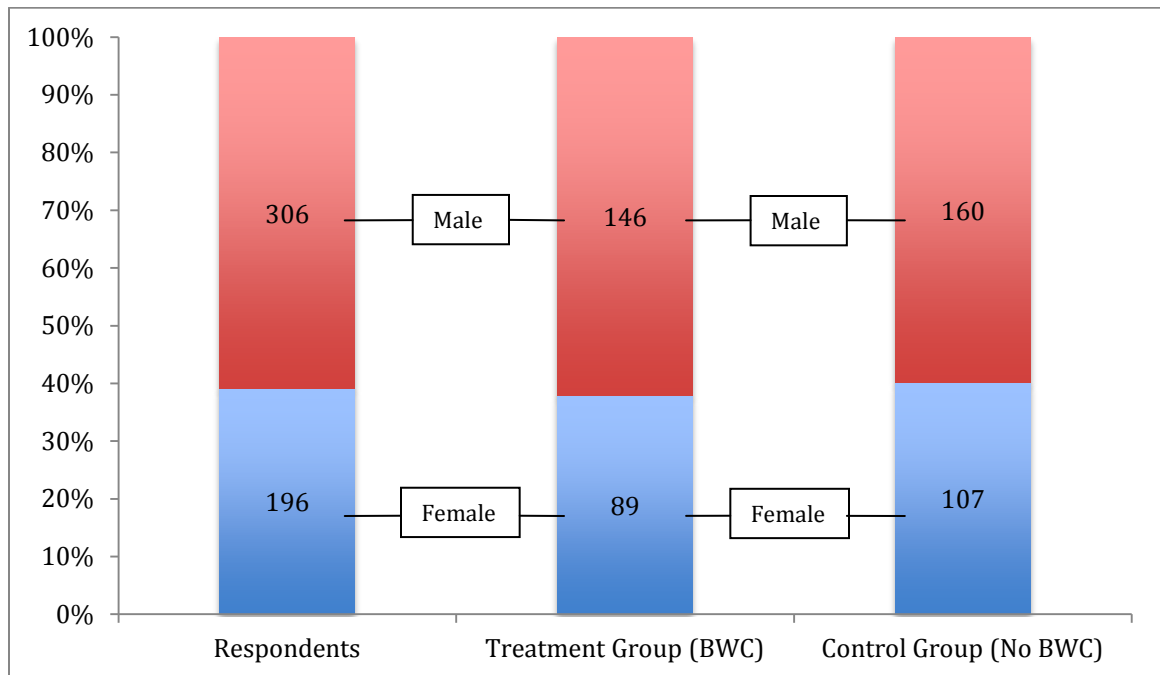


Figure 11. Race/Ethnicity of Respondents, Comparing All Respondents (N=502) to Treatment (N=235) and Control (N=267) Groups

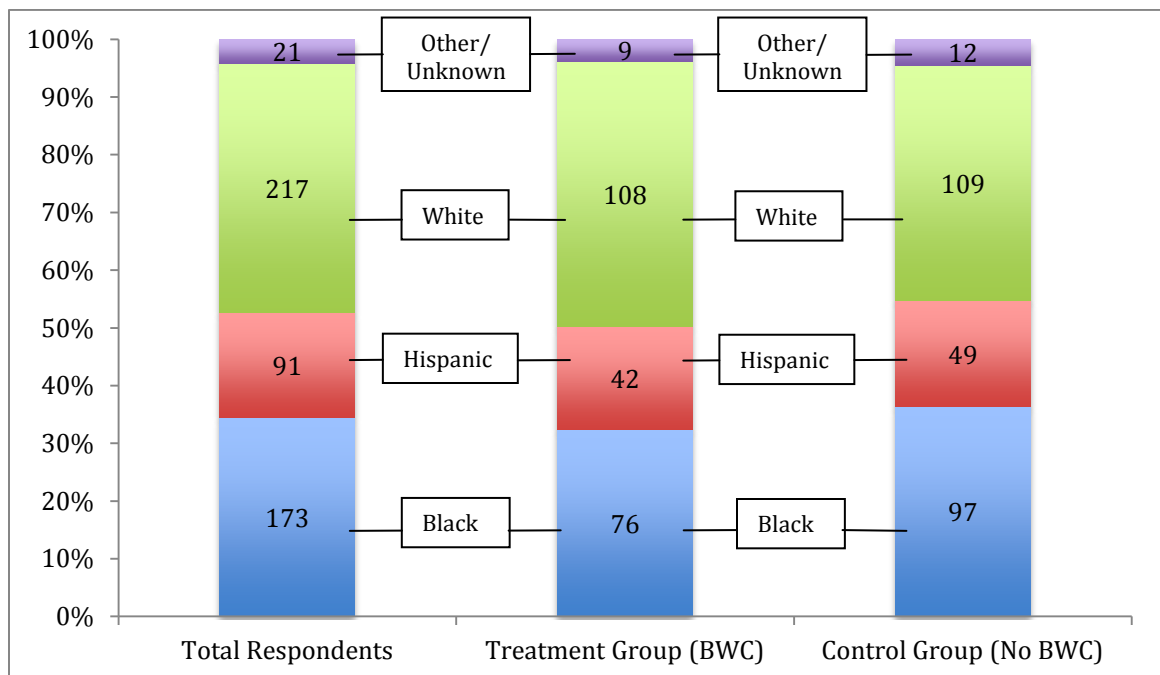
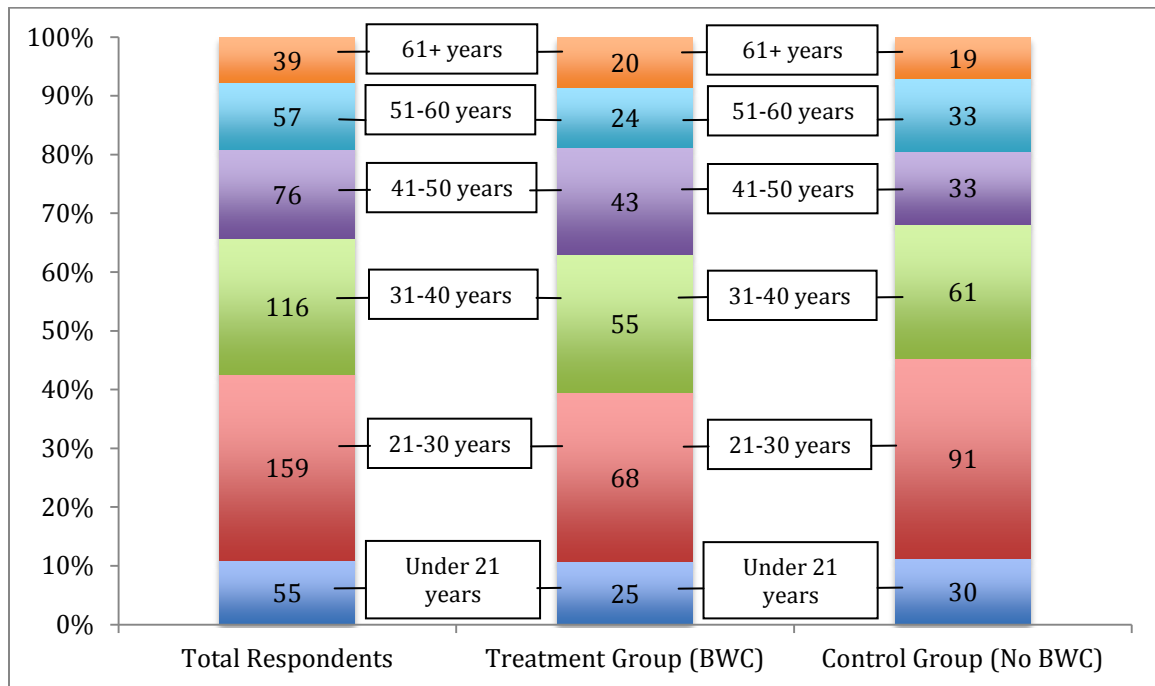


Figure 12. Age of Respondents, Comparing All Respondents (N=502) to Treatment (N=235) and Control (N=267) Groups



Data on Citywide Citizen Complaints

The researchers obtained data from APD on citizen complaints for the *entire city* during the pilot period and for the same six months one year prior to the study. APD also provided the city data specifically for the group of BWC-trained officers both during the pilot period and for the same six months one year prior to the study.

Results of the Study

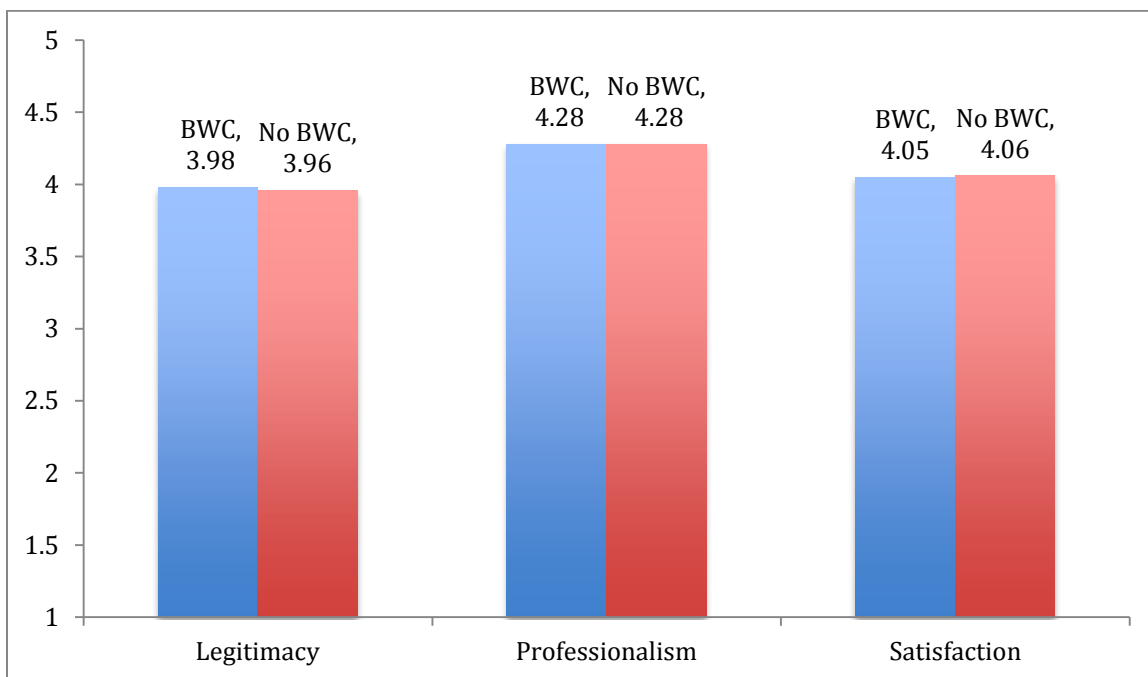
Differences in Citizen Perceptions

Survey scores on police legitimacy, satisfaction with their interactions, and views of police professionalism ranged from 1 to 5, with 1 representing the most negative citizen perceptions and 5 representing the most positive. The researchers hypothesized that survey scores would be higher, or more positive, for interactions with police who wore BWCs, and for voluntary contacts with law enforcement. Means tests were used to examine differences in citizen perceptions based on treatment condition (i.e. BWC or no BWC) and interaction type (i.e. voluntary or involuntary).

The researchers' first expectation was that citizens who interacted with patrol officers who wore BWCs would have significantly better perceptions of police legitimacy, satisfaction

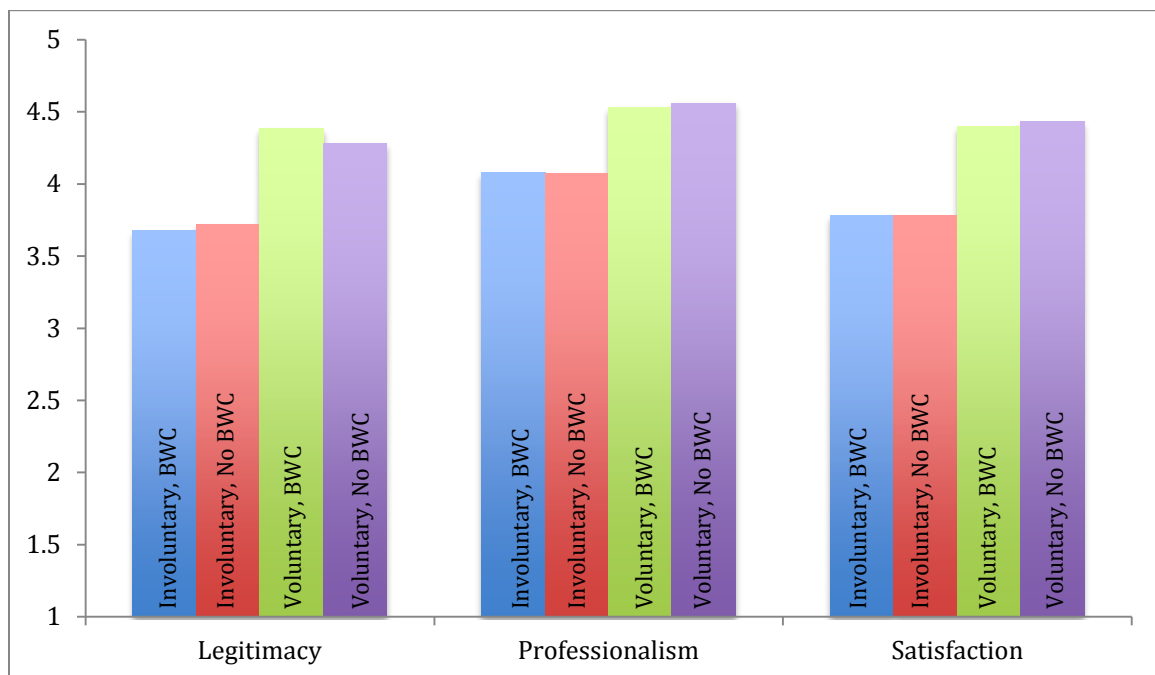
with their interactions, and views of police professionalism compared with citizens who interacted with officers who did not wear BWCs. **When comparing the survey results for the treatment (interactions with officers who wore BWCs) and control (no BWCs) groups (see Figure 13), the researchers found no differences between citizen perceptions of the individuals who interacted with officers who wore and did not wear BWCs.** In other words, the first expectation was not met.

Figure 13. Differences in Perceptions Among Treatment Groups



The researchers also presumed that voluntary contacts would have better perceptions of legitimacy, professionalism, and satisfaction than involuntary contacts (expectation 3). **The results of the survey, displayed in Figure 14, showed that regardless of BWC status, individuals with voluntary officer interactions viewed officers as having greater legitimacy, professionalism and satisfaction than individuals who had involuntary officer interactions.** Therefore, this expectation was met.

Figure 14. Citizen Perceptions by Type of Interactions and BWC Status



Within-Group Differences in Citizen Perceptions

Further analysis examined the potential of personal characteristics (race, age, gender) and case characteristics (involvement type, use of BWC, location) impacting perceptions. While the overall results found limited variation in citizen perceptions scores, it is possible for those overall comparisons to overlook more nuanced differences. While the initial analysis relied on means comparisons, the subsequent analysis relies on regression modeling to isolate the impact of specific variables while mathematically holding other variables at their average values. In this way, regression analysis allows researchers to hold a wide range of variables “constant” while looking at how changes in a single variable influence the outcome of interest (in this case, perception scores).

In order to maximize the regression methodology, some changes were made to the mathematical structure of the data. Survey responses were numerical and ranged from 1-5, rendering perception indices of limited structure. The perception indices are limited dependent variables and therefore require non-linear regression modeling to produce the most accurate estimators (Long, 1997). While the index scores yield a limited range of non-integers and could be treated as a truncated count outcome, the scores theoretically represent an underlying ordinal structure rather than a limited count. Additionally, scores were highly skewed with the strongly agree category in all three indices, meaning that people were more likely to have positive opinions, on average.¹² To illustrate outcomes in a more intuitive fashion, non-integer index scores were grouped into five ordered

¹² For the professionalism and satisfaction indices, the modal category represented over 50% of scores.

categories.¹³ With the transformed dependent variables, ordered logistical regression was the preferred modeling strategy to examine variations in citizen perceptions.¹⁴ Several models were conducted, utilizing the three perception indices (i.e. legitimacy, professionalism, and satisfaction) as dependent variables. Models were repeated several times for each citizen perception measure, with different combinations of variables. This allowed researchers to examine the impact of a wide range of factors on index scores.

It was expected that citizen perception measures would vary within groups based on demographic factors, specifically race, gender, and age. **Multivariate analysis revealed that other factors, such as citizen demographics and involvement type, seem to have independent impact on perceptions, all other factors considered.**

Black respondents generally had lower individual perceptions than whites, and Hispanic respondents were not significantly different from white respondents. There was some limited support for the impact of age, with some older cohorts having significantly better perceptions of legitimacy (age group 51-60) and satisfaction (age groups 31-40 and 51-60) when compared to the reference category (less than 21 years old). Crime witnesses and victims assigned higher scores to officers for legitimacy, professionalism, and satisfaction than persons who had involuntary encounters with police, such as arrestees. Contrary to some literature, respondent sex did not have any impact on perception scores.

While race and involvement type were significant predictors impacting citizen perceptions, examining the two factors in conjunction with each other weakened the impact of being a black respondent and strengthened the positive impact of being a victim or witness. Conversely, this analysis revealed an independent negative impact of arrest on both Hispanic and black respondents' perceptions. **These results suggest that while knowing a citizen's race can help predict perceptions of police encounters, racial impact is partially mitigated by the type of interaction. In other words, while race and involvement type significantly impact perception scores, the interaction of race and involvement (treated as a distinct variable) has an independent effect on perceptions. The interaction of race and involvement, when introduced to statistical models, takes away predictive power from race and involvement as individual variables. This finding suggests considering just race or involvement as predictive of perception scores is simplistic, and the true relationship also involves an interplay of the two variables together. Looking just towards race or involvement individually misses a considerable portion of the story in explaining how perception is impacted by citizen demographics and case characteristics. The measurable impact of the**

¹³ Given the high frequency of the maximum score which lacked a fractional part, approximately half of the scores did not require transformation and no potential variation was lost.

¹⁴ We are mindful of model sensitivity, especially with a transformation of the dependent variable. We ran tobit models with truncation at 1 and 5 and found similar results as compared to the ordered logits, with no major differences in variable significance across the two modeling strategies. As such, interpretation of the tobit results would not be notably different than the final results in this paper. The only consistent difference between models was any ordered logit had better model fit statistics than the equivalent (i.e. same independent variables) tobits.

interaction between race and involvement type is possible through advanced statistical modeling.

The multivariate results suggest even after accounting for individual officers, BWC status, and other incident characteristics, citizen characteristics independently impact the perception of an encounter. Across decades of criminological research, both race and age have served as proxies for unmeasured variation, such as pre-established opinions of police and prior interactions with law enforcement. The findings in this study are consistent with previous research. These results demonstrate the challenge police may have in changing perceptions on a case-by-case basis, as the strongest factors impacting the eventual perception of the interaction are set before the interaction even takes place. However, there is no reason to believe efforts by police are in vain, as changing perceptions may be rooted in building a cumulative record of favorable experiences with citizens.

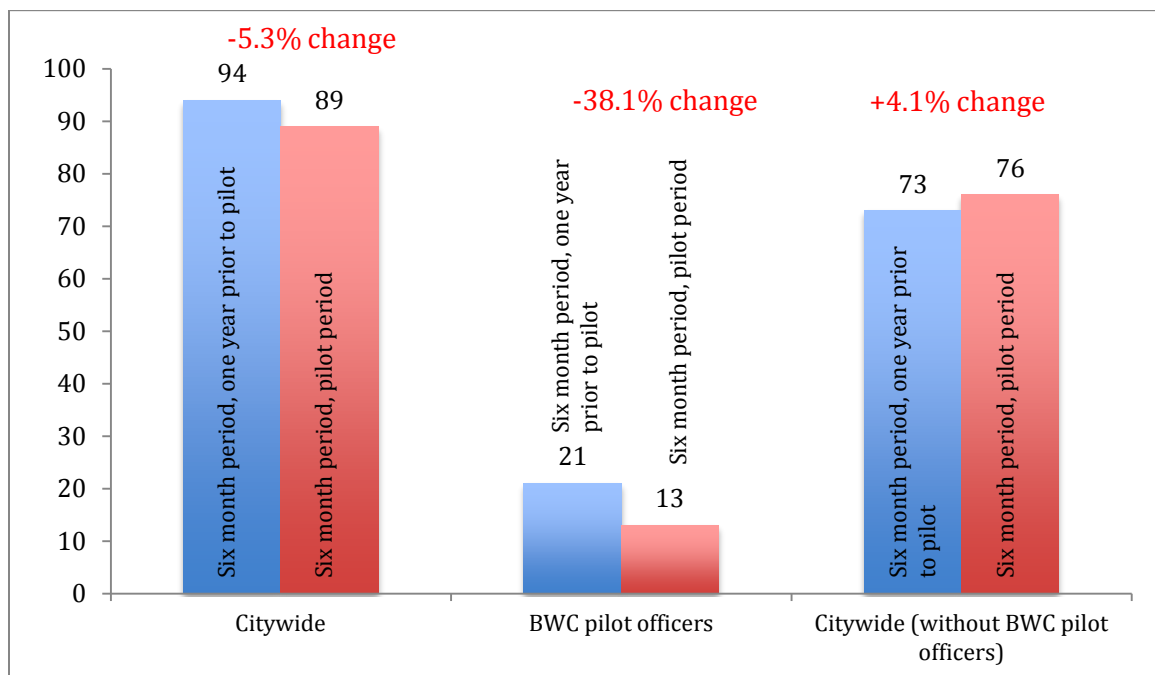
Changes in Citizen Complaints

The researchers expected that the individuals who interacted with officers who wore BWCs might be less likely to file a citizen complaint about the encounter during the incident than the individuals who interacted with officers who did not wear BWCs (expectation 3). While researchers could not obtain incident-level data allowing for the comprehensive analysis of this expectation, the researchers were able to compare the number of citizen complaints, citywide and specifically for only BWC-trained officers during the six-month pilot time period to the same six months of the year before the study. In other words, citizen complaint data were examined for both time periods among the select pool of officers who were BWC-trained at the time of the pilot. This allowed researchers to compare complaint counts from before and after officers were trained on the BWC. Complaint counts within the select group were then compared to the citywide complaints. This allowed researchers to gauge potential larger impacts related to implementation of the BWC program. The results are displayed in Figure 16.

While citywide complaints dropped overall between the year before the study and during the six months of the study, there was a considerably greater decrease in citizen complaints about the BWC-trained officers. When the BWC officers were not counted, the complaints were 4% higher citywide from one year prior to the pilot period.

Additionally, the officers who were trained in BWCs during the study experienced a 38% drop in complaints between the year prior to the pilot study and the same six months a year later, during the pilot study.

Figure 15. Count of Citizen Complaints Before and During Pilot Period



Conclusions

What We Learned from the Study

Based on the data analyzed regarding the use of BWCs during randomized shifts of APD officers, the researchers determined that **there were no significant differences in perceptions of police legitimacy, professionalism, and satisfaction between individuals who interacted with officers who wore BWCs and officers who did not wear them.** In other words, citizen perceptions of officers did not vary based on the use of BWCs. Therefore, the researchers found no significant evidence of an impact from BWCs on citizen perceptions, either positive or negative.

When the data was divided by BWC use and voluntary vs. involuntary police contact status, it showed that views regarding legitimacy, professionalism, and satisfaction among individuals who had voluntary contacts with officers were significantly higher than individuals who had involuntary contacts with officers. As expected, the researchers were able to conclude that regardless of BWC use, individuals who voluntarily interacted with police (e.g. crime victims and witnesses) had higher perceptions of officers than individuals who involuntarily interacted with law enforcement (e.g. suspects, arrestees, traffic stops).

Citizen Complaints

On a larger scale, the researchers determined that while there was a citywide decrease in citizen complaints between the year prior to the pilot study and the year of the pilot study, there was actually an increase in citizen complaints when the officers who wore BWCs were removed from the data. **This indicates there is a connection between BWCs (or at least the presence of a BWC program or training) and decreases in citizen complaints.**

Finally, when the BWC-trained officers were analyzed separately in the year prior to the study and the six months of the study, the data showed those officers experienced a 38% drop in citizen complaints. This suggests individual officers' random use of BWCs is related to decreased citizen complaints. Though we cannot conclude a causal relationship between the BWC program and reduced citizen complaints, this finding is consistent with prior BWC research (Ariel, Farrar, & Sutherland, 2015; Grossmith et al., 2015; Jennings, Lynch, & Fridell, 2015). Further research is warranted to understand what aspects of the BWC program (e.g. training, officer or citizen behavioral modification) contribute to this relationship.

Contextual Differences in Citizen Perceptions

Models were conducted separately on each citizen perception index (legitimacy, professionalism, and satisfaction), and were repeated several times using different combinations of variables. Researchers simultaneously examined the impacts of respondent demographics (i.e. race, sex, and age), patrol district, shift, involvement type, BWC condition, and officer writing the report. Race and involvement type emerged as significant predictors across models, even when statistically controlling for the influence of all other factors. That is to say, race and involvement type have *independent* effects on citizen perception scores, as the impacts remain apparent despite various contextual differences. Specifically, black respondents assigned generally lower scores to officers than white respondents, while persons involved in involuntary contacts with police assigned generally lower scores to police than persons who had voluntary contacts with the police.

Researchers then included an interaction term to represent the *combined* impact of involvement type and race, which revealed an equally robust impact within each perception model. In other words, examining the *combined* impact of both variables weakened the *independent* impact of being a black respondent and strengthened the *independent* impact of being a victim or witness. That is to say, when researchers specifically examined the *combined* impact of involvement type and race, the negative impact of being a black respondent remained significant yet became less apparent, and the significant positive impact of being a victim or witness became stronger. Simultaneously, elements of the interaction term itself were significant, showing an independent negative impact of arrest on both Hispanic and black respondents (but not whites). In other words, being arrested significantly decreased citizen perceptions among Hispanic and black respondents, but did not significantly impact scores among whites, regardless of all other factors. These results suggest that while race plays an important role in establishing perceptions of police encounters for black citizens, racial impact is partially mitigated by the type of interaction. **A significant proportion of racial differences in perception are**

actually caused by the involvement type and not race directly. While race and involvement type independently affect perception scores, the interaction of race and involvement has an independent effect which draws its explanatory power away from either race or involvement alone. The measurable impact of the interaction between race and involvement type is possible through advanced statistical modeling.

Overall Impacts on Citizen Perceptions

Within the context of citizen perceptions, we believe this study expands on previous work by clarifying the degree to which other influences, such as demographics or type of contact, may impact perceptions. Witnesses and victims expressed far better perceptions of police than persons who had involuntary contacts with the police; and black respondents generally expressed lower perceptions than white respondents. Further, it appeared that the impact of race on citizen perceptions may be mitigated or aggravated across various involvement types. The apparent interaction between race and involvement type may lend further insight into conclusions established in existing citizen perception literature.

Findings from this RCT provide evidence that a BWC program will not improve legitimacy and other perceptions, at least at the individual level. This finding was consistent regardless of police contact types (voluntary and involuntary) and various demographics, suggesting citizen perceptions are independent of BWCs. **Overall, BWCs are most likely not a stand-alone remedy for improving police-community relations.**

Policy Implications

The study's finding that the use of BWCs has no effect on citizen perceptions is unexpected and has not been suggested by other studies, but it does support others' suggestions that BWCs are not a "cure-all" for problems in law enforcement (see Miller & Toliver, 2014; White, 2014).

These results suggest implementing a BWC program is not a substitute to other activities aimed at improving citizen perceptions, such as procedural justice (Tankebe, 2013; Tyler, 1990; Tyler & Fagan, 2008) or foot patrols (Kelling, Pate, Ferrara, Utne, & Brown, 1981). Police departments should not expect that an officer with a camera is going to automatically appear more legitimate or professional, and the interaction will not necessarily be more satisfying to the citizen due to the camera. Despite these findings, BWCs may still provide many potential benefits, such as improving documentation of evidence. However, given the expenses associated with a BWC program, it is important for police departments to know that a boost in the quality of individual citizen interactions may not be a benefit.

Additionally, while we cannot determine whether implementation of a BWC program or the associated training impacts officer or citizen behaviors, the results of the study suggest that BWCs may provide a direct benefit by reducing complaints.

A reduction of citizen complaints is consistent with prior BWC research, though interpretations of this impact typically infer some degree of behavioral modification (i.e. mutual civility). However, in this case, it seems unlikely that behavioral modification would have occurred, given the fact that citizen perceptions did not change. As our perception measures tapped into key procedural justice constructs, it stands to reason that changes in these perceptions would be a necessary condition for behavioral change towards more civility.

Multivariate analysis suggested a limited number of our variables will significantly impact perceptions scores, when all other variables are held constant. Not surprisingly, black respondents had significantly lower perception scores than Hispanic or white respondents. Additionally, respondents that were arrested, questioned as a suspect, or involved in a traffic stop had significantly lower perceptions scores compared to victims and witnesses. This means knowing a respondent's race or involvement type (voluntary or involuntary) allows us to partially predict how the respondent will perceive an interaction with police independent of any other information. However, our research found the combination of race and involvement type (treated as a third variable, distinct from race or involvement type alone) was both a significant predictor in its own right, and actually reduced the predictive power of race and involvement as individual variables.

This means the true impact of race or involvement is not a direct, deterministic relationship. The significant interaction indicates the effect of race on the perception score will vary directly based on the type of involvement. The impact of race/ethnicity, whether the respondent is black, white, or Hispanic, on the perception score will change depending on the respondent's involvement type. For example, being a black respondent will have better prediction power when the respondent was also an arrestee. In this way, the impact of race (specifically, being black) is amplified when the respondent is an arrestee. However, when the respondent is a victim or witness, the impact of race is reduced due to the change in involvement type. Whereas being black greatly refines a prediction of perception when an arrestee, being black does not provide as much insight for prediction when either a victim or witness.

Ultimately, these findings suggest the true effect of race is not necessarily straightforward (e.g. black people always dislike the police more), but rather the influence of race may wax or wane depending on other variables, such as involvement type. While this complexity presents a challenge for policy, it also points to opportunity. Little can be done on the policy side to change a direct impact of race, as there is no policy able to change race (in this way, race is a classic independent variable). But if there are other variables that can intervene between race and perception, such variables are opportunities to potentially alter perceptions positively.

There are two potential implications. First, greater success in encouraging witnesses and victims to report to the police can have a strong influence on overall perceived legitimacy, professionalism, and satisfaction. Second, the impact of arresting a citizen will have an independent negative impact which can be exacerbated when considering race. Our

findings suggest that programs building cooperative ties in the community that lead to greater victim and witness engagement could produce positive returns reflected in improved citizen perceptions. In contrast, there may be limited marginal utility in making large counts of arrests as each arrest can significantly reduce individual perceptions of police.

It is important to meaningfully understand the results and implications of this study. Although the study results indicate that BWC programs do not have an effect on citizen perceptions, it is important to understand that the results do not suggest that BWCs have negative outcomes. In other words, implementing BWCs does not necessarily damage interactions between law enforcement and the community. This interpretation may be even more important to policing. If BWCs are not counted on to boost legitimacy, other activities or programs can be used to target such perception outcomes. Or if an agency is already making strides to improve perceptions, adding BWCs will not upset or undo those efforts. However, if BWCs had a negative impact, departments would *need* to improve legitimacy to counteract the impact of BWCs. With the rapid adoption schedule of BWCs nationwide, a negative impact on perceptions would be deeply concerning, as there are few higher priorities in policing than improving citizens' trust in the police (President's Task Force on 21st Century Policing, 2015).

Research Limitations

While the study has a strong design and robust findings, the study is not without limitations. Although the researchers reached out to a population of individuals who had interactions with the pilot officers, the response rate was low. The low responses were due to unanswered calls, hang ups, refusals to participate, claims of not having a recent APD contact, or non-English speaking respondents. While the call respondents did not significantly differ from the population, results from the survey should still be interpreted cautiously.

Second, the population of individuals contacted for the survey was limited to those interactions in which a report was generated. It does not include informal interactions or discretionary encounters where either the officer or citizen did not think a report was necessary. While the most serious interactions are included in the reporting population, they are fewer in number than the informal interactions, which likely compose a majority of police-citizen interactions. As a result, the study's population may have limited the generalizability of the findings.

Additionally, a violation of SUTVA (stable-unit-treatment-value assumption) could impact any experimental treatment effects (Cox, 1958; Sampson, 2010; Rosenbaum, 2007; Sobel, 2006). Without SUTVA, treatment and control conditions are not independent and differences between the two groups exist beyond the treatment, which in an RCT design should be the only differentiation between groups aside from chance. In randomizing by officer-shifts instead of by officers, the study used the same pool of BWC-trained officers in both treatment and control conditions. Studies that implement this method introduce the risk of violating the validity of the research findings. For example, in this case, it might

have been possible that officers who changed their behaviors and attitudes as a result of wearing BWCs may not have changed back when no longer wearing the BWCs during subsequent shifts. Should that have happened, the treatment effects would have bled into the control situations, making it impossible to determine whether the use of BWCs or the change in officer behavior (as a consequence of wearing the BWCs during some shifts) resulted in the scores obtained during the telephone surveys. While this is a serious threat to RCT validity generally, we suggest it is not a major challenge in this study. Evidence of a potential violation would be most apparent if feedback scores converged over time both in the aggregate and within individual officers. Therefore, the violation would manifest as better scores in the control group over time, provided officers adjust their behavior in line with self-interest.¹⁵ When examining the data by time and by officer, no significant changes or evidence of contamination were found among responding citizens. If there had been evidence of changes subsequently masked as a null finding, it would call the independence of the treatment and control into question. Though there was no evidence of behavioral contamination in the data, we feel a major takeaway from our work is that in a RCT design potentially more prone to violating the independence assumption due to shift randomization.

The researchers decided the method's strength to easily control for differences between officers outweighed the potential chance of bias within officers. While it is possible this choice may have let in other differences not found with other randomization techniques and could have impacted results, no significant changes or evidence of contamination were found in the survey responses when the data was analyzed by time and by officer.

Research Implications

The study results support previous research that found differences across voluntary and involuntary contacts, as well as reductions in citizen complaints due to BWCs. The latter is critical for understanding the impact of BWCs, as it confirms the key benefit of BWC use identified through research. While other studies found steeper declines in complaints, the drop among the BWC officers was quite large when compared to citywide figures and even the same BWC officers one year prior to BWCs.

Even with this positive finding, citizen perceptions did not change. This has a three-fold implication for research. **First, there may be no relationship between a decline in citizen complaints counts and individual perceptions.** In other words, the impact of BWCs on overall complaints does not extend to individual interactions when split between officers who are wearing a BWC and those who are not. While individuals and law enforcement officials are hopeful that BWC usage will solve a wide range of problems, this finding places a limit on the potential impact of BWCs. Independent from the use of BWCs, the vast majority of police interactions do not result in a complaint or use-of-force incident

¹⁵ It is difficult to imagine a rational actor being changed by a BWC, only to then undergo a contamination resulting in an undoing of the initial change. If an individual officer acts "better" knowing he/she is filmed but "normal" when not filmed, it seems implausible subsequent change would see normal bleed into better as the idea of acting normal while filmed would have been the impetus to be act better.

(International Association of Chiefs of Police, 2001), so the influence of BWCs may be limited to serious yet relatively uncommon interactions between individuals and police.

Second, the finding suggests that citizen perception of legitimacy, professionalism, and satisfaction is independent of BWCs. This finding was consistent across different police contact types (voluntary and involuntary) and various demographics. The null effect of the BWC was also largely consistent between measures of legitimacy, professionalism, and satisfaction. A key reason given for BWC adoption is to improve police legitimacy. While previous studies have examined legitimacy (Tankebe, 2013; Tyler & Fagan, 2008), this is the first study to date that focuses on how individuals react to BWCs. Findings from this RCT provide evidence a BWC program will not improve legitimacy and other perceptions, at least at the individual level. As BWCs are generally a new technology, there is still potential that citizen reactions to BWCs may change. As more research is conducted and the public becomes more knowledgeable of the broader impacts of BWCs (e.g. the potential use for evidence documentation, implications for civilian privacy/confidentiality, or effects on use-of-force), it is possible that over time citizen perceptions may change with relation to BWCs.

Third, the assumption that individuals could change their actions when they know they are being recorded by BWCs may not hold. If individuals' perceptions did not change due to BWC use, it is more difficult to see why they would alter their behavior. Further research is needed to determine the key mechanism that results in a strong link between BWCs and decreased complaints.

Fourth, other factors, such as citizen demographics and involvement type may have an independent impact on perceptions, all other factors considered. It is possible that encouraging witnesses and victims to report to the police can have a strong influence on overall perceived legitimacy, professionalism, and satisfaction. The impact of arresting a citizen will have an independent negative impact which can be exacerbated when considering race. One question for future research would be whether such negative perceptions from arrest build cumulatively within individuals.

Controls for particular officers and shift revealed little differences across officers, suggesting limited variability in how officers interact with individuals. This is consistent with uniform training and adherence to established standards across a police force. Given that officers likely receive standard training in the department, it is possible the limited officer differences are driven by individual officer personalities. This finding is akin to policing research examining the role of discretion, in that the decisions of individual officers will continue to manifest even under standard rules across a department (see Klockars, 1985). Overall, the finding that some officers did perform significantly better or worse (albeit small differences), shows that there is limited potential for officers to influence perceptions.

Future Research

This work demonstrates the continued need for future research into BWCs, especially in light of the rapid implementation of this technology nationwide. Although BWC adoption has outpaced research to date, a considerable amount of research is on the horizon (Lum et al. 2015).

One key area for future research is to gain a better understanding of the cause for consistent findings that show BWC programs result in notable decreases in citizen complaints. Additionally, there should be further research into how individuals are impacted by BWCs. The perceptions and experiences of the community are central to community policing, and BWCs are likely to be the largest, most pervasive technological change policing has seen in recent years. While this study suggests that BWCs do not have an impact on perceptions, future research needs explore the potential differences in perceptions within different jurisdictions where community relations are more strained than in Arlington, TX. It is possible that APD's jurisdiction, in which there seems to be a very favorable perception of officer interactions, may have impacted the study's results. Further research in jurisdictions with larger gaps between the police and individuals may result in different conclusions about BWCs.

Although the randomization procedure minimized the chance that officer characteristics would impact the results, all officers participating in the study were volunteers. Further research should compare instances of mandatory versus voluntary assignment of BWCs. This would help to better understand the impact of volunteer bias. It is possible that volunteers could perform better with BWCs due to a host of reasons related to volunteerism (e.g. technological savvy, commitment to procedural justice) when compared with non-volunteers (see Jennings et al., 2015).

Finally, the current study was informed by the researchers' ability to occasionally observe BWC footage. Subsequent research should incorporate camera footage and potential coding of interactions into the research design. This would be valuable both as an independent assessment not relying on difficult-to-obtain citizen perception data for research, and as a potential refining of footage as a training tool for departments. Independent assessment of footage would also be useful for assessing officer behavior and adherence to procedural fairness. Incorporation of camera footage and coding of interactions could also allow researchers to examine interactions occurring with the BWC that did not result in an official report.

References

- Antrobus, E., Elffers, H., White, G., & Mazerolle, L. (2014). Non-response bias in randomized control experiments in criminology: Putting the Queensland Community Engagement Trial (QCET) under a microscope. *Evaluation Review: Advances in Randomized Experiments and Quasi-Experiments in Criminology and Criminal Justice*.
- Ariel, B., Farrar, W. A., & Sutherland, A. (2015). The effect of police body-worn cameras on use of force and citizens' complaints against the police: A randomized controlled trial. *Journal of Quantitative Criminology*, 31(3), 509-535.
- Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., Megicks, S., Henderson, R. (2016). Wearing body-cameras increases assaults against officers and do not reduce police use of force: results from a global multisite experiment. *European Journal of Criminology*.
- Bureau of Justice Assistance (BJA) Body-Worn Camera Toolkit. (2016). Retrieved from Bja.gov/bwc.
- Cox, D. R. (1958). *Planning of experiments*, New York: Wiley.
- Farrar, W. (2014). Operation Candid Camera: Rialto Police Department's body-worn camera experiment. *The Police Chief*, 81, 20–25.
- Farrar, W.A. & Ariel, B. (2013). *Self-awareness to being watched and socially-desirable behavior: A field experiment on the effect of body-worn cameras on police use of force*. Washington, D.C.: Police Foundation.
- General Order No. 209.08 Body-Worn Camera Program, September 30, 2015; Arlington, Texas Police Department.
- Gill, C., Weisburd, D., Telep, C. W., Vitter, Z., & Bennett, T. (2014). Community-oriented policing to reduce crime, disorder and fear and increase satisfaction and legitimacy among citizens: a systematic review. *Journal of Experimental Criminology*, 10(4), 399-428.
- Grossmith, L., Owens, C., Finn, W., Mann, D., Davies, T., & Baika, L. (2015). *Police, camera, evidence: London's cluster randomised controlled trial of Body Worn Video*. London, United Kingdom: College of Policing and the Mayor's Office for Policing and Crime (MOPAC).
- Henstock, D., & Ariel, B. (2015). *Testing the effects of body worn video on police use of force during arrest: A randomised controlled trial*. Oxford, United Kingdom: Wolfson College.
- International Association of Chiefs of Police (IACP). (2001). *Police use of force in America*. Alexandria, VA: International Association of Chiefs of Police.
- Jennings, W. G., Fridell, L. A., & Lynch, M. D. (2014). Cops and cameras: Officer perceptions of the use of body-worn cameras in law enforcement. *Journal of Criminal Justice*, 42(6), 549-556.
- Jennings, W. G., Lynch, M. D., & Fridell, L. A. (2015). Evaluating the impact of police officer body-worn cameras (BWCs) on response-to-resistance and serious external complaints: Evidence from the Orlando police department (OPD) experience utilizing a randomized controlled experiment. *Journal of Criminal Justice*, 43(6), 480-486.
- Katz, C., & Kurtenbach, M. (2014). *Deploying officer body-worn cameras in Phoenix*. Office of

- Justice Programs Diagnostic Center.
- Katz, C. M., Kurtenbach, M., Choate, D.W., & White, M.D. (2015). *Phoenix, Arizona, Smart Policing Initiative: Evaluating the Impact of Police Officer Body-Worn Cameras*. Washington, DC: U.S. Department of Justice, Bureau of Justice Assistance: Smart Policing Initiative.
- Kelling, G. L., Pate, A., Ferrara, A., Utne, M., & Brown, C. E. (1981). *The Newark foot patrol experiment*. Washington, D.C.: Police Foundation, 94-96.
- Klockars, C. B. (1985). *The idea of police* (Vol. 3). Beverly Hills, CA: Sage Publications.
- Long, S. J. (1997). *Regression models for categorical and limited dependent variables*. Advanced Quantitative Techniques in the Social Sciences.
- Lum, C. M., Koper, C. S., Merola, L. M., Scherer, A., & Reiou, A. (2015). *Existing and ongoing body worn camera research: Knowledge gaps and opportunities*. George Mason University.
- Miller, L. & Toliver, J.,. (2014). *Implementing a body-worn camera program: Recommendations and lessons learned*. Washington, D.C.: Police Executive Research Forum, Office of Community Oriented Policing Services.
- Owens, C., Mann, D., & Mckenna, R. (2014). *The Essex body worn video trial*. Essex, United Kingdom: College of Policing.
- Perkins, C. (1993 August). Evaluating the Passel-Word Spanish surname list: 1990 Decennial Census post enumeration survey results. Retrieved from U.S. Census, <https://www.census.gov/population/www/documentation/twps0004.html>
- Police Executive Research Forum (PERF). (2014). *Legitimacy and procedural justice: A new element of police leadership*. Washington, D.C.: Police Executive Research Forum, Bureau of Justice Assistance.
- President's Task Force on 21st Century Policing. (2015). *Final report of the President's Task Force on 21st Century Policing*. Washington, D.C.: Office of Community Oriented Policing Services.
- Ready, J. T., & Young, J. T. (2015). The impact of on-officer video cameras on police–citizen contacts: findings from a controlled experiment in Mesa, AZ. *Journal of Experimental Criminology*, 11(3), 445-458.
- Rosenbaum, P. R. (2007). Interference between units in randomized experiments. *Journal of the American Statistical Association*, 102(447), 191-200.
- Sampson, R. J. (2010). Gold standard myths: Observations on the experimental turn in quantitative criminology. *Journal of Quantitative Criminology*, 26(4), 489-500.
- Sobel, M. E. (2006). What do randomized studies of housing mobility demonstrate? Causal inference in the face of interference. *Journal of the American Statistical Association*, 101(476), 1398- 1407.
- Tankebe, J. (2013). Viewing things differently: The dimensions of public perceptions of police legitimacy. *Criminology*, 51(1), 103-135.
- Tyler, T. R. (1990). Why people obey the law: Procedural justice, legitimacy, and compliance.
- Tyler, T. R., & Fagan, J. (2008). Legitimacy and cooperation: Why do people help the police fight crime in their communities. *Ohio State Journal of Criminal Law*, 6(231), 231-275.
- White, M. D. (2014). *Police officer body-worn cameras: Assessing the evidence*. Washington, D.C.: Office of Community Oriented Policing Services.
- Word, D., & Perkins, R. C. *Building a Spanish surname list for the 1990's—A new approach to an*

old problem. U.S. Census Bureau, 1996(13). Technical Working Paper.

Appendix A. Matrix of PERF's Recommendations on the Use of BWCs (from Miller and Toliver, 2014)

General recommendations

No.	Recommendation	Rationale for Recommendation and Tips for Implementation
1	Policies should clearly state which personnel are assigned or permitted to wear body-worn cameras and under which circumstances.	<p>The decision about which officers should wear body-worn cameras will depend on an agency's resources, law enforcement needs, and other factors.</p> <p>Implementation tip:</p> <ul style="list-style-type: none"> Some agencies find it useful to begin deployment with units that have the most frequent contacts with the public (e.g., traffic or patrol officers).
2	If an agency assigns cameras to officers on a voluntary basis, policies should stipulate any specific conditions under which an officer might be required to wear one.	<p>Officers who are not otherwise assigned body-worn cameras may become required to wear one in certain circumstances, such as the following:</p> <ul style="list-style-type: none"> After receiving a specified number of complaints or disciplinary actions When participating in a certain type of activity, such as SWAT operations
3	Agencies should not permit personnel to use privately-owned body-worn cameras while on duty.	<p>The agency would not own recordings made from personal devices; thus, there would be little or no protection against data tampering or releasing the videos to the public or online. There would also be chain-of-custody issues with admitting personal recordings as evidence in court.</p>
4	Policies should specify the location on the body on which cameras should be worn.	<p>Implementation tips:</p> <ul style="list-style-type: none"> Factors to consider when determining camera placement include field of vision, comfort, functionality, ease of use, and the type of camera system used. Agencies should field-test various camera locations.
5	Officers who activate the body-worn camera while on duty should be required to note the existence of the recording in the official incident report.	<p>This policy ensures that the presence of video footage is accurately documented in the case file so that investigators, prosecutors, oversight boards, and courts are aware of its existence.</p>

No.	Recommendation	Rationale for Recommendation and Tips for Implementation
6	<p>Officers who wear body-worn cameras should be required to articulate on camera or in writing their reasoning if they fail to record an activity that is required by department policy to be recorded. (See Recommendations 7-13 for Recording Protocols.)</p>	<p>There may be times when an officer fails to record an event or activity that is otherwise required by agency policy to be recorded. This may arise under the following circumstances:</p> <ul style="list-style-type: none"> • When conditions make it unsafe or impossible to activate the camera • When an officer exercises discretion, per agency policy, to not record because doing so would be detrimental to other agency priorities (e.g., protecting privacy rights, preserving community relations, or facilitating intelligence gathering) • When the camera malfunctions or otherwise fails to capture the event/activity <p>In these situations, officers should document in writing and/or on camera their reasons for not recording. This holds officers accountable, allows supervisors to investigate recording irregularities, and documents the absence of video footage for investigations and court proceedings.</p> <p>Implementation tips:</p> <ul style="list-style-type: none"> • The failure to record should be noted in the officer's written report. • If the officer deactivates the camera in the middle of recording, the officer should state on camera the reasons why.

Recording protocols

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
7	<p>General recording policy: Officers should be required to activate their body-worn cameras when responding to all calls for service and during all law enforcement-related encounters and activities that occur while the officer is on duty. Exceptions include recommendations 10 and 11 below or other situations in which activating cameras would be unsafe, impossible, or impractical.</p>	<p>Rather than requiring officers to record all encounters with the public, most agencies that PERF consulted require officers to record during calls for service and during all law enforcement-related encounters and activities. PERF agrees with this approach. This means that officers have discretion whether to record informal, non-law enforcement-related interactions with the public.</p> <p>The reasons for adopting this approach include the following:</p> <ul style="list-style-type: none"> • Protecting relationships between the police and the community • Promoting community policing efforts • Securing officer support for the body-worn camera program by signaling that they are trusted to know when to record

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
		<ul style="list-style-type: none"> • Keeping data storage manageable
7a	Policies and training materials should clearly define what is included in the description “law enforcement-related encounters and activities that occur while the officer is on duty.”	<p>Officers should have clear guidance about which specific types of activities, events, and encounters they are required to record.</p> <p>Implementation tip:</p> <ul style="list-style-type: none"> • Some agencies have found it useful to provide a list of specific examples in their policies, such as traffic stops, arrests, searches, interrogations or interviews, and pursuits. Policies should note that these types of lists are not exhaustive. • These recording policies should be reinforced in training.
7b	Officers should also be required to activate the camera during the course of <i>any</i> encounter with the public that becomes adversarial after the initial contact.	<p>If officers are given discretion to not record informal, non-law enforcement-related encounters with the public, they should nonetheless be instructed to activate their cameras if the encounter becomes adversarial. This provides documentation of the encounter in the event that a complaint later arises. It also may help to defuse tense situations and prevent further escalation.</p> <p>Implementation tip:</p> <ul style="list-style-type: none"> • Officers may be called upon to activate their cameras quickly and in high-stress situations. Therefore, training programs should strive to ensure that camera activation becomes second-nature to officers. Situational training is particularly useful to achieve this goal.

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
8	Officers should be required to inform subjects when they are being recorded unless doing so would be unsafe, impractical, or impossible.	<p>The mere knowledge that one is being recorded can help promote civility during police encounters with the public. Many police executives have found that officers can avoid adversarial situations if they inform people that they are being recorded.</p> <p>Implementation tips:</p> <ul style="list-style-type: none"> • In states with two-party consent laws, officers are required to announce they are recording and to obtain the subject's consent. Agencies should consult their state laws to determine whether this requirement applies. • In one-party consent states, PERF's recommendation that officers inform a person that he or she is being recorded does <i>not</i> mean that officers must also obtain the person's consent to record. • An officer may exercise discretion to not announce that he or she is recording if doing so would be unsafe, impractical, or impossible.
9	Once activated, the body-worn camera should remain in recording mode until the conclusion of an incident/encounter, the officer has left the scene, or a supervisor has authorized (on camera) that a recording may cease.	<p>Implementation tip:</p> <ul style="list-style-type: none"> • Prior to deactivating the camera, officers should announce that the incident has concluded and that the recording will now cease.
10	Regardless of the general recording policy contained in recommendation 7, officers should be required to obtain consent prior to recording interviews with crime victims.	<p>There are significant privacy concerns associated with videotaping crime victims. PERF believes that requiring officers to obtain consent prior to recording interviews with victims is the best way to balance privacy concerns with the need to accurately document events.</p> <p>Implementation tips:</p> <ul style="list-style-type: none"> • Victims should give or deny consent in writing and/or on camera. • This policy should apply regardless of whether consent is required under state law.

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
11	Regardless of the general recording policy contained in recommendation 7, officers should have the discretion to keep their cameras turned off during conversations with crime witnesses and members of the community who wish to report or discuss criminal activity in their neighborhood.	<p>One of the most important jobs of police officers is to gather information about crime that occurs in their communities. These intelligence-gathering efforts may be formal (e.g., through interviews with witnesses of a crime) or informal (e.g., through conversations with community members with whom the officer has a relationship). Some police executives report that body-worn cameras can inhibit intelligence-gathering efforts, as some witnesses and community members may be hesitant to report information if they know their statements will be recorded. They may fear retaliation, worry about their own privacy, or not feel comfortable sharing sensitive information on camera. Officers should have the discretion to keep their cameras turned off in these situations.</p> <p>Implementation tips:</p> <ul style="list-style-type: none"> • If a person is not comfortable sharing information on camera, some agencies permit officers to position the camera so that they capture only audio, not video, recordings of the person making the statement. This affords greater privacy protections while still preserving evidentiary documentation. • It is useful for officers to keep their cameras running during the initial response to an ongoing/live crime scene to capture spontaneous statements and impressions made by people at the scene. Once the scene is controlled and has moved into the investigative stage, officers may make a case-by-case decision about whether to record later interviews with witnesses. • When encountering a reluctant witness, officers should attempt to develop a rapport by being honest and not pressuring the person to talk on camera. • If an officer turns the camera off prior to obtaining information, the officer should document on camera the reason for doing so.

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
11a	<p>When determining whether to record interviews with witnesses and members of the community who wish to share information, officers should always consider both the evidentiary value of recording and the subject's comfort with speaking on camera. To better capture evidence, PERF recommends that officers record statements made by witnesses and people sharing information. However, if a person will not talk unless the camera is turned off, officers may decide that obtaining the information is more important than recording. PERF recommends allowing officers that discretion.</p>	<p>Recorded statements made by crime victims and members of the community can provide valuable evidence for investigations and prosecutions. Therefore, it is always preferable to capture these statements on camera when possible.</p> <p>Implementation tips:</p> <ul style="list-style-type: none"> • Many agencies instruct officers to keep the camera activated when speaking with witnesses or informants unless the person actively requests otherwise. • Agencies should work with prosecutors to determine how best to weigh the importance of having a recorded statement versus the importance of gathering information when a witness refuses to speak on camera.
11b	<p>Policies should provide clear guidance regarding the circumstances under which officers will be allowed to exercise discretion to record, the factors that officers should consider when deciding whether to record, and the process for documenting whether to record.</p>	<p>Although discretion is important for protecting community policing efforts, this discretion must not be unlimited. Officers should always adhere to agency policies regarding discretion and should document when they exercise this discretion.</p>
12	<p>Agencies should prohibit recording other agency personnel during routine, non-enforcement-related activities unless recording is required by a court order or is authorized as part of an administrative or criminal investigation.</p>	<p>This policy supports officer privacy and ensures officers feel safe to engage in routine, informal, non-law enforcement-related conversations with their colleagues. Situations that should not be recorded include the following:</p> <ul style="list-style-type: none"> • Non-law enforcement-related conversations held between officers while on patrol (except while responding to a call for service) • Conversations between agency personnel held during breaks, at lunch, in the locker room, or during other non-law enforcement-related activities
13	<p>Policies should clearly state any other types of recordings that are prohibited by the agency. Prohibited recordings should include the following:</p> <ul style="list-style-type: none"> • Conversations with confidential informants and undercover officers to protect confidentiality and officer safety • Places where a reasonable expectation of privacy exists (e.g., bathrooms or locker rooms) • Strip searches • Conversations with other agency personnel that involve case tactics or strategy 	<p>When determining whether a recording should be prohibited, agencies should consider privacy concerns, the need for transparency and accountability, the safety of the officer and the citizen, and the evidentiary value of recording.</p>

Download and storage policies

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
14	Policies should designate the officer as the person responsible for downloading recorded data from his or her body-worn camera. However, in certain clearly identified circumstances (e.g., officer-involved shootings, in-custody deaths, or other incidents involving the officer that result in a person's bodily harm or death), the officer's supervisor should immediately take physical custody of the camera and should be responsible for downloading the data.	In most cases, it is more efficient for an officer to download recorded data from his or her own body-worn camera. The officer will have the best access to the camera and knowledge of the footage for tagging/documentation purposes. However, if the officer is involved in a shooting or other incident that results in someone's bodily harm or death, it is prudent for the officer's supervisor to take immediate custody of the officer's camera for evidence preservation purposes.
15	Policies should include specific measures to prevent data tampering, deleting, and copying.	Implementation tips: <ul style="list-style-type: none"> • Agencies should create an audit system that monitors who accesses recorded data, when, and for what purpose. Some camera systems come with a built-in audit trail. • Agencies can conduct forensic reviews to determine whether recorded data has been tampered with.
16	Data should be downloaded from the body-worn camera by the end of each shift in which the camera was used.	<p>The majority of agencies that PERF consulted require officers to download recorded data by the conclusion of his or her shift. The reasons for this include the following:</p> <ul style="list-style-type: none"> • Many camera systems recharge and clear old data during the downloading process. • Events will be fresh in the officer's memory for the purpose of tagging and categorizing. • Evidence will be entered into the system in a timely manner.
17	Officers should properly categorize and tag body-worn camera videos at the time they are downloaded. Videos should be classified according to the type of event or incident captured in the footage.	<p>Properly categorizing and labeling/tagging recorded video is important for the following reasons:</p> <ul style="list-style-type: none"> • The type of event/incident on the video will typically dictate data retention times. • It enables supervisors, investigators, and prosecutors to more easily identify and access the data they need. <p>Implementation tips:</p> <ul style="list-style-type: none"> • Some camera systems can be linked to an agency's records management system to allow for automated tagging and documentation. • Some camera systems can be linked to electronic tablets that officers can use to review and tag recorded data while in the field. This saves the officer time spent tagging data at the end of his or

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
		her shift.
18	Policies should specifically state the length of time that recorded data must be retained. For example, many agencies provide 60-day or 90-day retention times for non-evidentiary data.	<p>Most state laws provide specific retention times for videos that contain evidentiary footage that may be used for investigations and court proceedings. These retention times will depend on the type of incident captured in the footage. Agencies typically have more discretion when setting retention times for videos that do not contain evidentiary footage.</p> <p>When setting retention times, agencies should consider the following:</p> <ul style="list-style-type: none"> • State laws governing evidence retention • Departmental policies governing retention of other types of electronic records • The openness of the state’s public disclosure laws • The need to preserve footage to promote transparency • The length of time typically needed to receive and investigate citizen complaints • The agency’s capacity for data storage <p>Implementation tips:</p> <ul style="list-style-type: none"> • Agencies should make retention times public by posting them on their websites. • When setting retention times, agencies should consult with legal counsel to ensure compliance with relevant evidentiary laws. Agencies should obtain written approval for retention schedules from prosecutors and legal counsel.
19	Policies should clearly state where body-worn camera videos are to be stored.	<p>Common storage locations include in-house servers (managed internally) and online cloud databases (managed by a third-party vendor). Factors that agencies should consider when determining where to store data include the following:</p> <ul style="list-style-type: none"> • Security concerns • Reliable methods for backing up data • Chain-of-custody issues • Capacity for data storage <p>Implementation tips:</p> <ul style="list-style-type: none"> • Agencies should consult with prosecutors and legal advisors to ensure data storage methods meet all legal requirements and chain-of-custody needs. • For videos requiring long-term storage, some agencies burn the data to a disc, attach it to the case file, and delete it from the internal server or online database. This frees up expensive storage space for videos that are part of an ongoing

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
		<p>investigation or that have shorter retention times.</p> <ul style="list-style-type: none"> • The agencies that PERF consulted report having no issues to date with using a third-party vendor to manage recorded data. To protect the security and integrity of data managed by a third party, agencies should use a reputable, experienced vendor; enter into a legal contract with the vendor that protects the agency's data; ensure the system includes a built-in audit trail and reliable backup methods; and consult with legal advisors.

Recorded data access and review

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
20	Officers should be permitted to review video footage of an incident in which they were involved, prior to making a statement about the incident.	<p>Most agencies that PERF consulted permit officers to review video footage of an incident in which they were involved, such as a shooting, prior to making a statement that might be used in an administrative review or court proceeding. The reasons for this policy include the following:</p> <ul style="list-style-type: none"> • Reviewing footage will help lead to the truth of the incident by helping officers to remember an incident more clearly. • Real-time recording is considered best evidence and provides a more accurate record than the officer's recollection. • Research into eyewitness testimony has demonstrated that stressful situations with many distractions are difficult for even trained observers to recall correctly. • Officers will have to explain and account for their actions, regardless of what the video shows.
21	Written policies should clearly describe the circumstances in which supervisors will be authorized to review an officer's body-worn camera footage.	<p>PERF recommends that supervisors be authorized to review footage in the following circumstances:</p> <ul style="list-style-type: none"> • When a supervisor needs to investigate a complaint against an officer or a specific incident in which the officer was involved • When a supervisor needs to identify videos for training purposes and for instructional use • When officers are still in a probationary period or are with a field training officer • When officers have had a pattern of allegations of abuse or misconduct • When officers have agreed to a more intensive review as a condition of being put back on the street • When an officer has been identified through an early intervention system

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
22	An agency's internal audit unit, rather than the officer's direct chain of command, should periodically conduct a random review of body-worn camera footage to monitor compliance with the program and assess overall officer performance.	<p>Randomly monitoring an officer's camera footage can help proactively identify problems, determine noncompliance, and demonstrate accountability. However, unless prompted by one of the situations described in recommendation 21, PERF does not generally recommend that supervisors randomly monitor footage recorded by officers in their chain of command for the purpose of spot-checking the officers' performance. Instead, an agency's internal audit unit should be responsible for conducting random monitoring. This allows agencies to monitor compliance with the program and assess performance without undermining the trust between an officer and his or her supervisor.</p> <p>Implementation tips:</p> <ul style="list-style-type: none"> • Internal audit reviews should be truly random and not target a specific officer or officers. • Audits should be conducted in accordance with a written standard of review that is communicated to officers.
23	Policies should explicitly forbid agency personnel from accessing recorded data for personal use and from uploading recorded data onto public and social media websites.	<p>Agencies must take every possible precaution to ensure that camera footage is not used, accessed, or released for any unauthorized purposes.</p> <p>Implementation tips:</p> <ul style="list-style-type: none"> • Written policies should describe the sanctions for violating this prohibition.
24	Policies should include specific measures for preventing unauthorized access or release of recorded data.	All video recordings should be considered the agency's property and be subject to any evidentiary laws and regulations. (See also recommendations 15 and 23.)

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
25	Agencies should have clear and consistent protocols for releasing recorded data externally to the public and the news media (a.k.a. Public Disclosure Policies). Each agency's policy must be in compliance with the state's public disclosure laws (often known as Freedom of Information Acts).	<p>PERF generally recommends a broad public disclosure policy for body-worn camera videos. By implementing a body-worn camera program, agencies are demonstrating that they are committed to transparency and accountability, and their disclosure policies should reflect this commitment.</p> <p>However, there are some situations when an agency may determine that publicly releasing body-worn camera footage is not appropriate. These include the following:</p> <ul style="list-style-type: none"> • Videos that contain evidentiary footage being used in an ongoing investigation or court proceeding are typically exempted from disclosure by state public disclosure laws. • When the videos raise privacy concerns, such as recordings of crime victims or witnesses or footage taken inside a private home, agencies must balance privacy concerns against the need for transparency while complying with relevant state public disclosure laws. <p>Implementation tips:</p> <ul style="list-style-type: none"> • Policies should state who is allowed to authorize the release of videos. • When determining whether to proactively release videos to the public (rather than in response to a public disclosure request), agencies should consider whether the footage will be used in a criminal court case and the potential effects that releasing the data may have on the case. • Policies should clearly state the process for responding to public disclosure requests, including the review and redaction process. • Agencies should always communicate their public disclosure policies to the public.

Training policies

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
26	Body-worn camera training should be required for all agency personnel who may use or otherwise be involved with body-worn cameras.	<p>Personnel who receive training should include the following:</p> <ul style="list-style-type: none"> • Officers who will be assigned or permitted to wear cameras • Supervisors whose officers wear cameras • Records/evidence management personnel • Training personnel • Internal Affairs • Anyone else who will be involved with the body-worn camera program

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
		Implementation tip: <ul style="list-style-type: none"> As a courtesy, agencies may wish to offer training to prosecutors so they can better understand how to access the data, what the limitations of the technology are, and how the data may be used in court.
27	Before agency personnel are equipped with body-worn cameras, they must receive all mandated training.	This ensures officers are prepared to operate the cameras safely and properly prior to wearing them in the field.
28	Body-worn camera training should include the following: <ul style="list-style-type: none"> All practices and protocols covered by the agency's body-worn camera policy (which should be distributed to all personnel during training) An overview of relevant state laws governing consent, evidence, privacy, and public disclosure Procedures for operating the equipment safely and effectively Scenario-based exercises that replicate situations that officers might encounter in the field Procedures for downloading and tagging recorded data Procedures for accessing and reviewing recorded data (only for personnel authorized to access the data) Procedures for preparing and presenting digital evidence for court Procedures for documenting and reporting any malfunctioning device or supporting system 	Implementation tips: <ul style="list-style-type: none"> Agencies can use existing body-worn camera footage to train officers on the proper camera practices and protocols. Scenario-based training can be useful to help officers become accustomed to wearing and activating their cameras. Some agencies require officers to participate in situational exercise using training model cameras.
29	A body-worn camera training manual should be created in both digital and hard-copy form and should be readily available at all times to agency personnel.	Implementation tip: <ul style="list-style-type: none"> The training manual should be posted on the agency's intranet.
30	Agencies should require refresher courses on body-worn camera usage and protocols at least once per year.	Body-worn camera technology is constantly evolving. In addition to yearly refresher courses, training should occur anytime an agency's body-worn camera policy changes. Agencies should also keep abreast of new technology, data storage options, court proceedings, and other issues surrounding body-worn cameras.

Policy and program evaluation

No.	Recommendation	Findings in Support of Recommendation and Tips for Implementation
31	Agencies should collect statistical data concerning body-worn camera usage, including when video footage is used in criminal prosecutions and internal affairs matters.	<p>Collecting and releasing data about body-worn cameras helps promote transparency and trust within the community. It also helps agencies to evaluate the effectiveness of their programs, to determine whether their goals are being met, and to identify areas for improvement. Agencies can also use the findings when presenting information about their body-worn camera programs to officers, oversight boards, policymakers, and the community.</p> <p>Implementation tip:</p> <ul style="list-style-type: none"> Statistics should be publicly released at various specified points throughout the year or as part of the agency's year-end report.
32	Agencies should conduct evaluations to analyze the financial impact of implementing a body-worn camera program.	<p>A cost-benefit analysis can help an agency to determine the feasibility of implementing a body-worn camera program. The analysis should examine the following:</p> <ul style="list-style-type: none"> The anticipated or actual cost of purchasing equipment, storing recorded data, and responding to public disclosure requests The anticipated or actual cost savings, including legal fees and other costs associated with defending lawsuits and complaints against officers Potential funding sources for a body-worn camera program
33	Agencies should conduct periodic reviews of their body-worn camera policies and protocols.	<p>Body-worn camera technology is new and evolving, and the policy issues associated with body-worn cameras are just recently being fully considered. Agencies must continue to examine whether their policies and protocols take into account new technologies, are in compliance with new laws, and reflect the most up-to-date research and best practices. Evaluations will also help agencies determine whether their policies and practices are effective and appropriate for their departments.</p> <p>Implementation tips:</p> <ul style="list-style-type: none"> Evaluations should be based on a set of standard criteria and outcome measures. An initial evaluation should be conducted at the conclusion of the body-worn camera pilot program or at a set period of time (e.g., six months) after the cameras were first implemented. Subsequent evaluations should be conducted on a regular basis as determined by the agency.

Appendix B. Telephone Survey

My name is _____, and I am working with the Arlington Police Department and the Police Executive Research Forum, a non-profit research organization focused on improving policing. We are conducting a brief survey of individuals who had recent contact with the Arlington Police Department.

Do you have time to hear about our survey? This should only take about 5 minutes.

IF NO...

Is there a good time to call back? We are hoping to obtain your feedback to help gauge and improve police interactions with the public. But we also understand if you do not wish to participate, and if so we will not contact you again.

If YES...

Thank you. This survey will not take much of your time and will be used to help gauge and improve police interactions with the public. You can quit this survey at any time. Your assistance with this survey will not impact any past or future interactions you may have with the Arlington Police Department. We obtained your information through APD as having a recent interaction with officers which generated an official report during the month of _____. Our research team has randomly selected citizens to contact.

Additionally, your name will not be associated with any answers you give on this survey – we have generated an anonymous ID number for purposes of the survey, and any analysis will use that anonymous number rather than any identifying information. APD does not and will not know which citizens we have contacted.

Are you willing to participate in this survey? You will be asked to react to 11 statements regarding your contact with APD. Your answers will be confidential and you can stop participating at any time.

IF YES...

For purposes of this survey, I ask that you try to recall your interaction with Arlington Police on (DATE – can provide time and report number information as well to refresh memory).

Please answer on a scale of 1 to 5, with 1 meaning you strongly disagree with the statement and 5 meaning you strongly agree with the statement.

(DO NOT SAY THESE PARENTHETICAL HEADINGS – GROUPINGS ARE FOR INTERNAL PURPOSES)

(With regards to police legitimacy:)

1. The officer seemed to genuinely care about the well-being of the community.
2. The officer acted in a way that benefits the welfare of the residents.
3. The officer did not listen to what I had to say/my side of the story.

4. The officer did not explain his/her actions and decisions during the incident.
5. The officer treated me with respect.

(With regards to the officer's professionalism:)

1. During the interaction, the officer used law enforcement powers in a way that was unfair or inappropriate.
2. During the interaction, the officer appeared to break the law or rules.
3. During the interaction, the officer used appropriate force and courteous language.

(Regarding your overall satisfaction with the interaction:)

1. I believe the officer did a good job performing his/her role.
2. I am satisfied with how the officer conducted him/herself.

(In general:)

1. I felt comfortable talking to the officer during the encounter.

Thank you for your participation. Do you have any other comments you would like to add at this time?

If you have any questions about this survey or research, please feel free to call this number and leave a message and I will have a member of our research team reach out to you. Also, you can contact the Police Executive Research Forum at 202-466-7820 and reference our Arlington, TX research into citizen perceptions.