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Perceptions of Body-Worn Cameras: Findings from a Panel Survey of Two LAPD Divisions

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Abstract
This paper examines results from two waves of officer surveys, administered before and after deployment of body-worn cameras (BWCs) in two divisions within the Los Angeles Police Department (LAPD). Officer surveys were administered in LAPD's Mission and Newton divisions at two time points, pre-BWC deployment (August and September 2015; Wave I) and post-deployment (summer of 2016; Wave II). This fixed-sample survey contained 52 questions designed to measure officer perceptions of BWCs across a variety of domains. Questions were tailored to provide consistency across sites for comparison with other studies. Results varied by division, with Mission officers becoming more critical and Newton officers becoming slightly more supportive of BWCs over time. Similarities and differences in officer perceptions both between divisions and from pre- to post-deployment are discussed at length, as are the implications for policy and practice including obtaining organizational support and officer buy-in.

Keywords Body-worn cameras · Police · Technology · LAPD · perceptions · Survey

Introduction

Deployment of body-worn cameras (BWCs) by local law enforcement agencies has expanded exponentially in recent years (Gramagila & Phillips, 2018; Koen & Willis, 2017; Lum, Koper, Merola, Scherer, & Reioux, 2015). A 2013 *Law Enforcement Management and Administrative Statistics* survey estimated that about one-third of

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law enforcement agencies have already adopted BWCs (Reaves, 2015), a figure that is likely even larger at present. The push for this technology has been heavily funded. The U.S. Department of Justice has allocated over $20 million to fund the purchase of cameras, technical support, and officer training (U.S. Department of Justice, 2015). There has also been great financial support from private donors. For instance, the Los Angeles Police Department (LAPD), which is the focus of the present study, privately raised approximately $1.5 million required to fund 800 of the 7000 BWCs the department rolled out (McCluskey et al., 2019).

There are several factors underlying the push for this new technology. A number of high-profile citizen deaths, particularly of unarmed African-Americans, at the hands of police officers have garnered national media attention (Gaub, Choate, Todak, Katz, & White, 2016). Many of the incidents involving fatal use of force were caught on video by a bystander and shared across social media (Young & Ready, 2018), as in the deaths of Walter Scott in South Carolina, Eric Garner in New York, and Eric Harris in Oklahoma. Such incidents sparked national outcry over police use of force—particularly towards African Americans—giving rise to the activist campaign, Black Lives Matter, and a wave of protests across the U.S. (Obasogie & Newman, 2016). Outfitting police officers with BWCs has been recognized as one potential way to ease this mounting public concern (Young & Ready, 2018).

The widespread diffusion of BWCs across local law enforcement agencies is indicative of organizational support for this technology. Some police administrators and policy makers believe that cameras will improve officers' transparency and make them more accountable to the communities they serve. In addition to improving police-community relations, police departments believe that BWCs will minimize false reports of misconduct, contribute to speedier dismissals of unfounded complaints, and provide evidence to aid in prosecutions and convictions (Braga, Coldren Jr., Sousa, Rodriguez, & Alper, 2017; Goodall, 2007; Katz, Choate, Ready, & Nuño, 2014; White, 2014). All these efforts serve to enhance police legitimacy, heighten officer safety, and foster a greater sense of procedural justice.

Meanwhile, research has struggled to keep up with the surge of BWC adoption (Koen & Willis, 2017; Lum et al., 2015). As agencies work to purchase, implement, and maintain BWCs, continued evaluation of BWC programs is critical to determining their short- and long-term effects on both individual officers and police organizations. This is a crucial issue because "rapid adoption of technologies in the absence of high-quality information about the impact of those technologies can lead to unanticipated and unintended consequences that may work against both police and citizen interests" (Lum et al., 2015, p. 3).

Systematic reviews of prior research on BWCs generally found a common theme—police officers feel positive about BWC, their feelings become more positive over time, or that officers hold a neutral stance (Lum, Stoltz, Koper, & Scherer, 2019; Maskaly, Donner, Jennings, Ariel, & Sutherland, 2017). However, there is a growing body of literature documenting findings contrary to this theme, which "reveal important nuances that illustrate a more complicated picture of the receptivity of BWCs by officers" (Lum et al., 2019, p. 164). Some studies have found that the adoption by line officers has been met with resistance as BWCs are perceived as a way to limit police discretion in the field, sanction officers for trivial policy violations, and raise privacy and safety concerns (e.g., Headley, Guerette, & Shariati, 2017; White, Todak, & Gaub, 2018;

Young & Ready, 2018). As such, we still need a better understanding of the extent to which these views are collectively shared in an agency. Tapping into officer perspectives and perceptions of BWCs is crucial, not only to securing officer buy-in, officers' willingness to cooperate, and assistance with deployment since patrol officers are the ones who determine whether this technology is successfully implemented in the field (Lipsky, 1980), but also to obtaining a broader understanding of cameras' effects in the field.

The current study administered an in-depth officer perception survey to sworn officers in two divisions of the LAPD. Officers were surveyed at two time points, before and after the deployment of BWCs in their respective divisions. The survey was part of a larger evaluation examining the implementation and use of BWCs in the LAPD. This article examines the similarities and differences in officer perceptions of cameras between the two divisions from pre- to post-implementation and provides insights into the BWC integration process and the ways in which agencies may secure buy-in from BWC-wearing officers. To that end, we first provide a review of some of the extant literature on BWCs and identify gaps in the research. Next, we describe the study site, sample, and survey. Third, we provide the results of the pre- and post-deployment surveys in both divisions. Finally, we discuss the implications of these results for police researchers and practitioners.

Background

In recent years, studies of the effects of BWCs in police departments have proliferated. In 2013, the first three empirical studies of the use of BWCs within police agencies conducted in the United States were published (White, 2014). The next summer, Ferguson police officer Darren Wilson fatally shot unarmed black teenager, Michael Brown, on August 9, 2014, setting off weeks of protests (Sanburn, 2014). On August 30, 2014, amid continued protests, Ferguson Police Department outfitted their officers with BWCs (Hollinshed, 2014), and so too did police agencies around the country (Sanburn, 2014). And, as the number of high-profile police shootings of citizens rose, BWCs increasingly came to be seen as a tool to enhance police accountability and legitimacy and shed light on police-citizen interactions (White, 2014).

In addition to the aforementioned perceived benefits, many police departments also expected BWCs to provide evidence to be used in court and to assist in the speedy resolution of citizen complaints (Goodall, 2007; White, 2014). Now, nearly five years later, the number of police agencies that have deployed BWCs continues to increase, and there exists a steadily growing (albeit limited) body of knowledge pertaining to the use of BWCs on law enforcement officers (Koen & Willis, 2017; Lum et al., 2015).

A number of studies have been conducted to determine what effect, if any, BWCs are having on the field of policing (Lum et al., 2015). By far the most commonly explored potential effects of BWCs involve their impact on civilian complaints and officer uses of force (Lum et al., 2015). In a handful of studies, agencies piloting BWCs have found that officers wearing cameras were less likely to exercise use of force compared to officers without cameras (Ariel, Farrar, & Sutherland, 2015; Braga et al., 2017; Jennings, Lynch, & Fridell, 2015), and reductions in citizen complaints against camera-wearing officers have also been recorded (Braga et al., 2017; Katz et al., 2014).

In Los Angeles, reductions in citizen complaints decreased because of cameras but had no effect on uses of force (Uchida, Swatt, Solomon, Wooditch, & Revier, 2017). Other studies found little effect on use of force (Ariel et al., 2016; Yokum, Ravishankar, & Coppock, 2017) and citizen complaints (Yokum et al., 2017).

Gauging Officer Perceptions

A growing number of studies have employed officer surveys, similar to that in the present study, to examine police perceptions of BWCs. While several surveys used a single point of measurement (Gramagila & Phillips, 2018; Heckman, 2017; Jennings, Fridell, & Lynch, 2014; Jennings et al., 2015), others surveyed respondents multiple times over the study period (Young & Ready, 2015), including several studies that instituted specific pre- and post-measurements (Braga et al., 2017; Gaub et al., 2016; Katz et al., 2014; Mesa Police Department, 2013). A single study went further by examining officer perceptions at different points in time and across several different agencies in order to evaluate changes in officer perceptions before and after BWC implementation (Gaub et al., 2016). In selecting their participants, several surveys have employed volunteer respondents (Braga et al., 2017; Gramagila & Phillips, 2018; Jennings et al., 2014, 2015), others have used random assignment of patrol officers (Gaub et al., 2016 in Spokane and Tempe), while still others have used a mix of volunteers and randomly assigned participants (Heckman, 2017; Mesa Police Department, 2013; Young & Ready, 2015). Measuring officer perceptions at multiple time points is paramount to the diffusion of this technology given that constant monitoring will ensure that the policy is being implemented as intended (Young & Ready, 2018).

In general, officer surveys, which have included both volunteers and randomly selected patrol officers, have revealed relatively high rates of approval of BWCs with 60% or more of New York City, Orlando, and Tempe, AZ officers agreeing with statements that cameras should be deployed throughout the agency's jurisdiction (Gaub et al., 2016; Heckman, 2017; Jennings et al., 2015). A survey conducted by Gramagila and Phillips (2018) among 258 officers in Buffalo, NY and Rochester, NY found even higher agreement, with respectively 85% and 71% of officers either agreeing or strongly agreeing that officers using BWC will be more likely to follow departmental procedures when interacting with the public. However, significant differences in officer perceptions of BWC have been found across police departments (Lum et al., 2019). Lower rates of approval of BWCs were found in Phoenix, where only 8.2% of officers agreed with this statement (Gaub et al., 2016). When asked whether cameras were likely to improve or affect their own behavior in the community, most officers in Orlando and New York City replied in the negative with only around 20–25% of officers agreeing with statements that BWCs had changed how they behaved in the field (Heckman, 2017; Jennings et al., 2015). On the other hand, when asked whether BWCs had affected police decisions to use force, more officers expressed agreement, with approximately 65% agreement with this statement in Phoenix and 43% and 49% agreement in Spokane, WA and Tempe, AZ, respectively (Gaub et al., 2016). Officers in Buffalo, NY and Rochester, NY expressed higher agreement—with respectively 77% and 74% of officers expressing that they agree BWCs will affect use of force decisions (Gramagila & Phillips, 2018). And despite evidence indicating improved perceptions of BWCs, there is evidence to suggest that officers become more cynical about the use of

BWCs (Headley et al., 2017; White et al., 2018), but this may vary by the officer's level of commitment to the department (Tankebe & Ariel, 2016).

Part of the within-department variability may be due to dissimilar work environment, culture, implementation of agency policy, demographics of citizens they serve, socialization of officers within divisions, or the setting or events leading to the adoption of BWCs. Furthering research on officer perceptions identifying and contextualizing nuances in perceptions within departments will help make better sense of officer views. Police departments then have a wide range of best practices they can draw from when developing an implementation plan to best fit the needs of their organization and circumstances.

One reason that police administrators survey officers on BWCs is to provide insight into the degree of officer buy-in. This is important because it influences how closely officers comply with the directives provided by their agency's BWC policy (Jennings & Fridell, 2015; President's Task Force, 2015; Rosenbaum & McCarty, 2017). For instance, the perceived usefulness and ease of the technology's use affects the likelihood that officers will use BWCs as directed, including whether they activate the camera when mandated to do so (Young & Ready, 2018). Rosenbaum and McCarty (2017) found that organizational justice (specifically including organization-wide, leadership, and diversity justice) were positively related to rule compliance. In light of modern-day police reforms—of which the introduction of the BWC is a prime example—Rosenbaum and McCarty (2017) argued that "empowering employees, giving them a voice, and protecting them from unfair attacks is important if we expect them to continue during [*sic*] police work under conditions of extreme mistrust and scrutiny" (pp. 80–81).

This discussion of organizational justice can be linked to the implementation of BWCs in law enforcement agencies. Different agencies may use BWCs for different purposes—as an accountability tool, to improve evidence quality, to enhance community trust, to aid in training, or to supervise problem officers—and the ways in which BWCs are used within an agency may have significant bearing on how BWCs are received and subsequently used by officers. For example, if officers see cameras providing evidence and footage that exonerates them from erroneous citizen complaints, their response may be very different than if BWCs are used by command staff as a "gotcha" tool to perform regular audits of BWC footage and initiate disciplinary actions any time a mistake is encountered. Rosenbaum and McCarty's (2017) research suggests that officers' perceptions of and compliance with BWC programs may depend on officers' perceptions of organizational justice within the individual police agency. Put differently, officers may perceive increased disciplinary actions as an unjust use of this new technology and thus be resistant to using BWCs.

Furthering knowledge of officer perceptions in this area is critical because it serves to assist police departments in identifying and implementing best practices at the outset. This is especially important for departments deploying cameras gradually by station or division across time (such as with the LAPD in the current study) because officers who have early experience with BWCs may either accelerate or impede BWC integration depending on whether they have favorable or unfavorable perceptions of the cameras (Young & Ready, 2015). For instance, it has been found that officers frame perceptions of BWCs and gauge their perceived legitimacy based on the experiences of their fellow officers with this technology. Young and Ready (2015) reported that officers' attitudes toward the utility of BWCs were influenced by "the ways in which other officers in

their incident network frame [d them]" (p. 257). A cognitive frame of this innovation develops as communication regarding this technology diffuses through the department. This means that officers may already have unfavorable perceptions of BWCs even though they have yet to have any first-hand experience with them. As such, it is imperative to gain officer buy-in—even though the department may only be implementing BWCs among a small group of officers.

Body-Worn Cameras and their Effects on the Organization

Koen and Willis (2017) identified the ways in which BWCs are implemented in police organizations as an area in need of further examination. As an example, they referenced BWCs' effects on organizational structures and practices within police agencies such as police supervision and training (Koen & Willis, 2017, p. 17). Examining officer perceptions of BWCs before and after they are implemented within an agency may be one way to get at these and other questions. For example, how does the integration of BWCs change the ways in which officers are supervised? Are officers' mistakes more readily apparent now that many of their actions are on film? How does command staff address those mistakes? Does this have implications for officer buy-in? By soliciting and analyzing officer opinions on BWCs and on policing in general through the administration of a comprehensive survey, we aim to answer some of these questions. This study reports on officer perceptions of BWCs as they are implemented in one of the largest police departments in the country and among officers that are mandated to employ the technology. Building on prior literature, this study also surveys officers to determine if BWC impacts their general work conditions as an officer (Ridgeway et al., 2009), as well as whether officers have privacy concerns regarding recording in certain settings (e.g., a private residence) and filming certain populations (e.g., victims of crime, homeless) on video.

Methods

The present study reports findings from a two-wave, fixed sample survey of officer perceptions of BWCs within two LAPD divisions. Surveys were conducted before and after the implementation of BWCs. Details of the study design are provided below.

Study Site Description

The Los Angeles Police Department (LAPD) is the third largest police agency in the nation. It employs nearly 10,000 sworn officers and 3500 civilian staff. The city of Los Angeles spans 468 mile^2 and has a population of approximately 4 million. The LAPD is comprised of four bureaus with 21 patrol divisions and four traffic divisions (Los Angeles Police Department, 2017c). As the first two divisions to deploy BWCs, the Mission and Newton divisions of the LAPD are the focus of the present study. Mission and Newton Divisions were specifically selected because of their locations and because of the differences in call types and activities.

Mission Division, one of seven patrol division in the Valley Bureau, covers 25.1 mile^2 with an approximate population of 225,849 (Los Angeles Police Department, 2017a).

Mission encompasses multiple neighborhoods including Arleta, Mission Hills, North Hills, Panorama City, and Sylmar (Los Angeles Police Department, 2017a). Newton Division, one of five patrol divisions in the Central Bureau, spans nine square miles with a population of about 150,000 (Los Angeles Police Department, 2017b). Newton serves both residential and business areas including the Fashion District, Produce/North-End Business District, South Park District, and Pueblo Del Rio Housing Development (Los Angeles Police Department, 2017b). At the time of the survey, both divisions each had approximately 300 sworn officers, including patrol, special units, and detectives.

Newton recorded 27 and 20 homicides and 690 and 848 robberies in 2015 and 2016, respectively (LAPD, 2017b). Over 40 gangs exist in Newton and has a history of high levels of gun violence and gang activity. Crips and Bloods were active in the 1970s and more recently Hispanic gangs such as Primera Flats, 38th Street, and the Pueblos have engaged in violent behavior (Uchida & Swatt, 2013). In contrast, Mission Division recorded fewer homicides and robberies than Newton (17 and 15 homicides and 285 and 420 robberies) in 2015 and 2016, respectively (LAPD, 2017d). Mission has fewer violent crime hot spots, fewer gangs (about 20), and like many Divisions in the Valley has more property crime than Newton. It is named for the San Fernando Mission that was founded in 1797.

Survey Description and Study Sample

The survey instrument was comprised of 52 questions designed to measure perceptions of BWCs across a variety of domains: (1) individual and general views; (2) familiarity, ease of use, and comfort; (3) use of footage; (4) police officer behavior; (5) citizen reactions; (6) concerns for video recording; (7) overall thoughts and conclusions; and (8) general police work.

The current study included questions specifically designed for the present research, focusing on police attitudes regarding patrol and police work in general, citizen and neighborhood characteristics within the study divisions, and officers' level of comfort with recording various sensitive populations, such as children, victims of sexual assault, and the mentally ill. The survey drew upon several survey items that researchers from Arizona State University employed to measure officer perceptions of BWCs in Phoenix, and later in Tempe and Spokane (Gaub et al., 2016; Katz et al., 2014) in the following areas: BWC ease of use and familiarity, officer and citizen behavior when cameras are present, use of BWC footage for prosecution, and measures of officer and agency-wide support of BWCs (Gaub et al., 2016; Katz et al., 2014).

Questions regarding ease of use, comfort, and familiarity of their BWC were included in the survey because prior research in this area suggests that officers may resist the technology if they encounter technological difficulties or if it gets in the way of their everyday duties or workload, such as the cameras being uncomfortable to wear or increases amount of time spent completing paperwork (Katz et al., 2014; Koper, Lum, Willis, Woods, & Hibdon, 2015). Questions concerning whether and in what ways the BWCs altered officer behavior. This is important because research so far suggests that BWCs have an impact of officer behavior (e.g., fewer arrests made, lower incidence of use of force and Terry stops) but results from prior studies are not always consistent (Lum et al., 2019).

Officers were asked questions concerning citizens' perceptions aid in understanding the rationale for their views. For instance, officers' views of BWCs may become more favorable

because there is evidence to suggest that officers initially perceive that the cameras are intended to increase their own accountability but come to realize that it increases the accountability of citizens in terms of minimizing the number of frivolous, unfounded, or malicious complaints against the officers and prosecute citizen misconduct (Maskaly et al., 2017; Merola, Lum, Koper, & Scherer, 2016). Officers perceptions of citizens' views were also important given the differences in citizen demographics between the two divisions.

Two sets of questions that were unique to the present study were also added. First, general policing questions were included to obtain impressions of how officers view their jobs, the areas in which they work, and the individuals living and working in those areas. One of the most common concerns raised about BWCs has been that they may lead to attitude changes on the part of police which may, in turn, lead to a decrease in officers' productivity (Rosenbaum & McCarty, 2017). By posing the general policing questions before and after the introduction of cameras, we sought to assess whether the implementation of BWCs had any effect on officers' attitudes about their jobs, their priorities, and their views of what makes a good patrol officer. It may also help contextualize differences in perceptions of BWCs between the two divisions.

Second, the survey contained questions that assessed officers' concerns about recording different types of specialized or vulnerable groups such as demonstrators, victims, and the homeless. Understanding how the introduction of BWCs may have changed officers' levels of comfort with recording certain types of groups may provide useful information to command staff and help future camera roll-outs move more smoothly.

The survey contained some yes/no questions but was predominately made up of questions measured on a four-point Likert-type scale in which officers were asked to indicate whether they strongly agreed, agreed, disagreed, or strongly disagreed with each statement. Some Likert-type questions were subsequently recoded (as indicated in the tables) such that higher values on the four-point scale indicated more favorable or accepting views toward BWCs.

The survey employed a panel design and was administered to police officers of varying ranks twice over the course of the study period—both before and after the divisions' rollout of BWCs. Researchers administered surveys on small, digital tablets using the online survey software, *Qualtrics*. Officer participation was voluntary, and researchers attended roll calls for all shifts and units to request officer participation and to administer the surveys, which took approximately 20 min to complete.

The pre-deployment survey was administered during a two-week period in both divisions August and September 2015, just prior to BWC deployment. BWCs were deployed in both divisions in September 2015, at which point the divisions underwent a 90-day transition period where officers were trained, and any arising technological issues were addressed. The post-deployment surveys were conducted during a two-week period in the summer of 2016, approximately nine months following the initial rollout of BWCs.

All available, eligible officers were requested to complete the survey.[1] A total of 165 police officers completed both the pre- and post-deployment survey questionnaire. Respondents who completed both the pre- and post-deployment surveys were predominately male (87.3%), had a high school/GED education level (64.0%), and 12.5 years of

[1] While eligible, some officers were not available to participate during the period that researchers were administering the survey (e.g., on leave, in training).

experience (SD = 7.4) at the LAPD. The age of the respondents ranged from 22 to 62, with an average age of 38.4 (SD = 8.4). The race and ethnicity of the respondents were as follows: 49.1% Hispanic, 38.2% white, 6.7% Asian, and 4.9% black. When examining the entire sample and as well as within divisions, those officers who completed the survey at both waves (and are included in the sample) did not significantly differ from officers who only completed the pre-deployment survey questionnaire on the following demographics: age, race/ethnicity, years on the force, gender, and education level, and significantly differed on only one of the key variables reviewed in the study.[2]

The response rate for the Wave I survey was 84.8% and 80.3% of police officers in Mission (156 out of 184 eligible and available officers) and Newton (118 out of 147 eligible and available officers) divisions respectively who were eligible to complete the pre-deployment survey.[3] There were no significant differences in the demographics, years on the force, and officer rank of the survey respondents between divisions. Of those who completed the Wave I survey, a total of 106 officers in Mission and 59 officers in Newton were surveyed at both waves. To limit the influence of potential confounders and ensure that surveyed all officers used the BWCs for the same duration of time (e.g., differential retirement between division, transfer of officers to and from divisions), only those officers who completed the Wave I survey were requested to take the Wave II survey. The present study examines paired changes in responses between the waves. While data on Wave I respondents who did not completed the follow-up are not presented in the analyses, there were no significant differences between officers surveyed only at Wave I and officers who completed surveys at both waves in terms of demographics, years on the force/rank, and perceptions of BWCs/policing (with one exception).[4]

[2] To determine whether those who completed surveys both waves were significantly different than those who only completed the wave I survey, demographics were obtained by linking the badge number the officer provided on their survey with LAPD personnel data provided by the department.

[3] Of the 183 officers who did not complete the survey in Newton for Wave I, there is an indication that 116 officers were not present during roll call because they were assigned to a specialized unit/detail (e.g., vice, gang, parolee compliance, homicide, community relations, major assault crime units). The deployment schedules for another 38 officers suggested they were unavailable during the periods when surveys were conducted (e.g., vacation, sick leave, injured-on-duty, training). The remaining 29 officers were scheduled to be at roll call during the time surveys were conducted. Of the 147 officers who are believed to be at roll call during the survey period, 19.7% did not complete a survey. When comparing the 29 available officers who did not complete the survey and the 118 officers who did complete the survey in Newton, those who completed the survey were significant more likely to be white, non-Hispanic (92% vs 75.8%; $Chi^2 = 5.68$, phi = 0.20, $p = 0.017$). There was no statistically significant difference between these two groups with respect to gender, education level, rank, years with the force, and age. For Mission, there was no significant differences in the aforementioned variables between the 156 officers who completed the survey and the 28 officers who were eligible and available but did not complete the survey. Another 52 officers in Mission did not complete the survey because they were not present during roll call because they were assigned to a specialized unit/detail.

[4] Analyses also suggest that there are no significant differences in perceptions overall between groups; out of the 52 perception variables of interest reviewed, officers surveyed at both waves were significantly different from those officers who only surveyed during the first survey wave on one variable (which is fewer than one would expect by chance alone)—officers in the sample were significantly less likely to be fearful that they will receive disciplinary actions if they forgot to turn on their camera when compared to those who were only surveyed at the first wave (84.9% agree versus 93.5%; M = 1.7 versus M = 1.5; $p = 0.019$).

Analytical Strategy

To examine changes in officers' perceptions of BWCs across these domains, pre-deployment survey responses were paired with post-deployment survey responses for each officer. Only officers who were surveyed at both time periods were included in the analysis. A series of McNemar's Chi-square tests, which is appropriate for comparing paired dichotomous responses, were conducted to examine differences in yes/no survey questions between waves. Paired sample t-tests were conducted to determine whether the mean differences in Likert-scale survey responses between waves were significantly different from zero.[5] To determine whether changes in views of BWCs were significantly different between divisions, between wave changes were examined by division using Chi-square tests and independent sample t-tests, where appropriate (provided in-text).

Results

General Perceptions

The general perceptions of BWCs pre- and post-deployment are presented in Table 1. The McNemar's Chi^2 tests suggest that police officers in both divisions were significantly more likely to believe that BWCs are easy to use after deployment of the cameras (50.30% pre- deployment versus 82.42% post-deployment; $\chi^2 = 38.48$; $p < 0.001$). While both divisions became more likely to view BWCs as easy to use, this trend was significantly greater with Newton officers as compared to officers in Mission ($\chi^2 = 6.89$; $p < 0.05$). After deployment of BWCs, Newton officers were significantly less likely to view BWCs as an invasion of their privacy (62.71% versus 40.68%; $\chi^2 = 8.89$; $p < 0.01$) and as being a distraction when performing daily tasks (74.58% versus 59.32%; $\chi^2 = 5.40$; $p < 0.05$), whereas Mission officers were significantly less likely to believe that BWCs help secure convictions (73.58% versus 54.72%; $\chi^2 = 9.52$; $p < 0.01$) and that the general public should be able to view camera footage (19.81% versus 11.32%; $\chi^2 = 5.40$; $p < 0.05$).

Views on Familiarity, Ease of Use, Comfort, and Using Footage

The results for perceptions of familiarity, ease of use, comfort, and the use of BWC footage pre- and post-deployment are presented in Table 2. Post-deployment, officers across both divisions were considerably more likely to believe that BWCs are comfortable to wear (Pre M = 1.85, 16.36% agree; Post M = 2.44, 50.30% agree; t = −9.49; $p < 0.001$), that downloading the data from the cameras is a simple process (Pre M = 2.32, 43.03% agree; Post M = 2.77, 73.33% agree; t = −6.74; $p < 0.001$), and that the footage is easy to retrieve from storage (Pre M = 2.32, 42.37% agree; Post M = 2.59, 61.21% agree; t = −4.15; $p < 0.001$). Police officers in Mission were significantly less likely to report in the second wave of surveys that officers have a more accurate account of what transpired when using a BWC (Pre M = 2.98, 84.91% agree; Post M = 2.82, 74.53% agree; t = 2.08; $p < 0.05$).

[5] Likert-type survey responses were analyzed using a series of Wilcoxon signed rank-tests and found similar findings to the paired sample t-test.

Table 1 McNemar's Chi^2 test on general perceptions of body-worn cameras

Survey Item	Division	Pre-test % Agree	Post-test % Agree	McNemar's Chi^2
Body-worn cameras are easy to use.	Mission	57.54%	83.02%	18.69***
	Newton	37.29%	81.56%	19.88***
	Combined	50.30%	82.42%	38.48***
Using body-worn cameras is an invasion of my privacy.	Mission	50.94%	40.57%	3.67
	Newton	62.71%	40.68%	8.89**
	Combined	55.15%	40.60%	11.08**
Body-worn cameras help secure convictions.	Mission	73.58%	54.72%	9.52**
	Newton	47.46%	49.15%	0.08
	Combined	64.24%	52.72%	6.56*
Body-worn cameras are a distraction when I perform my daily tasks.	Mission	61.32%	68.87%	2.00
	Newton	74.58%	59.32%	5.40*
	Combined	66.06%	65.50%	0.02
The general public should be able to view footage from body-worn cameras.	Mission	19.81%	11.32%	5.40*
	Newton	10.17%	5.08%	1.00
	Combined	16.36%	9.09%	6.00*

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Mission ($n = 106$), Newton ($n = 59$), and combined ($n = 165$)

Mission respondents were significantly less likely to report post-deployment that footage from BWCs improves the quality of evidence (Pre M = 2.96, 80.19% agree; Post M = 2.70, 69.81% agree; t = 3.32; $p < 0.01$).

Police Officer Behavior and Citizen Reactions

The results of views on police officer behavior and citizens' reactions to BWCs pre- and post-deployment is presented in Table 3. Officers in both divisions were more likely to disagree with the statements, "Using body-worn cameras deters witnesses from speaking with officers" (Pre M = 1.99, 81.21% agree; Post M = 2.23, 60.61% agree; t = −3.93; $p < 0.001$), and "In general, citizens feel that the cameras are an invasion of their privacy" (Pre M = 2.00, 77.58% agree; Post M = 2.35, 58.79% agree; t = −5.12; $p < 0.001$) post-deployment of BWCs. While officers in both divisions became more likely to view BWCs were an invasion of privacy, this trend was slightly more pronounced with Newton officers (t = −1.92; $p = 0.06$). Compared to their responses pre-deployment, respondents in Mission were significantly less likely to report post-deployment that officers using body-worn cameras are more likely to follow department procedures when they encounter members of the public (Pre M = 2.94, 83.02% agree; Post M = 2.66, 68.87% agree; t = 3.22; $p < 0.01$), and that citizens are less likely to file complaints against officers using BWCs (Pre M = 2.34, 45.28% agree; Post M = 2.14, 33.02% agree; t = 2.19; $p < 0.05$). In their responses to the second survey, Mission officers were significantly more likely to report that officers are less

Table 2 Paired sample t-tests for perceptions on familiarity, ease of use, comfort, and using footage

Survey Item	Division	Pre-test % Agree	Post-test % Agree	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Familiarity, Ease of Use, and Comfort						
The body-worn cameras are comfortable to wear. [R]	Mission	19.81	51.89	1.89 (0.73)	2.47 (0.68)	0.58 (0.83)***
	Newton	10.16	47.46	1.78 (0.62)	2.39 (0.74)	0.61 (0.77)***
	Combined	16.36	50.30	1.85 (0.69)	2.44 (0.70)	0.59 (0.80)***
Downloading the data from the cameras is a simple process. [R]	Mission	46.23	77.36	2.37 (0.71)	2.84 (0.77)	0.48 (0.89)***
	Newton	37.29	66.10	2.25 (0.71)	2.63 (0.72)	0.37 (0.76)***
	Combined	43.03	73.33	2.32 (0.71)	2.77 (0.75)	0.44 (0.84)***
It is easy to retrieve footage from storage. [R]	Mission	43.40	66.04	2.35 (0.72)	2.65 (0.74)	0.30 (0.89)***
	Newton	42.37	52.54	2.27 (0.72)	2.49 (0.73)	0.22 (0.77)*
	Combined	43.03	61.21	2.32 (0.72)	2.59 (0.74)	0.27 (0.84)***
Using Footage						
Body-worn cameras reduce the time spent filling out paperwork. [R]	Mission	10.38	5.66	1.58 (0.75)	1.48 (0.69)	−0.10 (1.01)
	Newton	1.69	1.69	1.47 (0.54)	1.51 (0.60)	0.03 (0.79)
	Combined	7.27	4.24	1.55 (0.68)	1.49 (0.66)	−0.55 (0.94)
An officer has a more accurate account of what has transpired when using a body-worn camera. [R]	Mission	84.91	74.53	2.98 (0.69)	2.82 (0.67)	−0.16 (0.79)*
	Newton	74.58	81.36	2.80 (0.64)	2.88 (0.62)	0.08 (0.82)
	Combined	81.21	76.97	2.92 (0.68)	2.84 (0.65)	−0.72 (0.81)
Footage from body-worn cameras improves the quality of evidence. [R]	Mission	80.19	69.81	2.96 (0.72)	2.70 (0.66)	−0.26 (0.82)**
	Newton	59.32	69.49	2.61 (0.74)	2.77 (0.70)	0.17 (0.97)
	Combined	72.73	69.70	2.83 (0.74)	2.72 (0.68)	−0.11 (0.90)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. [R] indicates a reverse coded item. Mission (n = 106), Newton (n = 59), and combined (n = 165). The "% agree" include respondents who either agree or strongly disagree with the statement. The % agree corresponds to the survey item that has not been reverse coded

Table 3 Paired sample t-tests for police officer behavior and citizen reactions

Survey Item	Division	Pre-test % Agree	Post-test % Agree	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Police Officer Behavior						
Officers using body-worn cameras are more likely to follow department procedures when they encounter members of the public. [R]	Mission	83.02	68.87	2.94 (0.77)	2.66 (0.72)	−0.28 (0.9)**
	Newton	76.27	62.71	2.85 (0.61)	2.61 (0.74)	−0.24 (0.88)
	Combined	80.61	66.67	2.91 (0.71)	2.64 (0.72)	−0.27 (0.89)***
Officers are less likely to make stops and arrests when using body-worn cameras.	Mission	72.64	83.02	2.01 (0.88)	1.81 (0.78)	−0.20 (0.82)*
	Newton	77.97	72.88	1.90 (0.74)	1.98 (0.80)	0.08 (0.79)
	Combined	74.55	79.39	1.97 (0.83)	1.87 (0.79)	−0.10 (0.82)
Officers feel they have less discretion when using body-worn cameras.	Mission	83.02	88.68	1.79 (0.79)	1.61 (0.76)	−0.18 (0.88)*
	Newton	86.44	84.75	1.66 (0.71)	1.71 (0.72)	0.05 (0.68)
	Combined	84.24	87.27	1.75 (0.76)	1.65 (0.75)	−0.10 (0.82)
Body-worn cameras affect an officer's decision to use force. [R]	Mission	55.66	62.26	2.67 (1.00)	2.84 (0.92)	0.17 (1.09)
	Newton	66.10	61.02	2.91 (0.90)	2.83 (0.97)	−0.08 (0.95)
	Combined	59.39	61.82	2.76 (0.96)	2.83 (0.93)	0.08 (1.05)
Citizen Reactions						
Citizens are more respectful knowing an officer is wearing a body camera. [R]	Mission	32.08	25.47	2.10 (0.78)	2.08 (0.74)	-0.03 (0.87)
	Newton	11.86	5.08	1.85 (0.66)	1.68 (0.57)	-0.17 (0.72)
	Combined	24.85	18.18	2.01 (0.75)	1.93 (0.71)	-0.08 (0.82)
Citizens are more cooperative with an officer wearing a body camera. [R]	Mission	29.25	19.81	2.08 (0.73)	2.01 (0.62)	-0.08 (0.71)
	Newton	8.47	3.39	1.76 (0.65)	1.68 (0.54)	-0.08 (0.68)
	Combined	21.82	13.94	1.97 (0.72)	1.89 (0.62)	-0.08 (0.7)

Table 3 (continued)

Survey Item	Division	Pre-test % Agree	Post-test % Agree	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Body-worn cameras improve police-community relationships. [R]	Mission	40.57	22.64	2.26 (0.72)	2.08 (0.61)	-0.19 (0.79)*
	Newton	18.64	15.25	2.00 (0.67)	1.93 (0.61)	-0.07 (0.81)
	Combined	32.73	20.00	2.17 (0.71)	2.02 (0.61)	-0.15 (0.8)*
Using body-worn cameras deters witnesses from speaking with officers.	Mission	80.19	56.60	2.03 (0.70)	2.27 (0.78)	0.25 (0.85)**
	Newton	83.05	67.80	1.93 (0.69)	2.15 (0.69)	0.22 (0.62)**
	Combined	81.21	60.61	1.99 (0.69)	2.23 (0.75)	0.24 (0.77)***
Citizens are less likely to file complaints against officers using body-worn cameras. [R]	Mission	45.28	33.02	2.34 (0.78)	2.14 (0.83)	-0.2 (0.93)*
	Newton	23.73	18.64	2.00 (0.74)	1.88 (0.79)	-0.12 (1.08)
	Combined	37.58	27.88	2.22 (0.78)	2.05 (0.82)	-0.17 (0.99)*
In general, citizens feel that the cameras are an invasion of their privacy.	Mission	73.58	57.55	2.09 (0.76)	2.35 (0.70)	0.25 (0.92)**
	Newton	84.75	61.02	1.83 (0.67)	2.34 (0.63)	0.51 (0.75)***
	Combined	77.58	58.79	2.00 (0.74)	2.35 (0.68)	0.35 (0.87)***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. [R] indicates a reverse coded item. Mission (n = 106), Newton (n = 59), and combined (n = 165)

likely to make stops and arrests when using body-worn cameras (Pre M = 2.01, 72.64% agree; Post M = 1.81, 83.02% agree; t = 2.48; $p < 0.05$). Respondents in Mission were also more likely to report post-deployment that officers have less discretion when using body-worn cameras (Pre M = 1.79, 83.02% agree; Post M = 1.61, 88.68% agree; t = 2.09; $p < 0.05$) post-deployment.

Officer Concerns for Video Recording

The results of officer concerns for video recording pre- and post-deployment are presented in Table 4. After deploying the BWCs, both divisions were significantly less likely to believe that homeless individuals (Pre M = 1.36, 27.88% concerned; Post M = 1.23, 18.18% concerned; t = 2.34; $p < 0.05$) and an individual requesting the officer turn off the camera (Pre M = 2.06, 69.09% concerned; Post M = 1.80, 59.39% concerned; t = 3.76; $p < 0.001$) signaled concerns for video recording. After deployment, Newton police officers had decreased concerns regarding video recording in a private residence (Pre M = 2.05, 67.80% concerned; Post M = 1.68, 52.54% concerned; t = 3.22; $p < 0.01$), severe traffic accidents or fatalities (Pre M = 2.00, 66.10% concerned; Post M = 1.64, 44.07% concerned; t = 2.70; $p < 0.01$), mentally or physically challenged individuals (Pre M = 1.85, 60.02% concerned; Post M = 1.54, 37.29% concerned; t = 2.22; $p < 0.05$), and domestic violence situations (Pre M = 2.22, 76.27% concerned; Post M = 1.71, 50.85% concerned; t = 4.18; $p < 0.001$) post-deployment, whereas Mission officers believed that victims of sexual assault (Pre M = 2.26, 77.36% concerned; Post M = 2.43, 88.68% concerned; t = −2.13; $p < 0.05$) were more likely to be a concern post-deployment.

Overall Perceptions, Individual Perceptions, and Conclusions

The individual/overall views and conclusions of officers pre- and post-deployment are presented in Table 5. There were greater concerns post-deployment among both divisions that BWCs decrease officer safety (Pre M = 2.70, 33.33% agree; Post M = 2.47, 47.88% agree; t = 3.47; $p < 0.001$). Post-deployment, Mission officers were significantly less likely to believe that using BWCs increases public trust in officers (Pre M = 2.25, 40.57% agree; Post M = 2.08, 29.25% agree; t = 2.30; $p < 0.05$), and that the advantages of police departments' adopting body cameras outweigh the disadvantages (Pre M = 2.43, 53.77% agree; Post M = 2.22, 38.68% agree; t = 2.09; $p < 0.05$).

On the other hand, respondents in Newton were more likely to agree with the statement, "The use of body camera equipment is well received by co-workers" (Pre M = 1.61, 5.08% agree; Post M = 1.90, 18.64% agree; t = −3.43; $p < 0.01$) post-deployment. After cameras had been rolled out, there was a significant difference between divisions in how views of support for BWCs changed over time (t = −4.40, $p < 0.001$); officers in Newton became significantly more supportive of the use of BWCs on all patrol officers (Pre M = 2.00, 23.73% agree; Post M = 2.30, 44.07% agree; t = −2.51; $p < 0.05$) in contrast to officers in Mission, where they became less supportive of the use of BWCs on all patrol officers (Pre M = 2.49, 56.60% agree; Post M = 2.17, 34.91% agree; t = 4.32; $p < 0.001$).

Table 4 Paired sample t-tests for officer concerns for video recording

Survey Item	Division	Pre-test % Concerned	Post-test % Concerned	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Homeless individuals	Mission	23.58	16.98	1.28 (0.55)	1.21 (0.49)	−0.08 (0.47)
	Newton	35.59	20.34	1.49 (0.73)	1.27 (0.58)	−0.22 (0.98)
	Combined	27.88	18.18	1.36 (0.62)	1.23 (0.53)	−0.13 (0.70)*
Victims of sexual assault	Mission	77.36	88.68	2.26 (0.81)	2.43 (0.69)	0.17 (0.82)*
	Newton	86.44	83.05	2.47 (0.73)	2.41 (0.77)	−0.07 (0.91)
	Combined	80.61	86.67	2.34 (0.78)	2.42 (0.72)	0.08 (0.86)
Child victims	Mission	76.42	85.85	2.34 (0.81)	2.37 (0.72)	0.13 (0.81)
	Newton	84.75	81.36	2.44 (0.75)	2.42 (0.79)	−0.02 (0.82)
	Combined	79.39	84.24	2.31 (0.79)	2.39 (0.75)	0.08 (0.81)
Demonstrators	Mission	25.47	22.64	1.36 (0.66)	1.28 (0.56)	−0.08 (0.63)
	Newton	35.59	27.12	1.47 (0.70)	1.39 (0.69)	−0.08 (0.99)
	Combined	29.09	25.47	1.40 (0.68)	1.32 (0.61)	−0.08 (0.77)
In a private residence	Mission	52.83	48.11	1.74 (0.78)	1.60 (0.70)	−0.13 (0.72)
	Newton	67.80	52.54	2.05 (0.84)	1.68 (0.73)	−0.37 (0.89)**
	Combined	58.18	49.70	1.85 (0.82)	1.63 (0.71)	−0.22 (0.79)***
Minors	Mission	56.60	55.66	1.82 (0.81)	1.75 (0.76)	−0.08 (0.81)
	Newton	69.49	62.71	2.07 (0.83)	1.86 (0.78)	−0.20 (0.87)
	Combined	61.21	58.18	1.91 (0.83)	1.79 (0.76)	−0.12 (0.83)

Table 4 (continued)

Survey Item	Division	Pre-test % Concerned	Post-test % Concerned	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Severe traffic accidents or fatalities	Mission	41.51	40.57	1.59 (0.78)	1.54 (0.72)	−0.06 (0.83)
	Newton	66.10	44.07	2.00 (0.83)	1.64 (0.80)	−0.36 (1.01)**
	Combined	50.30	41.82	1.74 (0.82)	1.58 (0.75)	−0.16 (0.91)*
Mentally or physically challenged individuals	Mission	42.45	42.45	1.58 (0.75)	1.53 (0.68)	−0.06 (0.75)
	Newton	60.02	37.29	1.85 (0.78)	1.54 (0.77)	−0.31 (1.05)*
	Combined	49.09	40.61	1.68 (0.77)	1.53 (0.71)	−0.15 (0.88)*
Domestic violence situations	Mission	56.60	46.23	1.78 (0.78)	1.67 (0.80)	−0.11 (0.89)
	Newton	76.27	50.85	2.22 (0.81)	1.71 (0.79)	−0.51 (0.94)***
	Combined	63.64	47.88	1.93 (0.82)	1.68 (0.79)	−0.25 (0.92)***
An individual requesting you turn off the camera	Mission	66.04	58.49	2.04 (0.85)	1.78 (0.76)	−0.25 (0.85)**
	Newton	74.58	61.02	2.10 (0.78)	1.83 (0.77)	−0.27 (0.96)*
	Combined	69.09	59.39	2.06 (0.82)	1.80 (0.76)	−0.26 (0.89)***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Mission (n = 106), Newton (n = 59), and combined (n = 165)

Table 5 Paired sample t-tests for overall perceptions, individual perceptions, and conclusions on body-worn cameras

Survey Item	Division	Pre-test % Agree	Post-test % Agree	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Overall Perceptions						
The use of body camera equipment is well received by co-workers. [R]	Mission	11.32	10.38	1.82 (0.70)	1.72 (0.73)	−0.10 (0.85)
	Newton	5.08	18.64	1.61 (0.59)	1.90 (0.69)	0.29 (0.64)**
	Combined	9.09	13.33	1.75 (0.67)	1.78 (0.72)	0.04 (0.80)
Using body-worn cameras increases public trust in officers. [R]	Mission	40.57	29.25	2.25 (0.76)	2.08 (0.74)	−0.18 (0.80)*
	Newton	25.42	23.73	2.02 (0.75)	2.03 (0.72)	0.02 (0.78)
	Combined	35.15	27.27	2.17 (0.76)	2.06 (0.73)	−0.11 (0.80)
Body-worn cameras decrease officer safety.	Mission	31.13	45.28	2.71 (0.77)	2.51 (0.75)	−0.20 (0.89)*
	Newton	37.29	52.54	2.69 (0.75)	2.41 (0.81)	−0.29 (0.79)**
	Combined	33.33	47.88	2.70 (0.76)	2.47 (0.77)	−0.23 (0.85)***
The advantages of police departments' adopting body cameras outweigh the disadvantages. [R]	Mission	53.77	38.68	2.43 (0.85)	2.22 (0.84)	−0.22 (1.07)*
	Newton	37.29	47.46	2.19 (0.78)	2.32 (0.82)	0.14 (0.80)
	Combined	47.88	41.82	2.35 (0.83)	2.25 (0.83)	−0.09 (0.99)
Individual Perceptions						
I support the use of body-worn cameras on all patrol officers. [R]	Mission	56.60	34.91	2.49 (0.80)	2.17 (0.81)	−0.32 (0.76)***
	Newton	23.73	44.07	2.00 (0.79)	2.30 (0.75)	0.31 (0.93)*
	Combined	44.85	38.18	2.32 (0.82)	2.22 (0.79)	−0.10 (0.88)
Wearing a body-worn camera causes me stress and anxiety.	Mission	43.40	41.51	2.56 (0.92)	2.54 (0.81)	−0.02 (0.94)
	Newton	54.24	38.89	2.42 (0.89)	2.53 (0.75)	0.10 (0.90)
	Combined	47.27	40.61	2.51 (0.91)	2.53 (0.79)	0.02 (0.92)

Table 5 (continued)

Survey Item	Division	Pre-test % Agree	Post-test % Agree	Pre-test Mean (SD)	Post-test Mean (SD)	Change Mean (SD)
Having completed my BWC training, I am confident to use the cameras while on patrol. [R]	Mission	70.75	80.19	2.70 (0.76)	2.84 (0.69)	0.14 (0.81)
	Newton	61.02	74.58	2.51 (0.73)	2.73 (0.55)	0.22 (0.85)
	Combined	67.27	78.18	2.63 (0.75)	2.80 (0.65)	0.17 (0.82)
Conclusions						
I am fearful that I will receive disciplinary actions if I forget to turn on the camera	Mission	85.85	90.57	1.75 (0.74)	1.65 (0.70)	−0.09 (0.76)
	Newton	83.05	86.44	1.71 (0.83)	1.69 (0.80)	−0.02 (0.82)
	Combined	84.85	89.09	1.73 (0.77)	1.67 (0.74)	−0.07 (0.78)
Officer performance evaluation has been positively impacted by body-worn cameras. [R]	Mission	41.51	29.25	2.37 (0.80)	2.18 (0.90)	−0.19 (1.09)
	Newton	35.59	38.98	2.29 (0.87)	2.37 (0.79)	0.08 (1.06)
	Combined	39.39	32.73	2.34 (0.82)	2.25 (0.86)	−0.09 (1.08)
When officers wear cameras, they communicate less with their partners while on patrol.	Mission	82.08	80.19	1.80 (0.77)	1.80 (0.75)	0 (0.79)
	Newton	84.75	83.05	1.80 (0.74)	1.85 (0.69)	0.05 (0.78)
	Combined	83.03	81.21	1.80 (0.76)	1.83 (0.73)	0.02 (0.78)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. [R] indicates a reverse coded item. Mission (n = 106), Newton (n = 59), and combined (n = 165)

Views on General Policing/Citizen Cooperation

Differences on views of general policing tasks and citizen cooperation with the police pre- and post-deployment are presented in Table 6. There were no significant changes in the officers' general perceptions of police work, nor views on citizens' cooperation with the police between pre- and post-deployment of BWCs. There were also no differences when examining change among the divisions.

Discussion

Examining the change that occurred over time in both divisions combined, LAPD officers' experiences with BWCs were better than officers had anticipated. In the second wave of surveys, more officers agreed with the statements that BWCs are easy to use, comfortable to wear, and that downloading BWC data is a simple process. Additionally, the effects of BWCs on citizens were generally better than officers had feared pre-deployment, with fewer officers agreeing with the statements that using BWCs deters witnesses from speaking with officers and that citizens feel that BWCs are an invasion of their privacy. However, when it came to perceptions of officer safety, officers had less favorable views of the cameras after BWC deployment, with more officers agreeing with the statement that BWCs decrease officer safety after they had used them in the field.

Viewed individually, noteworthy differences exist between officer perceptions of BWCs in the two divisions. First, from Wave I to Wave II, Mission experienced more change in officer views than did Newton, and the change was generally toward more critical perceptions of BWCs. When there was change in Newton, on the other hand, it tended to be in the direction of more favorable perceptions of BWCs. In other words, one division became progressively more critical of BWCs, while the other grew slightly more supportive. Notably, over time, officers in the two divisions moved in opposite directions in their response to the statement, "I support the use of body-worn cameras on all patrol officers," and the differences between the two divisions was large enough to be statistically significant. Following BWC implementation, more officers in Newton agreed with this statement compared to pre- camera deployment, while the opposite was true in Mission.

Differences in police culture, implementation practices, and experiences of its officers between divisions likely explain the dissimilar views. There are major dissimilarities in police culture across the 21 LAPD divisions based on their geographic locations, crime patterns and trends, prevalence of gangs, and other nuances within them. For example, at the bureau level – the Valley and West Bureaus are known more for their property crime, large geographic areas (in square miles), and urban sprawl. Central and South Bureaus are more densely populated, have more violent crime, and larger numbers of gangs and gang members. Newton Division lies in Central Bureau and abuts two South Bureau divisions – Southwest and 77th Street.

Together these divisions, along with Southeast Division, have the highest annual percentage of homicides in the city (40–45%) and the largest number of Hispanic and African American gangs. The second author of this article has done extensive research in Newton since 2010 and has observed officers, supervisors, and command staff

Table 6 Paired sample t-tests for general policing scales

Survey Item	Division	Pre-test % agree	Post-test % agree	Pre-test Mean (SD)	Post-test Change	Change Mean (SD)
General Perceptions of Police Work						
Enforcing the law is a patrol officer's most important responsibility. [R]	Mission	88.68	93.40	3.25 (0.65)	3.32 (0.59)	0.07 (0.64)
	Newton	89.83	89.83	3.34 (0.71)	3.31 (0.65)	−0.03 (0.67)
	Combined	89.09	92.12	3.28 (0.67)	3.32 (0.61)	0.03 (0.65)
Assisting citizens is just as important as enforcing the law. [R]	Mission	97.17	100.00	3.58 (0.62)	3.59 (0.48)	0.02 (0.66)
	Newton	100.00	96.61	3.63 (0.49)	3.58 (0.56)	−0.05 (0.57)
	Combined	98.18	98.79	3.59 (0.57)	3.59 (0.52)	−0.01 (0.63)
Police officers have reason to be distrustful of most citizens.	Mission	24.53	24.53	2.96 (0.83)	2.85 (0.71)	−0.11 (0.93)
	Newton	30.51	28.81	3.46 (1.19)	3.46 (1.28)	0 (1.25)
	Combined	26.67	26.06	3.14 (1.00)	3.07 (1.00)	−0.07 (1.05)
A good patrol officer is one who stops cars, checks out people, runs license checks, etc. [R]	Mission	79.25	77.36	3.03 (0.82)	3.00 (0.76)	−0.03 (0.80)
	Newton	84.75	84.75	3.12 (0.98)	3.12 (0.98)	0 (1.13)
	Combined	81.21	80.00	3.06 (0.88)	3.04 (0.84)	−0.02 (0.93)
It is important for patrol officers to ensure that commonly used public spaces are safe for people in the community. [R]	Mission	96.23	99.06	3.52 (0.61)	3.54 (0.52)	0.02 (0.63)
	Newton	96.61	98.31	3.49 (0.63)	3.59 (0.53)	0.10 (0.64)
	Combined	96.36	98.79	3.51 (0.61)	3.56 (0.52)	0.05 (0.63)
It is important to enforce minor crimes to improve of life the quality for neighborhood residents. [R]	Mission	90.57	94.34	3.21 (0.66)	3.24 (0.58)	0.03 (0.76)
	Newton	91.35	88.14	3.17 (0.56)	3.19 (0.63)	0.02 (0.54)
	Combined	90.91	92.12	3.19 (0.62)	3.22 (0.60)	0.02 (0.69)

Table 6 (continued)

Survey Item	Division	Pre-test % agree	Post-test % agree	Pre-test Mean (SD)	Post-test Change	Change Mean (SD)
A good patrol officer will try to find out what residents think the neighborhood problems are. [R]	Mission	91.51	96.23	3.38 (0.75)	3.44 (0.57)	0.07 (0.81)
	Newton	100.00	94.92	3.41 (0.50)	3.34 (0.73)	−0.07 (0.72)
	Combined	94.55	95.76	3.39 (0.67)	3.41 (0.63)	0.02 (0.78)
How many citizens						
Would call the police if they saw something suspicious?	Newton	30.19	33.02	2.73 (0.51)	2.69 (0.50)	−0.04 (0.63)
	Combined	42.37	37.29	2.59 (0.53)	2.69 (0.59)	0.10 (0.71)
	Mission	34.55	34.55	2.68 (0.52)	2.69 (0.54)	0.01 (0.66)
Would provide information about a crime if they knew something and were asked about it by police?	Mission	43.40	34.91	2.56 (0.52)	2.65 (0.52)	0.09 (0.61)
	Newton	66.10	61.02	2.34 (0.54)	2.37 (0.52)	0.03 (0.69)
	Combined	51.52	44.24	2.48 (0.54)	2.55 (0.53)	0.07 (0.64)
Are afraid to cooperate with the police because of what other citizens might do to them? [R]	Mission	25.47	31.13	2.20 (0.52)	2.29 (0.53)	0.09 (0.68)
	Newton	16.95	15.25	2.03 (0.56)	2.07 (0.49)	0.03 (0.59)
	Combined	22.42	25.45	2.14 (0.54)	2.21 (0.53)	0.07 (0.65)
Are willing to work with the police to solve neighborhood problems?	Mission	37.74	37.74	2.64 (0.52)	2.62 (0.49)	−0.02 (0.62)
	Newton	61.02	64.41	2.36 (0.55)	2.36 (0.48)	0 (0.64)
	Combined	46.06	47.27	2.54 (0.55)	2.53 (0.50)	−0.01 (0.62)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. [R] indicates a reverse coded item. Mission (n = 106), Newton (n = 59), and combined (n = 165)

during this time. In addition, he has talked with commanders and officers about the difference in police cultures that exist throughout the department. In particular, Newton officers are considered more "cynical" and have a reputation for being "difficult to get along with." The Newton Division's moniker, "Shootin' Newton," was a source of pride for officers, as it represented the violence that occurred there since the late 1960s. With over 45 gangs in a 9-mile^2 area, Newton was the scene of shootouts, drive-bys, and gang-related crime. Since 2011, however, that level of violence has abated, but Newton's reputation remains. It is known more for property crime than violent crime. Unlike Newton, only a small number of gangs are involved in criminal activity within Panorama City an area in the southern part of the division.

As discussed elsewhere, Mission was the first division in the department to receive BWCs. Mission did not have previous experience with digital in-car video and was not a division where much attention was paid, either by the department or the media. This may explain why Mission officers had significantly higher levels of support for BWCs in comparison to Newton officers (who already had in-car video) and why Mission officers had a considerably higher completion rate of the Wave I survey. It may be that Mission was not used to having their actions recorded and viewed by their supervisors in comparison to Newton. In the lead up to receiving BWCs, however, Mission officers received attention from command staff (the deputy chief of the Valley Bureau personally talked with the entire division about the importance of the cameras) and from the media, "dozens" of reporters waited for officers on the first day that the cameras were put into use. This type of notoriety was unexpected and created an atmosphere that the officers were being watched more carefully.

When BWC policy compliance checks were conducted by reviewing the footage, officers perceived that discipline was being meted out for minor infractions identified from the BWC footage, such as not wearing seat belts, using profanity, or not turning on the cameras when they were supposed to. Whether or not disciplinary action occurred as a result of these issues, officers "heard rumors" that someone "got dinged," which in turn led to the different results from the surveys. As such, Mission officers believed that such disciplinary actions would not have occurred had it not been for the BWCs. This finding consistent with prior research indicating that officer perceptions are affected by the attitudes of officers with whom they interact (Lum et al., 2019; Maskaly et al., 2017) and officers are most likely to interact with those within their assigned division (Mission Division lies in the Valley Bureau, about 35 miles northwest of Newton).

Equally important to understanding the evolution of officers' perceptions of BWCs is examining the possible reasons for Newton officers' more favorable opinions of BWCs after implementation. Many law enforcement agencies implementing BWCs have reported high levels of officer anxiety around BWCs due to factors such as fear of the unknown and concerns about increased surveillance by supervisors and command staff (Koper, 2015). Often, however, officer concerns fade as they become more accustomed to the cameras. Thus, Newton's slightly more favorable views of BWCs nine months post-deployment may simply be because officers' fear of the unknown was no longer a factor and many of their apprehensions regarding the cameras' use either did not come to pass or were less impactful than they had feared. In contrast, Mission officers' fears may have been confirmed, leading to their more negative responses.

It is also useful to note what did not change from pre- to post-deployment. First, officers' philosophies on policing remained much the same. Across both divisions, there was no statistically significant change in agreement over time with statements such as "enforcing the law is a patrol officer's most important responsibility" and "assisting citizens is just as important as enforcing the law." Similarly, officers' overarching views on the citizens in their divisions did not change either. Responses to questions such as "How many citizens would provide information about a crime if they knew something and were asked about it by police?" and "How many citizens are afraid to cooperate with the police because of what other citizens might do to them?" did not undergo any significant shift. These findings imply that LAPD officers as a group did not experience any substantial attitudinal shift regarding their philosophy on policing in general or on the citizens in the areas in which they work.

It is also interesting to note that while Newton officers' concerns in dealing with certain populations decreased between waves, their views on this issue pre-deployment were significantly different than Mission in several instances. In comparison to Mission, Newton had significantly heightened concerns regarding the use of BWCs with homeless individuals, victims of assault, in a private residence, severe traffic accidents/fatalities, mentally/physically challenged individuals, and domestic violence situations. Not only did Newton officers become less concerned regarding the use of BWCs with these populations, their views on these concerns were not statistically different from Mission officers post-deployment. The heightened concerns of Newton officers pre-deployment in comparison to Newton officers may be due to the differences between the divisions with respect to the citizens they serve and the severity of crime they encounter daily. However, the differences causing the dissimilar concerns were no longer important once Newton officers gained experience with the BWCs.

Conclusions

The officer perception surveys administered in the LAPD's Mission and Newton divisions demonstrated that certain aspects of BWC use were less cumbersome than officers had anticipated, while other officer concerns regarding BWCs remained and even intensified.

Moreover, the study revealed marked differences between divisions. While Mission officers expressed significantly less favorable views of BWCs post-deployment, Newton officers' opinions of the cameras improved after their implementation. These differences may be attributed to the increase in perceptions of disciplinary action toward Mission officers, absence of ICV in Mission, the fact that Mission was the first LAPD division to deploy BWCs, and a lessening of the fear and anxiety experienced by Newton officers, who may already have been accustomed to a higher level of surveillance due to their use of ICV, once cameras were implemented.

This study was subject to several limitations. First, while the surveys had a high cooperation rate, participants in the survey only represented a total of 35.7% and 15.5% of police officers in Mission and Newton divisions respectively. Often, officers included in the first wave of the study had been promoted or transferred to different divisions prior to Wave II. Moreover, some officers were on leave or out sick on days when the survey was administered. Second, because this research took place in a large metropolitan police agency, our results may not generalize to small or rural departments.

In future studies, additional LAPD divisions could be surveyed to determine where they fall in terms of pre- and post-deployment perceptions of BWCs. This could provide a more nuanced understanding of the factors contributing to officers' opinions of BWCs. Second, in-depth interviews with officers could tease out more specific details about their perceptions. That is, we suggest questions about the benefits and challenges regarding the cameras, whether the policies and training were adequate, whether video footage was useful in report writing and to counter civilian complaints, and whether they notified citizens that the cameras were "on."

Ultimately, officer buy-in and perceptions of BWCs have extensive implications for law enforcement agencies implementing and maintaining BWC programs. By studying the evolution of officer opinion on BWCs before and after deployment, research may be able to shed light on actions departments can take to ease the transition to BWCs and minimize officer anxiety and fear of the unknown. Conversely, it is equally important to understand whether there may be actions departments are taking that are unwittingly prejudicing officers against BWCs.

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