Received: 1 November 2017 | Revised: 9 October 2018 | Accepted: 26 October 2018

DOI: 10.1111/1745-9125.12201

CRIMINOLOGY

ARTICLE

Assessing the effects of body-worn cameras on procedural justice in the Los Angeles Police Department*

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Funding information
National Institute of Justice, Grant/Award Number: 2014-R2-CX-0101

*Additional supporting information can be found in the listing for this article in the Wiley Online Library at http://onlinelibrary.wiley.com/doi/10.1111/crim.2019.57.issue-2/issuetoc.

Abstract

In this article, we explore variations in procedural justice delivered in face-to-face encounters with citizens before and after the implementation of body-worn cameras (BWCs). We draw on recent advances in the measurement of procedural justice using systematic social observation of police in field settings in the Los Angeles Police Department. Data collected on 555 police–citizen encounters are examined in bivariate and multivariate models exploring the primary hypothesis that BWCs affect procedural justice delivered by police directly and indirectly. Our results indicate that significant increases in procedural justice during police–citizen encounters were directly attributable to the effect of BWCs on police behavior as well as to the indirect

We would like to thank our primary editor, Dr. Brian Johnson, and anonymous reviewers for *Criminology* who provided helpful comments, suggestions, and advice that improved the final manuscript. There are many people who played important roles in the research that was undertaken, and we thank them for assisting us. Special thanks go to the National Institute of Justice's Director Nancy Rodriguez and Senior Computer Scientist Joel Hunt. Within the Los Angeles Police Department, we are grateful to Chief Charlie Beck; Deputy Chief Sean Malinowski; CIO Maggie Goodrich; Lt. Daniel Gomez; Commanders Jorge Rodriguez, Todd Chamberlain, and Robert Marino; and Captain Mike Rimkunas for their unwavering support in allowing us to ride with and observe officers. Last, but not least, we thank the patrol officers and supervisors of the Newton and Mission divisions for accepting us into their lives (however briefly) to ride with them and begin to understand their work. This project was supported by Award 2014-R2-CX-0101 by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice to the Los Angeles Police Foundation. The opinions, findings, and conclusions or recommendations expressed in this article are those of the authors and do not necessarily reflect those of the U.S. Department of Justice, the Los Angeles Police Department, or the Los Angeles Police Foundation.

effects on citizen disrespect and other variables. The implications for policy include explicit measurement and monitoring of procedural justice or elements such as officer discourtesy in departments adopting BWCs. Further research questions such as more detailed examination of citizens' behavior changes under BWCs are also considered in the context of the findings.

KEYWORDS

body-worn cameras, procedural justice, systematic social observation

Understanding variations in procedural justice in face-to-face encounters between police and citizens has taken on added significance in light of officer-involved shootings and as a focus of the President's Taskforce on 21st Century Policing (2015) recommendations (e.g., Worden & McLean, 2017). The widespread adoption of body-worn cameras (BWCs) has been an additional response to a crisis of legitimacy in contemporary policing with sparse information on its impact on everyday police encounters (Lum, 2015; Lum, Koper, Merola, Schere, & Reioux, 2015; Miller, 2016). As yet, little research has been aimed at examining the effects of BWCs on how police service is delivered beyond examinations of complaints and use-of-force outcomes captured in organizational records (e.g., Ariel, Farrar, & Sutherland, 2015). Recent results from surveys of citizens, however, indicate that perceived procedural justice is a more powerful influence on citizen satisfaction than is the presence of cameras alone mainly because citizens are poor reporters of whether cameras were used (McClure et al., 2017). Thus, a key question is, net of other variables, do BWCs contribute to positive changes in procedural justice and its constituent elements delivered by officers? We address that gap by exploring procedural justice as delivered by police officers in two divisions of the Los Angeles Police Department (LAPD) before and after the implementation of BWCs using systematic social observation (SSO) data.

To accomplish this aim, we first frame procedural justice research and key elements from that theoretical reference point as police behavior amenable to theoretical explanation. Second, we consider the effects of BWCs and major theoretical domains expected to impact procedural justice in police–citizen encounters and develop key hypotheses for testing. Third, we outline the research setting in LAPD, the motivation for the use of SSO methodology, sampling, and the overall data collection effort undertaken. Fourth, we test hypotheses using bivariate and multivariate models. Finally, we discuss the implications of the findings framed within the concerns of police managers, policy makers, and criminal justice theorists.

1 | PROCEDURAL JUSTICE AND POLICE BEHAVIOR

Procedural justice, as posited by Tyler (2003, 2004, 2006) and his colleagues (Tyler & Fagan, 2006; Tyler, Goff, & MacCoun, 2015; Tyler & Huo, 2002), is conceived as having two broad elements of quality decision-making and quality of treatment. Citizens prefer decisions that are fair, thoughtful, and feature their input, and they likewise prefer decision processes that affirm their dignity and reflect concern about their well-being as expected from a trustworthy authority. Authorities whose decisions reflect procedural justice are posited to be more legitimate in the judgment of citizens and are more

likely to elicit compliance and cooperation from them. Conversely, authorities undermine support from citizens when their decisions indicate bias and when they treat citizens disrespectfully or in a cavalier manner. Quality of decision-making and quality of treatment each have two identifiable subcomponents for a total of four distinct elements that can be mapped onto police treatment of citizens in face-to-face encounters: participation, neutrality, dignity and respect, and trustworthy motives.

Participation reflects an officer allowing citizen input into encounters by actively listening to information provided and asking him or her questions; *neutrality* reflects an officer's display of decision-making rooted in law or community concerns and *not* based on personal characteristics of citizens. Together, these reflect quality decision-making in that officers are using citizen information as inputs, eliciting information, and demonstrating a transparency and fairness in coming to a decision in the presenting situation. The reverse of this—denial of citizen participation and voice, inattention, and bias—would exemplify low-quality decision-making and procedural injustice.

Dignity and respect are demonstrated in officers' displays of respect in forms such as positive body language, addressing citizens with respectful language ("sir," "ma'am"), and reflecting positive social recognition for the individual citizen. Conversely, dismissive remarks, blatantly ignoring a citizen's statements, eye rolls, or profanity directed toward a citizen, for example, represent disrespectful behavior, which can be active or passive (Mastrofski, Reisig, & McCluskey, 2002). *Trustworthy motives* are demonstrated when officers show care and concern as represented by efforts expended to assist citizens using referrals, reports, advice, and similar actions and inquiries regarding citizen well-being and needs. These two elements are indicators of the quality of treatment that citizens receive when encountering the police. Displays of respect and care and concern are evidence of a higher quality of treatment, whereas disrespect and a lack of concern for the citizen are indicative of procedural injustice and a low quality of treatment.

1.1 | Predicting procedural justice

Explanations of police behavior have been described as drawing on sociological, psychological, and organizational theories (see Worden, 1996). Explaining procedural justice in encounters with police is particularly dependent on sociological theorizing regarding the behavior of law (Black, 2010). One could conceive of the dependent variable *procedural justice* as an extension of previous work on police disrespect in the sense that it encompasses the quality of what police do in interacting with citizens (Mastrofski et al., 2002). Also consistent with this outcome is research on use of force, arrest, citation, and other police action comprising choices to exercise formal authority over citizens, which can be understood as the application of more or less law to a situation or citizen (Black, 1980, 2010). Indicators of social status, however, including race, gender, and wealth have yielded mixed results in predicting police behaviors such as use of force, arrest, and report-taking (Skogan & Fydl, 2004). Against this backdrop procedural justice can arguably be framed as a dependent outcome that is subject to similar causal explanations in the sense that greater procedural justice exemplifies a normatively desirable style of law applied to a citizen that is determined by his or her social status. Similarly, procedural justice would be considered an outcome of interest to social interactionist theorists. That is a citizen's self-presentation and behavior toward police would be theorized to place one at different risks of receiving more or less fair and just treatment in encounters with police (Sykes & Brent, 1980, 1983). These two frameworks, which have been key theoretical bases in developing hypotheses regarding outcomes of police–citizen encounters in general, are drawn on in the article as the organizing elements for understanding police application of procedural justice.

Black (2010) relied on citizen status for his theory, which is broadly defined as the key determinant of the quantity and style of law applied in a particular situation. From this theoretical framework,

one can conceive of procedural justice as consistent with the style or quantity of law in a positive sense; that is, more procedural justice is an affirmation of the individual's identity (Black, 1980; Tyler & Blader, 2003). For example, one would expect citizen statuses, such as income and gender, and transient statuses of identity, such as the contrast between suspect and victim, to be important determinants of procedural justice as applied by police.

The social interactionist perspective offers a second overarching framework for understanding police applications of procedural justice in encounters with citizens. Because social interactionist theory as discussed by Tedeschi and Felson (1994) is primarily tied with aversive and coercive interactions, it is important to reconceive of lower levels of procedural justice as congruent (albeit not equivalent) with such a negative outcome. For example, citizen disrespect of the police, which challenges their authority, leads to a greater likelihood of police returning disrespect (Mastrofski et al., 2002; Sykes & Clark, 1975). Thus, the actions and identity of the citizen are, in the context of social interactionist theory, key determinants of police displays of procedural justice.

Four research projects in which SSO has been relied on have recently been aimed at predicting procedural justice displayed toward citizens by police. Worden and McLean (2017) bifurcated the behaviors of police in their encounters with 411 citizens as representing procedural justice or injustice in SSOs based on police dashboard camera audio and video from the Schenectady (NY) Police Department. Mell (2016) adapted Jonathan-Zamir, Mastrofski, and Moyal's (2015) formative measurement strategy, with a factor-score dependent measure, drawn from 500 videos of citizen encounters with Virginia Commonwealth University (VCU) campus police. Mastrofski, Jonathan-Zamir, Moyal, and Willis (2016) adopted the formative measure they developed to capture procedural justice using in-person observations of 524 police–citizen encounters across two anonymized suburban departments. Finally, McCluskey and Reisig (2017) adopted a composite factor score, developed from elements of procedural justice captured in data from the Project on Policing Neighborhoods, fielded in 1996–1997 in Indianapolis, IN, and St. Petersburg, FL. That research involved a total of 939 suspects in encounters where police requested compliance and involved using detailed narrative accounts to construct measures and establish causal order.

Variations in method (video, in person, narrative reconstructions), measurement of procedural justice as a dependent variable (factor score, additive scale, bifurcated measures), nature of the police organization (suburban, urban, campus police), and encounter types in the samples (suspect only, all citizens encountered) make for problematic comparisons of procedural justice models. Put differently, caution should be taken in evaluating the results of these four studies for divergent or convergent findings. Furthermore, the models developed to predict procedural justice range from explaining 20 percent of the variance (Mastrofski et al., 2016) to less than 10 percent of the variance in procedural justice delivered to citizens (Mell, 2016) among selected domains of predictors.

Despite the variation and moderate-to-weak models generated in this literature, the estimates across the research allow for a sketch of variable domains that should be considered in estimating officers' delivery of procedural justice. Mastrofski and colleagues' (2016) nomenclature is primarily adopted to describe the major domains used to model procedural justice: citizen social status, citizen behavior, challenges and aids to engaging in procedural justice, and unique to this research, presence of BWCs. Each of these domains is considered here as a central element that may affect procedural justice delivery.

Citizens' deservingness of higher quality treatment, or moral worth, is arguably related to social status and behavioral displays. Citizen social status—indicated by age, wealth, gender, race, and ethnicity—is of interest in terms of how those attributes are interpreted when authorities make calculations of worthiness. Black's (2010) theory is a touchstone in this area as lower status is predicted to yield lower quality and quantity of law. More procedural justice is higher "quality" law

in this calculation; thus, we would expect social status to have a significant impact. In the small body of literature in which the delivery of procedural justice is analyzed, Worden and McLean (2017) and McCluskey and Reisig (2017) indicate, respectively, that Black and minority suspects are counterintuitively recipients of higher levels of procedural justice compared with Whites. Mell (2016) indicates that females receive higher levels of procedural justice when compared with males. On the other hand, in work indirectly related to procedural justice, Mastrofski et al. (2002) found disrespectful displays by police to be predicted by citizens' lower income status. Moreover, in recent data coded from the Oakland (CA) Police Department's BWCs, Voigt et al. (2017) found that Black motorists were accorded less courtesy and more discourtesy versus their White counterparts during traffic stops.

More proximal indicators of moral deservingness are the behaviors and transient statuses that a citizen may have in an encounter. This domain is strongly related to social interactionist theory and consideration of police–citizen contact as a dynamic transaction featuring verbal and behavioral exchanges that define and redefine patterns of communication (Sykes & Brent, 1983; Tedeschi & Felson, 1994). Citizens who are in the role of suspect, for example, are likely to be accorded lower levels of procedural justice than are victims as officer question patterns and tone are likely to vary as one or the other converses with police. Citizens who solicit police presence are likely to be accorded more procedural justice as they are direct requestors of service. Conversely, citizens who are disrespectful or physically resistant toward police are likely to be accorded lower quality of treatment compared with their business-like, compliant, or courteous peers. Among the four existing SSO studies, suspects and third parties are recipients of significantly lower levels of procedural justice in Worden and McLean's (2017) and in Mastrofski and colleagues' (2016) analyses. Citizen initiation of encounters predicted higher levels of procedural justice in the latter study as well, but not in Mell's (2016) analysis, and the measurement differed in the two other studies, in which only proactive or reactive mobilization was captured; the results of neither of which yielded significant variation in procedural justice. Citizen disrespect significantly increased procedural injustice in Worden and McLean's (2017) research and reduced procedural justice in research by Mastrofski et al. (2016). Passive resistance yielded higher levels of procedural injustice, and defensive resistance lowered levels of procedural justice in Worden and McLean's (2017) study; none of the other researchers captured a measure of resistance. McCluskey and Reisig (2017) measured defiance, a combination of resistance and disrespect, but it had no statistically reliable impact on procedural justice. Overall, citizen behavioral displays indicate a moderate and consistent impact in modeling procedural justice.

Challenges and aids to engaging in procedural justice are likely to change officers' use of procedural justice by reducing or increasing opportunities or the perceived effectiveness in the application of its elements. In the parlance of social interactionist theory, these provide some context that may inhibit, curtail, or deprive opportunities or incentives for engaging in procedurally just behavior. One example of a challenge is a citizen's apparent use of alcohol, drugs, or being afflicted by mental or emotional distress. Research findings generally indicate that citizens affected by indicators of irrationality are more difficult, less compliant, and likely less attentive to officers' communication (McCluskey, 2003; McCluskey, Mastrofski, & Parks, 1999; Muir, 1977). Among the four studies, McCluskey and Reisig (2017) found citizens' irrationality to be significantly related to lower levels of procedural justice, and Worden and McLean (2017) found the mildly intoxicated were subjected to greater procedural injustice. Similarly, citizens who are in conflict with others on the scene present difficulties for police in simultaneously delivering procedural justice and managing that conflict. Neither of these researchers measuring citizens' conflict with others, however, found a significant relationship with procedural justice (Mastrofski et al., 2016; McCluskey & Reisig, 2017). The sheer number of citizens on scene represents a difficulty in commanding officer attention and concern for safety (Muir, 1977).

As such, we surmise larger citizen audiences would reduce procedural justice, and Mastrofski et al. (2016) and McCluskey and Reisig (2017) have confirmed that effect.

The problems that officers face in encounters can also shape their decisions. For example, it has been hypothesized that scripts for handling situations are used as a shorthand for application to certain types of encounters that police have with citizens. In particular, the traffic stop is an encounter amenable to "scripting," as evidenced by the Australian QSET study (Mazerolle, Antrobus, Bennett, & Tyler, 2013). Mastrofski et al. (2016) also found traffic stops to be significantly higher in the amount of procedural justice delivered by officers, which, consistent with social interactionist theory, is a situation where police and citizens have commonly established interaction patterns that are predictable (e.g., Sykes & Brent, 1983). We thus expect that traffic stops, as compared with other less predictable encounters, will feature higher levels of procedural justice. Conversely, some events or situations are likely to reduce officer discretion and curtail the use of procedural justice. Arguably, the most serious events, such as violent crimes, would reduce officers' use of procedural justice. Contrary to this expectation, Worden and McLean (2017) found that violent crime and interpersonal conflict calls yielded higher levels of procedural justice, but suspicious circumstances were associated with significant reductions. A similar expectation of constrained discretion would be expected of encounters with citizens that happen during the busiest shifts. Police decision-making in these cases may be believed to require quick resolution of the presenting situation, therefore changing the calculus in terms of effort and thoroughness applied. Only Worden and McLean (2017) controlled for shift, and their results indicated it had no impact on procedural justice.

Against the backdrop of citizen characteristics, behaviors, and challenges of the situation, the presence of BWCs is expected to change the delivery of procedural justice in police–citizen encounters via several possible mechanisms. First, there is the prospect that police will change their behaviors because of surveillance. Current evidence from BWC evaluations indicates that complaints and uses of force—under certain conditions—decline after BWCs are introduced (Ariel et al., 2015; cf. Ariel et al., 2016). Therefore, upon adopting BWCs, police change their behaviors and greater procedural justice may be mediating this effect on force and complaints. This behavioral change is rooted in an expectation that the cameras serve to deter police from engaging in misbehavior (Ariel et al., 2015). The deterrence of particular police behaviors is linked to the certainty that BWC recordings will preserve an actionable record of wrongdoing viewable by a third party. Actual third-party viewing is likely to vary across departments in terms of their use of video for discipline, activation, and public release policies, as well as in the sheer amount of video that is collected. Regarding volume, mid-sized departments report as many as 4,000 archived hours per month and larger departments report an excess of 10,000 hours per week (Sanburn, 2016). The LAPD estimates that it records approximately 10,800 videos and 2,230 hours per day (Uchida, 2018). Ariel, Sutherland, Henstock, Young, & Sosinski, (2017) have more recently argued for the "deterrence spectrum," which is a highly interactive notion of how cameras can affect police, but one that is mainly focused on critical incidents. In the more mundane interactions with the public which dominate police activities, such theorizing offers limited hypotheses in extension of the primary deterrence effect already noted.

A second avenue for change in police delivery of procedural justice, also related to behavioral changes, is that citizens under surveillance may desist from negative behaviors and thus curtail police responses (e.g., reciprocating discourtesy) that undermine procedural justice. Similar to the previous argument, the social interactionist concept of a third-party reviewer is drawn on, along with the salience of one's social identity (Tedeschi & Felson, 1994). This latter argument is weakened by the apparent reality that citizens are poor at ascertaining whether police have cameras on, even when told they do, with as few as 28 percent of citizens realizing that cameras recorded encounters (McClure et al., 2017; White, Todak, & Gaub, 2017).

Finally, in a related but broader psychological literature, researchers have argued that cues that one is being watched induce positive effects on subjects under surveillance as a result of a general audience effect. For example, von Rompay, Vonk, and Fransen (2008) showed that individuals increased helping in the presence of security cameras. Pfattheicher and Keller (2015) likened the cue of being watched by stylized eyes on a sheet of paper or Web page to being seen and noted that individuals' public self-awareness was positively related to prosocial action. This line of psychological research may be more important than the notion of deterrence in explaining an effect on procedural justice inasmuch as it explains an increase in prosocial behaviors. Put differently, we might expect deterrence to reduce discourtesy but not necessarily increase participation, neutrality, or displays that provoke a sense of motive-based trust. Regardless of the exact mechanism, policy makers touting increased transparency and accountability have raised the expectation that BWCs will positively affect police–citizen interactions. As a result, we have at least six hypotheses for our consideration:

Hypothesis 1 **(H_1):** The level of *participation* exhibited by police in encounters with citizens will be higher after BWC implementation.

Hypothesis 2 **(H_2):** The level of *neutrality* exhibited by police in encounters with citizens will be higher after BWC implementation.

Hypothesis 3 **(H_3):** The level of *dignity and respect* exhibited by police in encounters with citizens will be higher after BWC implementation.

Hypothesis 4 **(H_4):** The level of *care and concern* exhibited by police in encounters with citizens will be higher after BWC implementation.

Hypothesis 5 **(H_5):** The level of overall *procedural justice* exhibited by police in encounters with citizens will be higher after BWC implementation.

Hypothesis 6 **(H_6):** Encounters observed under the BWC condition will have higher levels of procedural justice, holding constant the variation in police–citizen encounters.

2 | SITE

Los Angeles, CA, is the second largest city in the United States with a population of nearly four million residents distributed across more than 472 square miles. The LAPD is the third largest police force in the country with nearly 10,000 sworn and 2,800 civilian employees. Chief Michel Moore oversees the department that is divided into 21 separate patrol divisions and 4 traffic divisions and organized into 4 bureaus, which cover the service area.

In 2013 and 2014, Steve Soboroff, then-President of the Los Angeles Board of Police Commissioners, led an effort to raise approximately $1.5 M to jump-start LAPD's deployment of BWCs. Before purchasing the cameras, the LAPD vetted vendors and equipment and developed appropriate policies and procedures for their use. LAPD staff conducted research on several BWCs on the market and looked for cameras that had a long battery life (10–12 hours), were easy to use, and addressed efficient storage of video footage. Costs of the cameras and storage were examined closely. Two cameras were selected for a field test, and a small sample of officers ($N = 32$) tested them. Ultimately, one camera was selected and 800 BWCs were purchased through the Los Angeles Police Foundation.

In 2015, the LAPD began its initial deployment of BWCs. Two divisions, Mission (deployed 9/4/15) and Newton (deployed 9/18/15), began implementation in September 2015 and are the focus of this study as they were the first two patrol divisions in the LAPD to receive BWCs. They were specifically selected based on their locations and the differences in their call types and activities. Newton Division

is part of Central Bureau, located in South Los Angeles, and is historically more violent than 18 of the other 21 LAPD divisions. Smaller than Mission, it covers a 9-square-mile area and is home to more than 150,000 residents (LAPD, 2017a). Newton recorded 27 and 20 homicides and 690 and 848 robberies in 2015 and 2016, respectively (LAPD, 2017b). More than 40 gangs exist in Newton, and at one time, Newton was referred to as "Shootin' Newton" because of the high levels of gun violence and gang activity that occurred there. 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 in and around Newton Division (Uchida & Swatt, 2013). Anecdotally, other LAPD officers tend to view Newton officers as cynical. According to officers and sergeants in other divisions, Newton has a distinct culture that makes it more difficult for new officers to gain acceptance and to "fit in" readily.

Mission Division is part of the Valley Bureau in the North Central area of Los Angeles, with an area that is almost three times the size of Newton (25.1 square miles). The population is approximately 50 percent larger than that of Newton with an estimated 226,000 residents (LAPD, 2017c). Mission Division recorded fewer homicides and robberies than did 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, more property crime than Newton. It is named for the San Fernando Mission that was founded in 1797. The Division itself surrounds the city of San Fernando (population of ~25,000), which has its own small police department (27 sworn and 14 civilians).

Despite their size differences (in area and population), the divisions are staffed by the same number of officers (nearly 300) and have a call load of approximately 100 calls for service per day (Justice & Security Strategies, Inc., 2014). With regard to population characteristics, Newton and Mission are both predominately Hispanic, with Newton having a higher rate of poverty.

3 | METHODOLOGY

Within the burgeoning literature, procedural justice has been predominately examined as a psychological measure encompassing citizens' impressions of treatment by the police (Reisig, Bratton, & Gertz, 2007; Tyler, 2003, 2004; Tyler & Huo, 2002). Citizen perceptions and assessments of police actions, however, are affected by emotions, race, and context (Barkworth & Murphy, 2015; Braga, Winship, Tyler, Fagan, & Meares, 2014; Johnson, Wilson, Maguire, & Lowrey-Kinberg, 2017). Thus, citizen reports and evaluations of "what police do" in encounters are likely affected by substantial and systematic biases. Systematic social observation is preferred to capture police actions (Mastrofski, Parks, & McCluskey, 2010). This is especially true with regard to trying to predict changes in procedural justice delivered by officers, which (as illustrated earlier) comprises a varied and complex set of police actions.

3.1 | SSO methods and procedural justice

Recently, SSO has been used to measure and predict procedural justice in police–citizen encounters. The use of SSO was, in many ways, what pioneered the systematic study of police and their behavior (Reiss, 1971). Albert Reiss, Jr. and Donald Black (Black & Reiss, 1967; Reiss, 1971) studied police behavior in Boston, Chicago, and Washington, DC, and were able to make comparisons of police actions across events by training observers to code elements of encounters according to a systematic protocol. One advantage this offered was the ability to measure what police did that did not result in official reports. Use of disrespect, discretion exercised to avoid making arrests or taking official reports, and even use of force were, at the time, unlikely to generate any data within the police organization.

Hence, observation of police decisions using official police output involved data that were necessarily censored. Put differently, we did not know what police chose not to do and we knew little about nonlegal actions such as counseling, helping, or referrals by police. SSO uncovered, described, and counted these actions, and as it further developed in the 1970s in the context of the Police Services Study and in the 1990s within the Project on Policing Neighborhoods, it demonstrated its unique utility as a method to capture police behaviors in face-to-face encounters (Mastrofski et al., 2010; Worden & McLean, 2014).

The application of SSO to the implementation of BWCs could draw on a new strength (Jonathan-Zamir et al., 2015; McCluskey & Reisig, 2017; Mell, 2016; Worden & McLean, 2017), which is the refinement of third-party measurement of police actions, consistent with the theoretical framework of procedural justice. More specifically, participation, neutrality, dignity and respect, and trustworthy motives have been shown to be amenable to definition and measurement within the SSO protocol. Initial research findings on citizen compliance with SSO demonstrated the utility of the method for capturing aspects of procedural justice (Mastrofski, Snipes, & Supina, 1996; McCluskey, 2003; McCluskey et al., 1999). Recent use of the method and refinement of observation protocols has led to compilation of a validated formative measure of procedural justice (Jonathan-Zamir et al., 2015). Furthermore, analysis of procedural justice measured as an element of policing delivered to citizens in turn seems to be predictable based on aspects of those encounters, the participants, and the context (Mastrofski et al., 2016; McCluskey & Reisig, 2017; Mell, 2016; Worden & McLean, 2017).

To examine the impacts of BWCs on police–citizen interactions, research staff conducted SSOs within the Newton and Mission divisions before and after BWC implementation. Traditionally, the LAPD does not allow observers to ride in two-officer patrol cars. LAPD policy indicates that ride-alongs are restricted to sergeants or higher ranking officers. Then-Chief Charlie Beck wrote a special memorandum to Newton and Mission division captains that allowed observers to ride with patrol officers. Although there may be concern that officers may have acted differently in the presence of the observers, because the observers rode with the same randomly selected officers before and after BWC implementation, there is consistency in the way in which officers may have viewed and reacted to the observers.

In June 2015, eight observers were trained in a classroom setting on the SSO instruments, including discussions of coding protocols, group viewing of vignettes, and a series of field training rides. After finalizing all procedures and instruments, observers conducted the initial SSOs in August (Mission Division) and early September (Newton Division) of 2015, prior to the deployment of cameras. During the SSOs, observers followed a detailed protocol governing data entry for all information collected. They used mobile hotspots and tablets to perform field coding via Qualtrics®, an online survey software, for each encounter. Designed to capture individual citizen, event, and ride characteristics, surveys were completed both during and after each field observation. Additionally, when feasible, observers composed detailed narratives describing each encounter that took place during the observations.

To obtain a random sample of officers for participation in the SSOs, we secured a list of all eligible officers within the two divisions. LAPD determined that all uniformed patrol officers and supervisors (including sergeants and lieutenants), regardless of assignment, would be given BWCs and would be trained to use them. This included officers and supervisors in specialized units and light-duty officers who worked at desks. Captains at each division provided research staff with full lists of officers working specific shifts on specific days during a specific time period (usually 8 days). This list contained all patrol officers and supervisors regardless of assignment and included all shifts, termed "watches." We determined that supervisors and those officers who were assigned to desk work would not be

observed as their interaction with citizens would be limited. Ultimately, uniformed officers on patrol (including special units) were randomly selected for observation based on their watch assignment. Up to five officers within each shift were identified as potential participants for observation. Watch two (6:30 A.M.–6:30 P.M.) and watch three (7:00 P.M.–7:00 A.M.) comprised 44 and 45 rides, respectively, or 72 percent of the total rides completed, which is consistent with those two shifts having the majority of units assigned to patrol during those two primary periods. Watch four (10:30 A.M.–10:30 P.M.) comprised 15 rides and watch five (4:30 P.M.–2:30 A.M.) 20 rides for 12 percent and 16 percent of the total, respectively, which is consistent with the smaller numbers of officers assigned to these overlap shifts. The balance of rides by watch was maintained across divisions and BWC conditions.

Observers attended division roll calls for all watches and notified the selected officers about the ride-along. For each 6-hour observation period, or approximately one half of a shift, the research staff observed the interactions between the assigned officer (O1) and any citizens he or she encountered. As LAPD employs two-person patrol cars, each SSO included the randomly selected primary officer (O1) as well as his or her partner (O2) for that shift.

The primary officer in an encounter refers to the officer who took the lead in the decision-making and had the most interaction with citizens. Typically, observers followed the interactions of O1; however, if O2 played the more significant role in a specific encounter, O2 would then serve as the primary officer for data collection. If both officers displayed equal levels of decision-making and citizen engagement, observers were instructed to use the assigned O1 as the primary officer to follow for the encounter. LAPD tactics, such as roles in "contact and cover" allowed for observers to determine accurately which officer would take the decision-making lead prior to the commencement of citizen contact. Which officer assumed the contact role would be agreed to before leaving the vehicle and that officer would be primarily responsible for interaction (contact) with citizens, whereas the second officer would serve as cover providing backup and surveillance of the area where the police–citizen encounter transpired.

After the completion of wave I data collection, observers returned approximately 1 year after implementation to conduct wave II of SSOs in the same divisions and, when possible, with the same officers. The second wave began in June 2016 in Mission Division and continued during July and August 2016 in Newton Division. Using updated lists of all officers working within each division, observers repeated the same selection and observation process. They coordinated and rode with the same officers that had previously participated in wave I to examine the impact of the BWCs on those officers. Although observers were able to ride with many of the original primary officers (O1s), in some instances, those officers were not available because of department transfers, vacation, sick leave, or promotions. In these instances, observers rode with other O1s or O2s who had previously completed an SSO during wave I.

Throughout wave I and wave II of the SSOs, observers spent 725 hours riding with and collecting observational data on the encounters between officers and citizens. A total of 124 rides (71 from wave I and 53 from wave II) were completed between both the Newton and Mission divisions. Patrol units accounted for 88 percent ($n = 109$, 137 unique officers) and patrol sergeants comprised 2 percent ($n = 3$, 3 unique officers), Parole Compliance units accounted for 4 percent ($n = 5$ rides, 8 unique officers), and Gang units accounted for 6.5 percent ($n = 8$ rides, 12 unique officers). These observations included 514 encounters and involved coding the interactions of 1,022 citizens, 555 of which were deemed to be citizens who had full contact, which was defined as a minute or more of face-time or at least three verbal exchanges. Encounters involved one or more participating citizens, but it should be clarified that for this research, the unit of analysis was the individual citizen. Ride observations involving special units and sergeants accounted for 14 percent of citizens encountered in wave I ($n = 48$) and 9 percent of those observed in wave II ($n = 19$), a decline resulting in part from the

TABLE 1 Observers' rides by wave and division and select aspects of observational data

Observer	2015		2016		Total Rides	Number of Citizens
	Mission	Newton	Mission	Newton		
A	10	9	6	8	33	133
B	0	0	6	0	6	32
C	0	6	5	5	16	83
D	4	0	0	0	4	34
E	3	6	6	2	17	107
F	3	0	0	0	3	29
G	9	9	4	8	30	92
H	6	6	3	0	15	45
Totals	35	36	30	23	124	555

discontinuation of the Parole Compliance units in the intervening time. A total of 549 citizens were observed without missing data for the multivariate analysis. Additionally, a subset of rides included officers observed across both waves. A total of 22 officers who were observed both in wave I and wave II were responsible for interacting with a total of 191 citizens in the sample (wave I, $n = 91$; wave II, $n = 100$).

Table 1 illustrates the observers' distribution across the two divisions and the 2 years of observation. The table also indicates variation in the distribution of total number of citizens across observers. It is important to note that observers A, E, and G account for 60 percent of the 555 citizen observations ($n = 332$), recorded 65 percent of the 124 rides ($n = 80$), and were the only three observers that recorded wave I and wave II data in both divisions.

3.2 | Measures

3.2.1 | Dependent measure

Elements of procedural justice are captured in a series of binary elements that are observed and coded as aspects of police–citizen interaction. We use the full sample total here ($n = 555$) as there were no missing data on the elements used to compute procedural justice, but note that six cases with missing data on other measures are excluded from the sample in the bivariate and multivariate analyses. Table 2 presents the four procedural justice subelements and the items that comprise each. Officer interest in citizen information/viewpoint is measured on a 4-point scale from dismissive to active interest as a component of participation. Duration of officer respect toward the citizen is a 4-point scale from very little time to nearly all of the time during the encounter. The remainder of the elements in the list in table 1 are coded as dummy or binary variables indicating "yes" (= 1) the officer was observed doing this or "no" (= 0) the officer was not observed doing this. For example, in 89 percent of the encounters, the officers asked for the citizen's viewpoint, whereas in 7.6 percent of the encounters, the officer showed disrespectful behaviors.

Each of these indicators of participation, neutrality, dignity, and trustworthy motives, is of interest; analysis of individual items such as police disrespect, however, will be reserved for separate research. Here, the unit of interest is each of those four subelements and the composite of procedural justice they form in each encounter. Jonathan-Zamir et al. (2015) have created a weighting system for calculating a formative index of procedural justice that we will describe for each submeasure and the overall composite measure of procedural justice.

TABLE 2 Components of procedural justice measured in sample

Components of Procedural Justice	Values	*N*	%
Participation			
Officer asked for citizen information/viewpoint	Yes	555	89.0
Citizen provided information/viewpoint	Yes	555	90.3
Officer interest in citizen information/viewpoint	Dismissive	501	1.8
	Inattentive	501	1.6
	Passive	501	18.2
	Active	501	78.4
Neutrality			
Officer indicated desire to hear all viewpoints[a]	Yes	555	48.3
Officer indicated no decision until all information gathered	Yes	555	50.6
Officer indicated personal characteristics (race, age, sex) influenced decision[b]	Yes	555	1.6
Officer explained why the police became involved	Yes	555	60.9
Officer explained why s/he chose to resolve situation	Yes	555	75.0
Dignity and Respect			
Officer showed respectful behaviors toward citizen in encounter	Yes	555	93.2
Duration of respectful behaviors	Very little	516	16.9
	Some of the time	516	24.5
	Most of the time	516	30.8
	Nearly all of the time	516	20.7
Officer showed disrespectful behaviors toward this citizen in encounter	Yes	555	7.6
Trustworthy Motives: Showing Care and Concern			
Officer asked about citizen's well-being	Yes	555	39.5
Officer offered comfort or reassurance to citizen	Yes	555	28.1
Officer provided or promised to influence/control another person for citizen	Yes	555	6.5
Officer acted or promised to act on behalf of citizen with agency or organization	Yes	555	3.2
Officer provided/promised/arranged physical assistance for citizen	Yes	555	7.6
Officer provided/promised advice to handle the situation or problem	Yes	555	53.9
Officer encouraged citizen to seek additional police assistance for this or other problem	Yes	555	25.4

[a]Missing coded as zero.
[b]Reverse coded.

Participation

The measure of participation is formed by adding whether officers asked for information or viewpoint from the citizen (yes = 1), added to the product of citizen-provided viewpoint or information (yes = 1) and multiplied by the officer's interest in the information (0 = dismissive, 3 = active). This measure ranges from 0 (very low) to 4 (very high) and has a mean of 3.36 and a standard deviation of 1.18 for the entire sample of 555 cases.

Neutrality

The composite measure of officer actions forming neutrality is a summative score of the following five items: officer indicated a desire to hear all viewpoints (coded 0 for cases where only one citizen was encountered), officer indicated no decision until all information was gathered, officer indicated personal characteristics influenced his or her decision (reverse coded), officer explained why he or she became involved, and officer explained why he or she chose to resolve the situation. This composite ranges from 1 (very low) to 5 (very high) with a mean of 3.33 and a standard deviation of 1.26 for the sample.

Dignity and respect

Dignity and respect is composed of measures of disrespect and respect as well as of the intensity of respect. Cases where officers displayed any disrespect are coded "0," and cases where neither disrespect nor respect was displayed are coded "1." Cases where respect was shown are coded "2" for brief respect (respect shown for a very little time), "3" for intermittent respect (respect shown for some of the time), "4" for dominant respect (respect shown most of the time), or "5" for nearly complete respect displayed (respect shown for nearly the entire encounter). Dignity and respect ranges from 0 to 5 with a mean of 3.22 and a standard deviation of 1.26 for the sample.

Trustworthy motives

Trustworthy motives comprise a count of the seven binary items in table 2 that are focused on an officer's care and concern displayed toward the citizen. The items include officers asking about the citizen's well-being, comforting and reassuring the citizen, providing advice to the citizen about the situation, and encouraging the citizen to seek additional assistance from police. This additive measure ranges from 0 to 6, with only eight cases above 4. Consistent with Jonathan-Zamir et al. (2015), the measure is collapsed to range from 0 to 4, reflecting scores from very low (0) to very high (4) with a mean of 1.63 and a standard deviation of 1.29 for the sample.

Procedural justice composite measure

As noted in the discussion of the theory behind procedural justice, the four dimensions measured earlier form the basis for the overall composite measure of procedural justice delivered by the lead police officer to a particular citizen encountered. The four measures are standardized on scales ranging from 0 to 100, summed, and divided by 4 (the number of subscales) to produce a final measure that has a lower bound of zero and an upper bound of 100. In performing these transformations on the data, the 555 cases yield a measure that ranges from 5 to 100, has a mean of 63.9, and a standard deviation of 18.8. This measure corresponds to a measure of procedural justice that maps onto the behaviors of police officers posited as the likely antecedents of the psychological measures of procedural justice captured in surveys of citizens who have encountered the police.

To our knowledge, the only research in which a direct comparison was done was by Mell (2016) and by Jonathan-Zamir et al. (2015). Their measures are derived from camera-based SSO and using in-person observation, respectively. Mell's (2016) research involves observation of campus police videos, whereas that of Jonathan-Zamir et al. (2015) involves Everdene (pseudonym), a small suburban department. This distinction is important because those two types of departments are likely to have a very different mixture of police–citizen encounters in terms of mobilization (Everdene seemed to have a fair amount of traffic enforcement) and citizens encountered (the university sample would be drawn from a particularly age-restricted group of citizens, and perhaps involve a larger proportion of intoxicated individuals), whereas LAPD, one would surmise, represents a larger number of citizen-mobilized contacts, proportionally. Given these variations, we are reluctant to make

comparisons with findings from previous research, but we do adopt a parallel measure to allow a body of literature on police displays of procedural justice to accumulate over time.

3.2.2 | Independent measures

Independent measures for the multivariate models, drawn from the theoretical frameworks outlined in the literature review, reflect features of participants, their behaviors, and the presence of obstacles and aids to procedural justice present in the encounter. These are presented in table 3, with the last rightmost columns reporting statistical tests of pre- and postobservation differences for each measure. Here in our variable description, we report total sample statistics for all cases with no missing data ($N = 549$), but table 3 subdivides the sample by waves. Within the domains of citizen social status, binary variables indicating Black (11 percent of sample; 1 = Black, 0 = other), Hispanic (64 percent of sample; 1 = Hispanic, 0 = other), citizen of other minority status (6 percent of sample; 1 = yes, 0 = other) are used as contrasts to White, non-Hispanics in multivariate models. Dichotomous variables are used to measure whether citizens are of lower wealth (26 percent of sample; 1 = lower wealth, 0 = middle or higher wealth), and citizens are grouped by age contrasting those younger than 21 years of age with older citizens (13 percent of the sample; 1 = younger than 21, 0 = older). Citizens of Hispanic ethnicity made up a slightly greater proportion of the post-BWC sample (68 percent vs. 61 percent; $X^2 = 2.87$; $p > .05$).

Citizen behavior is measured with four binary variables and one ordinal measure. Suspects and disputants (48 percent of the sample; 1 = yes, 0 = otherwise) and third parties (26 percent of the sample; 1 = yes, 0 = otherwise) are captured in two dummy variables contrasted with victims. Third-party citizens (witnesses, bystanders) had smaller proportions in the post-BWC observations (20 percent vs. 31 percent; $X^2 = 7.77$; $p < .05$). Whether the citizen summoned the police to the encounter (30 percent of sample; 1 = yes, 0 = no) and citizen-initiated disrespect (16 percent of sample; 1 = disrespect initiated, 0 = otherwise) are each captured with dummy variables and round out the variables in this domain. Citizen initiation of disrespect was reduced significantly in post-BWC observations (11 percent vs. 19 percent; $X^2 = 5.9$; $p < .05$). Finally, a four-category variable measuring the highest level of resistance displayed by the citizen during the encounter had a mean of .34 for the total sample and no discernible difference across waves. Eighty percent of citizens showed no conflict (= 0), 8 percent showed calm disagreement (= 1), 12 percent showed agitated disagreement or threat (= 2), and slightly more than 1 percent physically resisted or fled from police (= 3) in the total sample.

Challenges or aids to procedural justice are measured by six variables. Lowered self-control, a summative index of a citizen's lowered self-control from the effects of alcohol/drugs, apparent mental illness, or strong emotion, ranged from zero to three, with a mean level of .41. A t test ($t = 1.98$; $p < .05$) indicated that citizens in the pre-BWC condition had higher mean scores (.46 compared with .33) compared with citizens encountered during the BWC condition. Citizens in conflict with other citizens on the scene of the encounter are captured by a dummy variable (12 percent of the sample; 1 = yes in conflict, 0 = otherwise). The number of bystanders is a variable reflecting the count of citizens on scene at the beginning of the encounter and ranges from 1 to 40, with a mean of 4.4. Pre-BWC observations had a significantly higher mean (5.08) compared with the BWC condition mean level (3.41) of citizens present at the beginning of encounters ($t = 3.8$; $p < .05$). Types of problems are captured by two dummy variables. One reflects whether the event is amenable to "scripted" police interaction and is captured in a dummy variable representing traffic encounters, as compared with others (16 percent of the sample; 1 = traffic, 0 = other problem type). A second dummy variable indicates the most serious problems police face and captures incidents involving robbery, burglary, motor vehicle theft, and other serious crimes (19 percent of the sample; 1 = yes, 0 = otherwise) where discretionary decision-making might be curtailed. Finally, busy shifts are

TABLE 3 Descriptive statistics, wave I and wave II ($N = 549$)

Variable	Min	Max	Wave I		Wave II		*t* test	sig	Chi-square	sig
			Mean	Std. Dev.	Mean	Std. Dev.				
Citizen Social Status										
Citizen Black (1 = yes)	0	1	.12	.33	.10	.29			1.12	
Citizen Hispanic (1 = yes)	0	1	.61	.49	.68	.47			2.87	
Citizen other minority (1 = yes)	0	1	.06	.24	.06	.24			.02	
Citizen appears to be of lower wealth (1 = yes)	0	1	.28	.45	.24	.43			1.28	
Citizen is younger than age 21 (1 = yes)	0	1	.14	.35	.12	.32			.70	
Citizen Behavior										
Citizen is suspect or disputant role (1 = yes)	0	1	.47	.50	.49	.50			.08	
Citizen role is third party (witness, bystander, etc.)	0	1	.31	.46	.20	.40			7.77	*
Citizen summoned police to encounter (1 = yes)	0	1	.28	.45	.33	.47			1.51	
Citizen initiated disrespect (1 = yes)	0	1	.19	.39	.11	.32			5.93	*
Citizen resistance toward police	0	3	.38	.76	.30	.68	1.31			
Challenges and Aids to Engaging in Procedural Justice										
Lowered self-control, alcohol/drug, mental disorder, emotional	0	3	.46	.83	.33	.72	1.98	*		
Citizen was in conflict with another citizen on scene (1 = yes)	0	1	.13	.34	.11	.31			.74	
Number of citizens on scene at beginning of encounter	1	40	5.08	6.17	3.41	4.11	3.80	*		
Serious problem at beginning of encounter (1 = yes)	0	1	.16	.37	.21	.41			2.05	
Traffic problem at beginning of encounter (1 = yes)	0	1	.15	.36	.17	.37			.26	
Busy evening and weekend (1 = yes)	0	1	.31	.46	.15	.35			19.30	*
Control Variables										
Reactive mobilization (1 = yes)	0	1	.78	.42	.75	.43			.58	
Division (1 = Mission)	0	1	.57	.50	.63	.48			1.89	
O1 leads decision-making (1 = yes)	0	1	.72	.45	.74	.44			.28	
N of Sample			329		220					

Abbreviations: Max = maximum; Min = minimum; O1 = Officer 1; sig = significance; Std. Dev. = standard deviation.

*$p < .05$.

captured by a variable measuring evening shifts starting late afternoons on Thursdays, Fridays, and Saturdays, again presenting the possibility that police would be curtailed in decision-making as a result of staffing and call loads. Overall the 24 percent of citizens were observed during busy shifts, with significantly fewer in post-BWC observations (15 percent vs. 31 percent; $X^2 = 19.3$; $p < .05$).

Three control variables were examined, including reactive mobilization (77 percent; 1 = reactive, 0 = proactive), division (1 = Mission, 0 = Newton; 59 percent of citizens encountered by Mission officers), and whether the observed officer took the decision-making lead (73 percent; 1 = yes, 0 = no). None had significant statistical contrasts across waves. Finally, although not shown in table 3, the primary independent variable of interest is whether the presence of BWCs was influential. Post-BWC is captured by a dummy variable (1 = post-BWC, 0 = pre-BWC; 40 percent of encounters observed post-BWC) and is used as the key contrast for hypothesis testing.

The relationships between pre- and post-BWC observations and the independent measures do not reflect a coherent set of hypotheses regarding how BWCs are anticipated to affect characteristics of police–citizen encounters; rather, they are offered here as cautions that the events police may encounter or choose to initiate are quite varied even within the same department. More than three of every four citizens encountered were embedded in instances of reactive policing, and it could be surmised that changes in the mixture of calls mobilizing police may be related to the adoption of BWCs. More precisely, one area where concern with BWCs has proliferated involves whether police will change their level or mixture of proactive and reactive encounters once BWCs are adopted. That was not seen in the bivariate contrast reported here.

Another supposition is that citizens may become less likely to display disrespect when on camera, as part of the anticipated behavioral effects, which is confirmed in the data. That police encountered fewer citizens with third-party status as witnesses, citizens with less lowered self-control, less numerous bystanders, and fewer citizens during busy shifts in the encounters observed under the BWC condition postimplementation are important differences to control in our multivariate analyses. Substantial variation across the encounters in terms of the five significant independent measures brings into question the bivariate results, which may not be accurate in demonstrating changes in procedural justice directly attributable to the BWC. Stated differently, the BWC effect may be mediated by the characteristics of the encounter. A multivariate model, holding constant aspects of the encounters, would thus provide the most robust test of whether police displays of procedural justice increased significantly under the BWC condition.

3.3 | Analysis plan

The logic of the analyses presented here flows from general to specific questions of change in procedural justice that may be related to the introduction of BWCs in the Mission or Newton divisions during 2015–2016. Changes in procedural justice elements (participation, neutrality, dignity and respect, and trustworthy motives) will be examined first pre- and post-BWC. Next, analyses will be subdivided by division to determine whether significant changes in procedural justice were detectable in both locations. A similar pattern will be used to explore the composite measure of procedural justice. Finally, multivariate models in which theoretically relevant predictors are drawn on from current research will be used to explore whether the BWC exercised a detectable influence outside of other encounter and citizen-level variables hypothesized to influence procedural justice.

As the underlying measures of each procedural justice component approximate a continuous measure and the composite measure is a continuous measure of procedural justice, a *t* test for differences in means is adequate to test the hypotheses regarding change pre- and post-BWC implementation. Given the findings that use of force and complaints have been—in some cases—reduced, the expectation is

TABLE 4 Mean comparisons for procedural justice elements pre/post-BWC

		Total Sample		Newton		Mission	
Procedural Justice Element	**Pre/Post**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Participation	Pre	3.25	1.30	3.16	1.43	3.31	1.18
	Post	3.52*	.95	3.61*	.93	3.47	.97
Neutrality	Pre	3.02	1.28	3.04	1.21	3.01	1.34
	Post	3.80*	1.08	3.56*	1.03	3.94*	1.09
Dignity and respect	Pre	3.11	1.49	3.13	1.49	3.09	1.49
	Post	3.38*	1.38	3.13	1.27	3.53*	1.42
Trustworthy motives	Pre	1.63	1.27	1.60	1.23	1.65	1.30
	Post	1.62	1.33	1.72	1.36	1.56	1.32
Procedural justice	Pre	61.12	19.97	60.60	19.29	61.52	20.51
	Post	68.04*	16.17	66.78*	16.69	68.78*	15.87
N of sample	Pre	334		144		190	
	Post	221		82		139	

Abbreviation: Std. Dev. = standard deviation.

that procedural justice, in the form of superior interpersonal treatment and interactions between police and citizens, may be the basis for such changes. If so, we would hypothesize higher levels of underlying procedural justice elements and a higher composite score observed after the implementation of BWCs.

The effects of BWCs compared across 221 postimplementation encounters with citizens and contrasted with 334 encounters with citizens prior to the implementation of the BWC are presented in table 4. The "Total Sample" columns in table 4 indicate that the postimplementation mean is significantly higher than the preimplementation observations of that measure. Put differently, with the exception of *trustworthy motives* as evidenced by care and concern, all of the measures indicate significant improvement in procedural justice. The statistical test reported in the table is a conservative two-tailed *t* test, further affirming that the findings are different from a chance pattern. With regard to the overall measure of procedural justice, the analysis indicates a significant ($t = –4.49$, $p < .001$) increase of 6.9 points in the measure after the BWC implementation. Stated differently, one could assert this is more than a 10 percent increase over the preimplementation mean level of procedural justice displayed by officers.

Next, Newton and Mission are examined separately in the columns to the right in table 4 to ascertain whether the results are consistent across both divisions. Convergent observations in the two sites would tend to further support the findings, whereas divergent findings of sufficient strength would serve to undermine the findings. Importantly, the division of the sample will reduce statistical power and thus statistical significance might be reduced, even with similar observed mean differences.

The pattern of results for the Newton Division, with 144 pre-BWC and 82 post-BWC observations, indicates that pre- and postdifferences in trustworthy motives based in care and concern and dignity and respect are not statistically distinguishable from chance. Interestingly, the mean for dignity and respect is 3.13 before and after the BWC implementation, indicating no change whatsoever across samples. Participation, neutrality, and the overall composite measures of procedural justice exhibited significant increases after the implementation of the BWC in that division.

The comparisons in the Mission area are based on 190 pre- and 139 post-BWC observations of police–citizen interactions. The results show an increase in participation from 3.31 to 3.47, but the change does not reach conventional levels of statistical significance, even if one used a more liberal

one-tail t test. Similarly, care and concern, as a reflection of trustworthy motives, do not exhibit significant differences and the measure shows a decrease of .09 on that aspect of procedural justice. Neutrality, dignity and respect, and the overall measure of procedural justice all exhibit significant and positive increases across the two periods. Overall, among the 10 hypothesis tests, six exhibited increases in procedural justice and its subelements that are statistically reliable. Trustworthy motives, as evidenced by items indicating care and concern, are not significant in any of the three contrasts offered here (total sample, Newton, and Mission).

3.4 | Multivariate analysis

One concern with any pre- and postobservation research result presented thus far is that police can "self-select" cases to handle proactively, and this may be the source of difference. To account for the possibility of self-selecting types of citizen encounters (i.e., avoiding the harder encounter or otherwise changing behavior), key elements of the police–citizen contact can be controlled, such as whether the mobilization was proactive or reactive, characteristics of the encounter, and the characteristics of the citizens contacted. The effect of the BWC presence in the postimplementation observations can be separated from those selection effects, to the extent multivariate models are properly specified. Put differently, the BWC effects could be indirect inasmuch as other theoretically relevant variables associated with police–citizen contacts may be more proximate to the displays of procedural justice observed here (for example, citizen role in the event, citizen intoxication, or displays of disrespect).

The dependent measure in the analysis, procedural justice, approximates a continuous variable, so ordinary least squares (OLS) regression will be used to test the hypothesis that BWCs exercise a direct and positive effect on procedural justice. OLS estimates allow for a model that holds constant the effects of independent variables while testing whether the BWC intervention had a direct and significant effect, net of other variables. The multivariate tests in table 5 control for the contours of the encounters between citizens and officers across five models, and as each domain is stepped into the OLS models, a significant improvement in prediction is noted. Significant variations in procedural justice are identifiable among those independent measures that we will treat model by model and then refer to significance in the fully specified model in the rightmost columns of model 5.

Among citizen social status, minority citizens (not Black or Hispanic) experience 11 more points on the procedural justice scale when compared with their White counterparts ($t = 2.53$; $p < .05$; model 1); this result persists with modest attenuation in the full model, with a slope of 9.5 ($t = 2.68$). Citizen wealth is significant in model 1 ($b = –4.80$; $t = –2.61$), although the coefficient is statistically indistinguishable from zero in the full model. Citizen behaviors are added in model 2 and we observe citizen role as suspect ($b = –5.18$; $t = –2.33$; $p < .05$) or third party ($b = –5.55$; $t = –2.48$; $p < .05$), indicating a significant reduction of ∼5 points on the procedural justice composite scale when compared with citizens in the role of victim (the contrast for these variables). Those effects persist in the full model with a slope of ∼4.8 for suspects and ∼4.3 for third parties. Citizens displaying resistance to the police yield a significant negative impact on procedural justice ($b = –4.56$; $t = –3.00$; $p < .05$) in model 2, which also persists in the final model ($b = –4.18$; $t = –2.73$; $p < .05$). One issue with this measure is it is an indicator of the highest level of conflict in the entire encounter, and thus, it is possibly caused by the level of procedural justice displayed by police. Put differently, an assertion that police procedural justice may provoke reactions and resistance is plausible, thus, reversing the causal arrow imposed by this model.

With regard to factors that challenge and aid in engaging in procedural justice, we observe two in model 3 that persist through to the full model. The number of citizens on scene at the beginning decreases procedural justice displays by the lead officer by .32 points ($t = –2.13$; $p < .05$) and by .33 points ($t = 2.22$; $p < .05$) in the final model. Citizens encountered during serious problems have a

TABLE 5 OLS models predicting procedural justice, full sample ($N = 549$)

Variables	Model 1			Model 2			Model 3			Model 4			Model 5		
	b	Sig	(SE)	*b*	Sig	(SE)	*b*	Sig	(SE)	*b*	Sig	(SE)	*b*	Sig	(SE)
(Constant)	63.790	***	(1.928)	67.387	***	(2.706)	70.996	***	(2.971)	61.520	***	(3.780)	58.914	***	(3.828)
Citizen Social Status															
Citizen Black	–.239		(2.993)	2.680		(2.941)	4.077		(2.970)	4.406		(2.988)	4.255		(2.961)
Citizen Hispanic	1.823		(2.101)	2.586		(2.057)	2.445		(2.067)	2.086		(2.058)	1.659		(2.044)
Citizen other minority	11.035	**	(3.697)	11.214	**	(3.602)	10.689	**	(3.601)	9.612	**	(3.574)	9.506	**	(3.541)
Citizen appears to be of lower wealth	–4.800	**	(1.836)	–2.385		(1.832)	–3.390	†	(1.959)	–2.937		(1.944)	–2.759		(1.927)
Citizen is younger than age 21	–2.132		(2.376)	–.764		(2.336)	.136		(2.338)	.132		(2.331)	.415		(2.311)
Citizen Behavior															
Citizen is suspect or disputant role				–5.180	*	(2.226)	–6.639	**	(2.269)	–5.117	*	(2.307)	–4.780	*	(2.288)
Citizen role is third party (witness, bystander, etc.)				–5.549	*	(2.236)	–5.379	*	(2.272)	–5.104	*	(2.260)	–4.289	†	(2.253)
Citizen summoned police to encounter				1.873		(1.974)	.763		(2.036)	.329		(2.026)	.268		(2.007)
Citizen initiated disrespect				–1.823		(2.967)	–2.573		(2.978)	–2.762		(2.943)	–1.931		(2.927)
Citizen resistance toward police				–4.557	**	(1.520)	–4.080	**	(1.557)	–3.881	*	(1.539)	–4.176	**	(1.527)
Challenges and Aids to Engaging in Procedural Justice															
Lowered self-control, alcohol/drug, mental disorder, emotional							–.138		(1.144)	.088		(1.132)	.216		(1.122)
Citizen was in conflict with another citizen on scene							3.307		(2.493)	2.012		(2.490)	2.087		(2.467)
Number of citizens on scene at beginning of encounter							–.321	*	(.151)	–.380	*	(.150)	–.332	*	(.149)
Traffic problem at beginning of encounter							–1.295		(2.285)	2.604		(2.492)	2.582		(2.469)
Serious problem at beginning of encounter							–4.153	†	(2.147)	–4.260	*	(2.151)	–4.620	*	(2.134)
Busy evening and weekend							–2.210		(1.815)	–2.077		(1.795)	–1.115		(1.803)
Control Variables															
Reactive mobilization										7.808	***	(2.154)	7.980	***	(2.135)
Division										2.126		(1.630)	1.827		(1.617)
O1 leads decision-making										1.870		(1.762)	1.783		(1.746)
BWC Condition															
Pre to Post SSO													5.234	**	(1.591)
Model R^2	.037			.108			.130			.156			.173		

Abbreviations: O1 = Officer 1; SE = standard error; Sig = significance; SSO = systematic social observation.

†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed).

reduction of 4.15 points ($t = –1.93$; $p < .10$ two-tailed), which persists in the final model where there is a decline of 4.6 points ($t = –2.17$; $p < .05$). These results are consistent with the supposition that limits on discretion and routines of processing may be imposed in those more serious events. Finally, the addition of three control variables yielded a significant increase in procedural justice in model 4, as reactive mobilizations, contrasted with proactive mobilizations, are associated with increased procedural justice ($b = 7.8$; $t = 3.6$; $p < .05$), an effect that is maintained in the full model ($b = 8.0$; $t = 3.74$; $p < .05$). The overall fit of the full model in table 5, model 5, indicates weak-to-moderate explanatory power (model $F = 5.5$, 20, 528 *df*; $R^2 = .17$; adjusted $R^2 = .14$; $p < .05$), which is very similar to that found in existing research findings in which officer displays of procedural justice are predicted. Nevertheless, controlling for the 19 measures capturing elements of the encounter and citizen characteristics, the coefficient for post-BWC observations is statistically significant ($t = 3.29$; $p < .01$) and indicates that after controlling for those other variables, there was still a 5.2-point increase in the composite measure of procedural justice. In essence, *the BWC, net of other effects, is significantly and positively correlated with impact on procedural justice displayed toward citizens.* Furthermore, changes in citizen disrespect toward police, as detailed in table 3, may be a pathway to indirect changes in the level of procedural justice. Exploration of that question and quantification of the effect is reserved for future analysis.

3.4.1 | Subsample analysis

A potential weakness of the model reported here is that it compares officers in Mission and Newton divisions across BWC conditions even though some were only observed at one time point either pre- or postimplementation. A stronger research design would match officers in the design so that they were observed at both SSO waves. This would be done at the expense of sample size, thus, possibly reducing the ability to detect the effects of BWCs on procedural justice. The sample was filtered to include officers observed in both waves and the citizens that they encountered during their shifts. This reduced the sample to 191 citizens where the lead officer identification for the citizen encounters could be matched to officers observed under the two conditions (91 predeployment, 100 postdeployment). A total of 22 officers met these observation criteria, with 10 officers accounting for 117 of 191 citizens observed in the subset. Analyses in which those in table 5 were replicated were conducted on this matched observation subsample and are reported in table 6. Results were similar for the primary outcome of interest, however, as in the matched sample, we see a substantial increase in the magnitude of the BWC effect with a slope of 12.2 ($\beta = .30$; $p < .001$) and the overall power of the model fit ($R^2 = .27$). These results, limited to observing a group of the same officers pre- and post-BWCs, increase confidence in the inference that the presence of the camera contributed to the substantial increase in procedural justice.

Comparison of results between model 5 in tables 5 and 6 indicate that there is substantial divergence among other theoretical predictors. For example, citizens who were other minority, in a suspect role, or in conflict with the police were not significant predictors of procedural justice in the subsample but were in the full sample. The number of citizens on scene at the beginning of the encounter and proactive call, as contrasted with reactive call, were also not significant predictors in the subsample analysis. Two predictors, citizen lower class ($b = –6.2$, $t = –1.8$; $p < .10$) and citizen encounters during busy shifts ($b = 7.8$; $t = 2.3$; $p < .05$) emerged in the subsample as significant. Two other predictors, citizens encountered during serious problems and third parties, maintained sign and significance in the subsample estimation. Another approach comparing divergence, which is expected given the subsample being one third the size of the full sample, is examining changes in sign of predictors. This would be a more liberal interpretation of convergence of the two analyses. Here we find 6 sign

TABLE 6 OLS models predicting procedural justice, restricted to officers in both waves ($n = 191$ citizens, $n = 22$ officers)

Variables	Model 1			Model 2			Model 3			Model 4			Model 5		
	b	Sig	(SE)	*b*	Sig	(SE)	*b*	Sig	(SE)	*b*	Sig	(SE)	*b*	Sig	(SE)
(Constant)	60.247	***	(3.746)	64.743	***	(5.055)	66.898	***	(5.365)	63.289	***	(8.179)	55.849	***	(8.021)
Citizen Characteristics															
Black	3.019		(5.728)	6.801		(5.773)	10.226	†	(5.968)	8.858		(6.037)	8.821		(5.771)
Hispanic	4.149		(3.933)	5.763		(3.938)	6.381		(3.902)	5.601		(4.140)	4.283		(3.970)
Other minority	10.811		(6.631)	8.847		(6.578)	9.606		(6.696)	8.265		(6.792)	8.914		(6.494)
Apparent lower class or chronic poverty	–8.916	*	(3.419)	–7.100	*	(3.486)	–7.680	*	(3.556)	–8.226	*	(3.604)	–6.247	†	(3.477)
Younger than age 21	3.393		(4.142)	3.917		(4.264)	4.072		(4.340)	4.839		(4.375)	3.737		(4.190)
Citizen Behaviors															
Citizen is suspect or disputant				–7.658	†	(4.040)	–8.457	*	(4.101)	–6.764		(4.256)	–6.162		(4.071)
Citizen is third party, witness, or person in need of help				–7.102	†	(4.130)	–9.428	*	(4.181)	–9.420	*	(4.199)	–7.121	†	(4.052)
Did this citizen summon police to encounter?				.882		(3.543)	–1.045		(3.571)	–1.914		(3.655)	–.934		(3.501)
Citizen initiated disrespect				–5.468		(6.713)	–6.397		(7.210)	–6.360		(7.239)	–3.404		(6.956)
Citizen resistance toward police				–1.778		(3.581)	–.634		(3.709)	–1.016		(3.753)	–1.462		(3.589)
Obstacles to Procedural Justice															
Composite of alcohol/drug + mental disorder + emotion							–1.339		(2.075)	–1.540		(2.090)	–1.204		(1.999)
Citizen was in conflict with another citizen on scene							–1.425		(4.560)	–.493		(4.696)	–.596		(4.489)
Number of citizens at beginning of encounter							–.112		(.286)	–.247		(.298)	.095		(.297)
Traffic problem at beginning of encounter							–8.906	†	(4.522)	–6.587		(5.714)	–7.916		(5.471)
Serious crime problem at beginning of encounter							–4.585		(3.651)	–4.549		(3.767)	–7.407	*	(3.666)
Busy evening shift							8.606	*	(3.433)	8.281	*	(3.502)	7.849	*	(3.349)
Controls															
Encounter initiated by citizen, dispatch, or supervisor										6.072		(5.350)	5.420		(5.116)
LAPD division										–3.159		(3.320)	–1.450		(3.200)
O1 was the lead officer										1.259		(5.486)	.076		(5.251)
BWC Condition															
Pre to PostSSO													12.177	***	(2.939)
Model R^2	.060			.127			.185			.197			.271		

Abbreviations: O1 = Officer 1; SE = standard error; Sig = significance; SSO = systematic social observation.

†$p < .10$; *$p < .05$; ***$p < .001$ (two-tailed).

changes in 19 coefficients. Only the number of citizens on scene, however, moved from significant to nonsignificant with a change in sign in comparison of the full sample and subsample coefficients.

3.4.2 | Officer reactivity

Officer reactivity to the presence of an observer has an indeterminate impact on data collected under SSO conditions. Spano (2007) has argued, for example, that officers may become more proactive with an observer to show off "real police work" or, conversely, in the early stages of research and acclimatizing to the observer's presence, may choose to shield the naïve observer from the realities of police work. This could manifest itself in changes in police behavior. Project observers noted few instances wherein officers overtly changed behavior in the observations under study here. Observers, however, were instructed to code the lead officer's attitude toward the observer at the beginning of the ride on a 5-point scale ranging from very negative to very positive. Officers were negative ($n = 13$) or very negative ($n = 2$) toward observers on 12 percent of the rides, they were neutral ($n = 50$) on 40 percent of rides, and they were positive ($n = 53$) or very positive ($n = 6$) on 47 percent of rides. Officer attitudes toward observers could be considered a proxy for reactivity during rides, such that negative attitudes or positive attitudes could be directly related to reactivity in encounters with citizens. Such effects might arguably diminish or eliminate the impact of BWC on procedural justice.

Officer attitude toward the observer on the ride was entered into the full model shown in table 5 and estimated. Results yielded a substantial model improvement (R^2 change = .027; F-change = 18.02; $p < .001$) and a slope coefficient of 4.4 for the attitude measure. The remainder of the model was similar to that reported in table 5; specifically, the BWC condition ($b = 6.3$; $p < .001$) remained statistically significant. Although the slope coefficient for officer attitudes toward the observer presence is significant, it is not a direct measure of reactivity. Rather, one could argue, for example, that it is a measure of an officer's mood (e.g., Brown, 1988). Nevertheless, the persistence of a direct BWC effect when it is included in the model strengthens the case that the association between BWCs and increased procedural justice is not an artifact of observer influences on officers.

3.4.3 | Observer reliability

Observer reliability is an important consideration in research involving SSO (Spano, 2005, 2007), and ideally a check on observers would be conducted under field conditions. Overidentification with subjects, whereby researchers adopt the perspectives of those they are studying, may be a serious problem as observers may change their coding from the defined rules to an interpretation more favorable to the observed officers. This could be argued as an explanation for the changes in levels of procedural justice measured in the second wave, especially among the longer serving observers. Access to data collected for a separate project, which is assessing the audio and video quality of the BWCs worn by officers in the LAPD, permitted a partial check on a small sample ($n = 47$ encounters) of observer coding to explore that proposition on four measures, yielding binary concordance rates of 74 percent for participation, 83 percent for police respect, 87 percent for police disrespect, and 85 percent for citizen displays of disrespect. Issues of audio and video quality and aggregation make this a tentative statement regarding reliability, which will be explored in its own right in separate research.[1]

A second approach to resolving the impact of observers on research involves testing the impact of individual observers via the inclusion of dummy variables corresponding with each observer in the

[1] The data collection and comparison is explained in greater detail as part of the online supporting information in table S1. Additional supporting information can be found in the listing for this article in the Wiley Online Library at http://onlinelibrary.wiley.com/doi/10.1111/crim.2019.57.issue-2/issuetoc.

estimation of models presented in table 5. This strategy allowed for an isolation of observer effects by controlling for fixed effects. Cases involving observer D were excluded ($n = 34$) as providing only pre-BWC cases and having the lowest mean score on procedural justice observations. Observer H was the excluded contrast, and a generalized linear latent and mixed model was nested at the division level. Several observer coefficients are significant predictors of procedural justice; the coefficient for post-BWCs, however, is still statistically significant ($b = 1.93$; $p < .01$). Although attenuated in comparison with the estimates drawn in the OLS models, this indicates that, net controlling variation across observers, there was still a statistically significant increase in procedural justice after the implementation of BWCs.[2] Collectively, this series of checks on reactivity and reliability offers greater confidence in the inference that BWCs were responsible for an observed increase in procedural justice.

4 | DISCUSSION

BWCs are anticipated to have positive impacts on police–citizen encounters. Early returns on research into use of force and complaints indicate an effect, under certain conditions, that is consistent with those expectations (e.g. Ariel et al., 2015). The mechanism by which the effects occur (changes in organizational routine, citizen behavior, proactive engagement, productivity, or officer behaviors), however, is unclear. We examined procedural justice and its constituent elements as one conduit expected to deliver changes in police–citizen behavior under BWC conditions. Official records do not capture this outcome; thus, systematic social observation was adopted to measure relevant aspects of police–citizen interactions before and after the adoption of BWCs in LAPD's Mission and Newton divisions. Next, we consider the overall results, discuss implications for policy and research, and offer a brief conclusion.

4.1 | Results

In comparing results to expectations, the full sample and the subsample of officers observed in both waves yielded evidence of a significant positive correlation between BWCs and procedural justice. Furthermore, the two models, although divergent in terms of significance of individual predictors, indicate that citizen behavior is a particularly relevant domain in predicting procedural justice, as would be predicted by social interactionist theory. Even though it is not significant in the subsample analysis, the contrast of other minority with White citizens was surprising (full sample, model 5: $b = 9.5$, $p < .05$; subsample, model 5: $b = 8.9$; $p > .10$). Among this group of 34 individuals in the full sample, 70 percent were noted as of Asian descent, which suggests that police may attend to citizen characteristics in complex ways and indicates that measures of citizens' behavior toward police and interpretations of those behaviors are possibly entangled with one another. Put differently, cultural norms and positive attitudes (e.g., Wu, Sun, & Smith, 2010) may contribute directly and indirectly to the higher level of procedural justice observed here. The paucity of research on police–citizen contacts in highly diverse communities such as those in the current research may also be a caution regarding generalization to locales that are more homogeneous and more segregated economically and socially.

Comparisons of LAPD's procedural justice elements with that of VCU (Mell, 2016) and Everdene (Jonathan-Zamir et al., 2015) indicate—across almost all elements—a high level of procedural justice prior to BWC implementation. But that assertion has pitfalls because comparing across agencies confuses the mixture of context, organization, and the problems citizens report to police. What is striking is that there is a detectable increase in procedural justice in the LAPD from this high

[2] Results from this analysis are presented as part of the online supporting information in appendix table S2.

starting point, which may be cause for optimism regarding BWC impacts across police organizations. Furthermore, the pattern of findings reinforces the need for exploring typically unmeasured aspects of police–citizen interactions—such as the level of procedural justice exhibited by police—to capture the day-to-day impact of BWCs on the nature and quality of police work.

The results reported here suggest a statistically reliable change in the pattern of police delivery of procedural justice to citizens that is pooled across the two divisions of LAPD, but confidence in that result is not without at least three limitations. One limitation of the study is that a variety of officer variables (sex, race/ethnicity, length of service) are omitted and assumed to be equal across observations. This simplifying assumption is supported by the larger body of police research (Skogan & Frydl, 2004) and research specifically on procedural justice in which no significant officer-level influence on that outcome is found. Additionally, as noted, the specification of causal models of procedural justice is recent and still in theoretical development; thus, misspecification is a possible shortcoming. The timing of the second wave of data collection, specifically in Newton, is also important to note. The shootings of Dallas police officers in the summer of 2016 occurred during that phase of post-BWC implementation observations, and observers were temporarily withdrawn from the field. It would be expected that the shootings might have changed police responsivity, but we would argue that change would not likely be an increase in procedural justice. Put differently, the current results under those conditions may understate the procedural justice effects from BWCs. A final limitation is that the study design is not a randomized controlled trial (RCT). It should be noted that RCTs measuring use of force or complaints have yielded inconsistent results (Ariel et al., 2017) and at any rate were not a feasible design for the LAPD implementation of BWCs.

4.2 | Directions for future research and policy implications

One key question to ask in light of the results reported is as follows: Why are these findings important, and what are the implications for policing and future research? Prior research findings (Worden & McLean, 2016) indicate that adopting procedural justice as part of an organizational mandate is difficult and evidence of implementation tenuous. The difficulties lie in the context of applying procedural justice principles to police officers and their work—what are the types of mandates given, what type of training is provided, and what are the methods used to promulgate procedural justice in police agencies? These questions are also difficult to measure. LAPD's implementation of cameras yielded results that demonstrate detectable changes in all procedural justice elements except trustworthy motives, as measured by care and concern. In other words, police behavior moved toward procedural justice without training or explicit reference to procedural justice, measurement, or consequences. In departments willing to provide training and measure effects, we would expect positive results, and departments at lower starting points of procedural justice currently delivered should see greater relative improvement.

BWCs are likely to have a mixture of direct and indirect impacts on officer behaviors. Put differently, the BWC may directly affect officer choices and exercise of discretion such as evidenced by research results indicating reductions in use of force subsequent to the adoption of cameras. Additionally, officer behaviors may be indirectly affected through processes such as greater civility from citizens, which may be linked to reductions in complaints. Systematic approaches to BWC implementation, evaluation, and over time the accumulation of evidence could suggest changes to departmental policies and procedures to institutionalize pathways to such positive changes. For example, specifying some common tactics as part of an encounter script (e.g., Schulhofer, Tyler, & Huq, 2011) could lend itself to the possibility of direct measurement and testing efficacy. More specifically, an avenue for explicit implementation and monitoring is available in situations where officers announce the presence of cameras. In these instances, one could measure whether this increases procedural justice or key elements

such as whether it reminds officers to treat individuals with courtesy, and so on. Officer discourtesy, although subsumed in the composite measure, is an area that is expected to change under BWCs and, as an important and direct area of friction between police and communities, is worthy of further research (Mastrofski et al., 2002). Field training officers (FTOs) would be a possible conduit for reviewing and assessing the quality of treatment during police–citizen interactions, although this would require organizational emphasis and commitment to both the principle and the process (e.g., Koen, Willis, & Mastrofski, 2018). Empirical tests that are focused on that aspect of police behavior would illuminate whether the specific promise of BWCs is better realized through active intervention and could provide a test of the linkage to observed declines in complaints that tracks back to observable officer behavior.

Citizen behaviors represent a possible avenue of indirect influence on police behaviors in theory and in research (e.g., Sykes & Brent, 1983). Compliance with police requests, for example, is a possible research area to explore the effectiveness of announcements of BWC presence on cooperation. Similarly, we might anticipate greater civility in police–citizen encounters that feature announcement of the BWC, which indirectly should lead to improvements in police behaviors and reduce outcomes such as complaints and uses of force. Finally, whether highly emotional citizens are calmed down by police (McIver & Parks, 1983) and whether calm citizens remain calm is an understudied area where police actions under BWCs may be illuminated with armchair SSO to help shape future BWC policies and routinize usage.

Yet, several realities will shape whether and how BWC and procedural justice research proceed in the uncertain future. First, citizens' perceptions of procedural justice are weakly related to what police do (Worden & McLean, 2017). A higher quality of police service delivery is preferred, however, in the form of procedural justice, and it does not require citizens' affirmation or recognition to serve as an organizational goal. Second, video footage seems to have asymmetric propagation in public; thus, negative incidents can overwhelm and undermine departmental legitimacy, and video footage of events perceived as negatively reflecting on departments can do great harm to legitimacy, morale, and trust. From an organizational standpoint, learning how to address such events is likely to lean heavily on tactics such as increasing procedural justice and fair policing and being able to use positive video proactively as a response to crisis.

5 | CONCLUSION

The prospect of BWCs as a solution to the police–community friction experienced in many cities is still in question. Data from randomized controlled trials seems to indicate that outcomes such as use of force or citizen complaints may be highly dependent on organizational implementation and policies (Ariel et al., 2017). We explored whether procedural justice, which should, theoretically, mediate impacts on use of force and citizen complaints, increased after BWC implementation in the LAPD. The results of analyses conducted using data derived from SSO indicate that there was a significant increase in procedural justice, net of theoretically relevant controls, after BWC implementation. These results may be unique to the diverse police force and communities found in Los Angeles; however, they provide a launching point for a research agenda exploring how BWCs and variations in their implementation and use may affect everyday face-to-face encounters between police and citizens.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

How to cite this article: McCluskey JD, Uchida CD, Solomon SE, Wooditch A, Connor C, Revier L. Assessing the effects of body-worn cameras on procedural justice in the Los Angeles Police Department. *Criminology*. 2019;1–29. https://doi.org/10.1111/1745-9125.12201