Police Body-Worn Cameras: Effects on Officers' Burnout and Perceived Organizational Support

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Police departments in the United States are rapidly adopting body-worn cameras (BWCs). To date, no study has investigated the effects of BWCs on police officers themselves, despite evidence suggesting negative effects of electronic performance monitoring on employee well-being. Police officers already experience higher levels of burnout than other professions. We hypothesize that the intense surveillance of BWCs will manifest in how police officers perceive the organizational support of their departments and will increase burnout. We test these hypotheses using data from patrol officers (n=271) and structural equation modeling. We find BWCs increase police officer burnout, and this effect is statistically different from zero. We also find that BWCs decrease officers' perceived organizational support, which mediates the relationship between BWCs and burnout. Greater perceived organizational support can blunt the negative effects of BWCs. Our study is the first to situate effects on officers at the center of BWC literature.

Citation and Journal Link

Please cite as:

Ian T. Adams, Sharon H. Mastracci (2019). Police Body Worn Cameras Effects on Officers Burnout and Perceived Organizational Support. *Police Quarterly*, (22), 1, *pp. 5–30*.

Final published version available at: https://doi.org/10.1177/1098611118783987

Introduction

Body-worn cameras (BWCs) are a relatively new technology intended to increase transparency in policing, decrease police use of force, and decrease complaints related to officer misbehavior. Broad, but not unequivocal, support for BWCs is found among police officers (Fouche, 2014; Gramagila & Phillips, 2017; Jennings, Fridell, & Lynch, 2014; Sandhu, 2017; Young & Ready, 2015), law enforcement leadership (Smykla, Crow, Crichlow, & Snyder, 2016), and the public (Ellis, Jenkins, & Smith, 2015). BWCs have the potential to strengthen relationships between police and the communities they serve. Ultimately, however, "the intended and unintended consequences of using this emergent technology in policing remain unclear" (Ariel, Sutherland, Henstock, Young & Sosinski, 2018, p. 2). Despite rapid and accelerating adoption of BWCs in the United States (Lum, Rosenbaum, et al., 2015; Wasserman, 2014), too little academic research has yet been done, and all extant studies recommend further research (Ariel, Sutherland, Henstock, Young, Drover, et al., 2018; Cubitt, Lesic, Myers & Corry, 2017; Drover & Ariel, 2015; White, 2014). Furthermore, no study to date has addressed the potential effect of BWCs on the officers who wear them, despite evidence from earlier workplace monitoring literature suggesting the possibility of adverse effects of workplace surveillance technology (Alge, 2001; Anomneze, Ugwu, Enwereuzor, & Ugwu, 2016; Ariss, 2002; Holman, Chissick & Totterdell, 2002; Silverman & Smith, 1995; Smith, Carayon, Sanders, Lim & LeGrande, 1992). While some recent studies explore officer attitudes toward BWCs, none examine the effect of wearing BWCs on officers themselves. Using structural equation modeling (SEM), we investigate the impact BWCs may have on officers.

Review of the Literature

Despite calls for greater reliance on evidence-based practices (Sherman, 2013, 2015; Willis & Mastrofski, 2016), police departments increasingly adopt BWCs across the United States and worldwide, without a full understanding of their effectiveness, much less the effects on officers themselves (Mateescu, Rosenblat, & Boyd, 2015). Even after President Obama provided $75 million in federal grants for police agencies to purchase BWCs in 2015, researchers are only now exploring the intentional and unintentional effects of this new technology on policing (Lum, Rosenbaum, et al., 2015). Overall, results from published research on the effects of BWCs are mixed (White, Gaub, & Todak, 2017), as seen in Table 1.

Mixed results may be due, at least in part, to BWC research occurring in a post hoc manner following implementation using a range of methods (Cubitt, et al., 2017), or varying implementation across sites (Ariel et al., 2016b). In addition, much of the BWC research focuses on use of force, despite evidence that use of force represents less than 1% of police–public interactions (Lersch & Mieczkowski, 2005). What is more, no previous research has examined the effects of BWCs on the wearers of this technology—the officers themselves— despite previous evidence from the workplace monitoring literature suggesting the possibility of negative outcomes, such as higher rates of burnout and lower perceived organizational support, resulting from the use of surveillant technology in the workplace.

Table 1. BWC Studies and Response Variables of Interest.

	Response variables studied and categorical outcome				
Author(s)	Use of force	External complaint	Assaults on officers	Arrest activity	Judicial outcomes
Ariel et al. (2015)	Decrease	Decrease	—	—	—
Jennings, Fridell, and Lynch (2015)	Decrease	Decrease	—	—	—
Ariel et al. (2016a)	No effect	—	Increase	—	—
Ariel et al. (2016b)	Increase	—	—	—	—
Ariel (2016)	No effect	Mixed	—	Decrease	—
Sutherland, Ariel, Farrar, and De Anda (2017)	Decrease	Decrease	—	Increase	—
White, Gaub, and Todak (2017)	Mixed	Decrease	Mixed	—	—
Ariel, Sutherland, Henstock, Young, Drover, et al. (2018)	No Effect	—	Increase	—	—
Yokum, Ravishankar, and Coppock (2017)	No effect	No effect	—	No effect	No effect
Braga, Coldren, Sousa, Rodriguez, and Alper (2017)	Decrease	Decrease	—	Increase	—

We turn to previous research on electronic performance monitoring (EPM) to inform our expectations about the effects of BWCs on police officers. Workplace performance monitoring is "the observation, examination, or recording of employee work related behaviors (or all of these), with and without technological assistance" (Stanton, 2000, p. 6). Performance monitoring is intended to measure employee behavior and production and affects employee well-being, workplace culture, productivity, and employee motivation (Ball, 2010; Butler, 2012; Stanton, 2000). While traditional monitoring involves direct observation by a supervisor, EPM is indirect, generally continuous, and captures a large volume of data (Stanton, 2000). The U.S. Office of Technology Assessment defines EPM as "the continuous collection and analysis of management information about work performance and equipment use" (United States Congress Office of Technology Assessment, 1987, p. 1). Employee perceptions of the purpose of performance monitoring affects their attitudes and responses to monitoring (Wells, Moorman, & Werner, 2007) and supervisor support moderates perceived monitoring intensity on employee well-being (Holman et al., 2002).

This article's insights spring from understanding BWCs as a type of EPM. Literature on EPM suggests that BWC-equipped police officers would suffer increased stress and burnout (Holman et al., 2002; Silverman & Smith, 1995; Smith et al., 1992), perceive less organizational support (Anomneze et al., 2016), and experience decreased morale (Alge, 2001). EPM research further suggests that surveilled employees feel spied on and untrusted by their organizations (Ariss, 2002). Change within policing can be difficult (Skogan, 2006), and Drover and Ariel (2015) advise that organizations adopting BWCs seek support from many stakeholders, most importantly officers themselves. While researchers show that front-line officers generally support BWCs (Jennings, Lynch, & Fridell, 2015), others noted some front-line resistance (Young & Ready, 2015) because officers perceive cameras as negative surveillance tools of management restricting their discretion (Drover & Ariel, 2015). Both views underscore the importance of how officers view the organizational support they receive.

The mechanism by which BWCs are expected to alter police behavior is deterrence theory (Ariel, Farrar, & Sutherland, 2015). According to deterrence theory, the act of being observed changes behavior. This has been studied in relation to closed-circuit television and BWCs (Ariel et al., 2015). Deterrence theory predicts that people are more likely to follow rules and engage in socially acceptable behavior when they think they are being observed (Klepper & Nagin, 1989; Nagin, 2013). BWCs remind potential bad actors that "a record of bad behavior is available to the camera's operators" (Rosenblat & Kneese, 2014, p. 4). Specific to policing, "vastly expanding the use of body-worn cameras so as to capture incidents of violence for purposes of investigation is among the most significant interventions in changing police behaviors" (Rivera & Ward, 2017, p. 246).

BWCs increase the likelihood of "by-the-book" behavior (Jennings et al., 2014, p. 552–553). Compliance with display rules, and the price of noncompliance, comprise the full range of work performance monitored via BWCs, and previous emotional labor literature establishes that failure to comply with professional expectations increases stress and burnout in crisis responders (Mastracci, Guy, & Newman, 2014). "By-the-book" display rules can be explicit, such as departmental policy prohibiting unprofessional language or hugging a citizen, or implicit, like institutional proscriptions of weakness and vulnerability (Hochschild, 1983/2012; Schaible & Gecas, 2010).

Display rules proscribing negative emotional expression (as against prescribing positive emotional expression or neutrality) are positively related to burnout in police specifically (van Gelderen, Bakker, Konijn & Demerouti, 2011). Officers adopt strategies to suppress sadness, disgust, or ill-timed bemusement, but composure is costly. Richards and Gross (1999) show that emotional suppression impairs working memory and increases cardiovascular demands. BWCs may exacerbate burnout rates due to their impact on workplace coping mechanisms.

Gallows humor is an integral coping mechanism in policing (Pogrebin & Poole, 1988) but can be misconstrued outside first-responder subculture (Mastracci, Newman, & Guy, 2012). Via deterrence theory, BWCs can deprive officers of this very important coping mechanism. BWCs may deprive officers of this important coping mechanism. If an officer momentarily loses his composure and violates display rules, demeanor complaints may result. Demeanor complaints are the focus of roughly half of all studies of BWCs (Ariel et al., 2015; Lum, Koper, et al., 2015). Police are constrained by a variety of legal and cultural expectations: "Law abidance and cultural abidance coexist in the everyday world of street-level work . . . their coexistence defines the tensions of street-level work" (Maynard-Moody & Musheno, 2003, p. 4).

BWCs represent the gaze of department administration, courts, prosecutors and defense attorneys, civil rights agencies, the general public, and the media (Farrar & Ariel, 2013; Mateescu et al., 2015; White, 2014). Incidents rising to the level of review may be dissected by any or all of these parties. Video from police BWCs posted online allows anyone to observe an officer's behavior, and video recordings of police use of force negatively influence public perceptions of law enforcement (Jefferis, Kaminski, Holmes, & Hanley, 1997). Some evidence suggests that BWC video negatively effects how civilians react to police use of force, particularly during periods of heightened public concern about police shootings. When civilians were exposed to incidents of police use of force, BWCs produce the highest levels of public disapproval when compared to other forms of presentation, although this effect was only detected in the period immediately after the events in Ferguson, MO, and not in similar studies prior to, or a year later (Culhane, Boman, & Schweitzer, 2016). EPM literature points toward increased burnout and decreased perceived organizational support as two key outcomes of interest when used to examine BWC adoption and implementation.

Burnout

Frontline law enforcement officers suffer higher rates of burnout than other professions (Schaible & Six, 2016). Proliferation of BWCs may exacerbate burnout as police officers balance their accountability to the public, compliance with administrative oversight, and constant surveillance. While burnout has predictable outcomes across professions (Maslach, Schaufeli, & Leiter, 2001), it is experienced differently within policing, perhaps due to specific cultural values found in the profession (Schaible & Gecas, 2010). For example, burnout in policing has unique organizational, subcultural, and work–life factors (Schaible & Gecas, 2010; Schaible & Six, 2016). Burnout in police is linked to suicidal ideation (Berg, Hem, Lau, Loeb, & Ekeberg, 2003); use and acceptance of violence (Kop, Euwema, & Schaufeli, 1999); increased illness, withdrawal, and job dissatisfaction (Alarcon, 2011); increased aggressivity and suicide (Queiros, Kaiseler, & Leit~ao da Silva, 2013); family conflict (Jackson & Maslach, 1982; Martinussen, Richardsen, & Burke, 2007); drug and alcohol abuse; and heart disease (Gaines & Jermier, 1983; Hart, Wearing, & Headley, 1995).

Perceived Organizational Support

Theorists expect that perceived organizational support increases when employees believe they receive favorable treatment from the organization in terms of supervisory support, fairness and procedural justice, and rewards and job conditions (Rhoades & Eisenberger, 2002). Our hypothesis that BWCs negatively impact perceived organizational support is linked theoretically to these antecedents. While beyond the scope of this research to establish how each antecedent is separately impacted by the presence of BWCs, it is theoretically reasonable to intuit they do so, given the previous findings that officers have reported positive but not unequivocal support for the technology (Jennings et al., 2014; Gaub, Choate, Todak, Katz, & White, 2016; Smykla et al., 2016). Burnout in

police officers is "profoundly affected" by departmental context and administrative policy (Gaines & Jermier, 1983, p. 567), and researchers observe a distinct distrust between line officers and management (Crank & Crank, 2014; Wilson, 1968). Officers feel that management will not support them during internal misconduct investigations and citizen complaints (Johnson, 2015).

We use SEM to investigate perceived organizational support as a mediating variable in the relationship between BWCs and burnout in police officers. Using similar methods to those used here, Santa Maria et al. (2018) find that a positive leadership climate serves as a protective factor against police officer burnout, and associated with decreases in depression and anxiety levels.

Policing research confirms the importance of perceived organizational support: Greater perceived organizational support increases officers' organizational commitment and job performance and reduces stress levels and turnover intentions (Armeli, Eisenberger, Fasolo, & Lynch, 1998; Blum & Blum, 2000; Cho & Song, 2017; Crank & Caldero, 1991; Ingram & Lee, 2015; Johnson, 2012, 2015). As a form of social exchange, an officer's perceived organizational support is linked strongly to his own organizational commitment, job satisfaction, and work motivation (Gillet, Huart, Colombat, & Fouquereau, 2013), and low perceived organizational support is a leading predictor of burnout (Anomneze et al., 2016).

Data and Analysis

This study investigates levels of burnout and perceived organizational support using a cross-sectional survey of 271 police officers in the United States, some of whom wear BWCs and some who do not. Surveys were administered to groups of patrol officers in five departments during preshift briefings and trainings. Group administration maximizes cooperation and provides opportunities for researchers to explain the survey and answer respondents' questions (Fowler & Cosenza, 2009). In police briefings, respondents are already in one place, so administration to an otherwise-dispersed workforce is appropriate. Patrol officers from five police departments in a Class A county (>100,000 population) in the western United States comprise the sample. Upper level command staff were not present, as some questions could be construed as sensitive to their presence, particularly questions relating to perceived organizational support. Officers from all five departments work in urban and suburban environments in municipal police departments and sheriffs' offices. Participating police departments represent 5 of the 10 largest agencies in the state, serving populations ranging from approximately 50,000 to 340,000 (United States Census Bureau, 2010), and share contiguous borders with one or more of the other agencies in this study. One department had not implemented any BWCs, one department of similar size had fully implemented BWCs throughout its line personnel, and these two departments are two of the top three largest police departments in the county, with each employing between 300 and 400 sworn law enforcement officers. The remaining three departments in our study were mixed in their implementation of BWCs, with some officers assigned cameras and others not, and assignees include officers with basic patrol assignment, as well as patrol specialty assignments, such as K9, traffic, motors, and SWAT. Despite careful sample selection, we cannot fully preclude the existence of confounding effects at the departmental level. This limitation is discussed more fully at the end of the article.

We restricted the sample to patrol officers because they typically wear BWCs, and while some agencies reportedly equip detectives and other specialized investigation units, that practice is limited in our sample. We also anticipated attitudinal differences between patrol officers, investigative officers, and police commanders, as these groups perceptions of BWCs have been studied separately in earlier work (Gaub, Todak, & White, 2017; Jennings et al., 2014; Smykla et al., 2016), and so our sample intentionally excludes detectives, investigative officers, and command staff. A

total of 280 surveys were administered, resulting in 271 valid observations, adequate for SEM analysis (Kline, 2010; Schreiber, Nora, Stage, Barlow, & King, 2006). Response rate was high (96.7%), with few surveys returned blank (n¼8), and most questionnaires completed in full, allowing us to minimize nonresponse error. One observation was omitted due to extensive nonresponse.

Measures

Burnout and perceived organizational support were measured using 7-point Likert-type scales and Maslach's Burnout Inventory (Maslach, 1982; Maslach,Jackson, & Leiter, 1986) and Eisenberger's Perceived Organizational Support Inventory (Eisenberger, Hutchinson, Huntington, & Sowa, 1986). Burnout is defined as feeling "emotionally over-extended and exhausted" (Hall, Dollard, Tuckey, Winefield, & Thompson, 2010, p. 238) and is a well-studied construct in policing (Bakker & Heuven, 2006; Gaines & Jermier, 1983; Kop et al., 1999; Maslach & Jackson, 1979; van Gelderen, Heuven, van Veldhoven, Zeelenberg, & Croon, 2007). Similarly, perceived organizational support has a lengthy research history, with previous research establishing the measure's sound construct validity, unidimensional structure, and scale consistency (Rhoades & Eisenberger, 2002). Descriptive statistics for variables of interest and sample demographics can be found in Table 2. Full variable operationalization and descriptive statistics are reported in Table B1.

Table 2. Descriptive Statistics for Study Variables ($n = 271$).

Variable	Range	*M*	*SD*
Burnout	1–7	3.79	1.41
Body-worn camera	0–1	0.39	0.49
Perceived organizational support	1–7	4.00	1.42
Law enforcement experience (years)	.33–37.16	11.72	8.18
Age	21–61	38.61	8.60
Gender (Male)	0–1	0.84	0.35
Time in department (years)	.16–31.17	8.79	7.68
White	0–1	0.85	0.35
Married	0–1	0.72	0.45

Note. *SD* = standard deviation.

Burnout Three items measure the emotional exhaustion component of burnout. Both Cronbach's alpha ($a = 0.8205$) and confirmatory factor analysis of the items confirm a reliable construct, see Table 3 for details.

Perceived Organizational Support Four items measure officer perceptions of organizational support. Both Cronbach's alpha ($a = 0.9126$) and factor analysis of the items confirm a reliable construct, see Table 3.

Body-Worn Camera Respondents were asked if they wear BWCs on duty. The dichotomous variable BWC equals 1 if "Yes" and 0 "Otherwise."

Table 3. Constructs, Survey Items, and Alpha Scores ($n = 271$).

Latent variable and components	Factor loading
Perceived organizational support ($\alpha = .9126$)	
This department values my contribution to its well-being.	.8424
This department considers my best interests when it makes decisions that affect me.	.86
This department cares about my general satisfaction at work.	.8861
Help is available from this department when I have a problem.	.7756
Burnout ($\alpha = .8205$)	
Working with people all day is really a strain for me.	.5156
I leave work feeling emotionally exhausted.	.900
I feel "used up" at the end of the workday.	.894

Crow, Snyder, Crichlow, and Smykla (2017) use SEM to explore community perceptions of fairness and privacy with respect to BWCs. First, we use SEM to test the relationship between BWCs, perceived organizational support, and burnout, and SEM offers a flexible, methodologically robust method to explore systems of relationships "representing dependency (and arguably 'causal') relations in multivariate data in the behavioral and social sciences" (McDonald & Ho, 2002, p. 64). Second, conservative SEM approaches fit well with our parsimonious model, and the selection of a conservative method achieves our goal to explore an independent exogenous variable (BWCs) alongside the latent variables burnout and perceived organizational support.

Sample

Of 271 respondents, about 40% wear BWCs, approximately 85% are men and the racial composition of the sample represents the law-enforcement population in the state (85% White, 3% Hispanic, 4.5% Asian or pacific islander, and all other racial groups <1%). Racial demographic data were missing in 4.8% of the observations. Analysis of variance captured the effect of demographic variables on perceived organizational support and burnout. None of the demographic variables produced a statistically significant difference, and the only significant variables were years of law enforcement experience and wearing a BWC. Table B1 provides descriptive statistics as well as the operationalization of the latent and observed variables used to model interactions.

Hypothesis Testing

Before estimating via SEM, we use difference-of-means t tests to determine whether BWCs explain observed differences in burnout and perceived organizational support. Based on prior research, we hypothesize:

H1A: BWCs increase burnout and decrease perceived organizational support among patrol officers.

Table 4. Difference-in-Means *t* Tests by BWC Group ($n = 271$).

	Group								
	BWC = No			BWC = Yes					
	M	*SD*	*n*	*M*	*SD*	*n*	95% CI	*t*	*df*
Burnout	3.65	1.43	166	4.01	1.35	105	[−.708, −.020]	−2.08	269
Perceived organizational support	4.24	1.35	166	3.63	1.47	105	[.262, .949]	3.47	269

Note. BWC = body-worn camera; *SD* = standard deviation.

We reject the null hypothesis of no effect. Officers wearing BWCs report higher levels of burnout compared to those who do not, and this difference is unlikely due to chance. Perceived organizational support is lower for officers wearing BWCs compared to those not so equipped. Table 4 shows these results.

Results from difference-of-means t tests recommend further testing using SEM to expand analysis past the "mini-tests of model components that are conducted on an equation-by-equation basis" in traditional multivariate analysis (Tomarken & Waller, 2005, p. 34). We employ SEM to test the effects of BWCs on burnout as follows:

H2A: BWCs increase burnout in patrol officers.

Analysis of standardized direct path effects on measures of burnout will allow us to test this hypothesis. Fit statistics and path coefficients allow us to accept or reject the null hypothesis, and standardization of the model allows mediation analysis to test whether:

H3A: BWCs will decrease officers' perceived organizational support, and this effect mediates BWCs' effect on officers' burnout.

Before proceeding to SEM testing of the mediation effects proposed in compound hypothesis H3A, standard multivariate regression was used to test the effect of BWCs on perceived organizational support. Results indicate a statistically significant effect on organizational support ($b = .77$, $p < .001$), and thus we proceed with SEM analysis to more thoroughly test this relationship.

Path Analysis Results and Discussion

We address specification, identifiability, data and estimation, goodness of fit, parameters and their errors, and alternatives to Model A, results from which are shown in Figure 1. Full model results and alternative model comparisons are included in Table A1 which also includes alternative model comparison and selection.

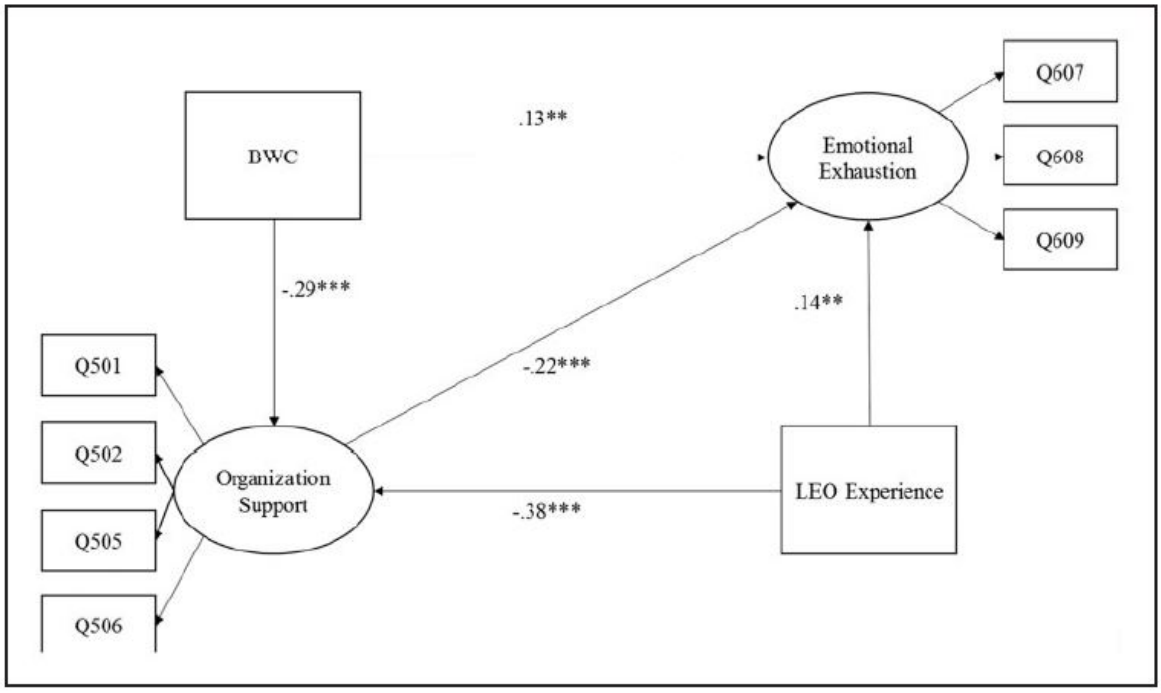

Figure 1. Results of path analysis. Standardized model. Statistically different from 0 at the **5% and ***1% levels ($n = 256$).

SEM tests Model A's relationships among burnout, perceived organizational support, and the effect of BWCs, as reported in Figure 1. The first null hypothesis is rejected: BWCs increase burnout. The second null hypothesis is rejected: BWCs reduce perceived organizational support. Perceived organizational support mediates the relationship between BWCs and burnout in police officers. Analysis of total, direct, and indirect standardized coefficients reveals partial mediating effects. BWCs increase burnout and decrease perceived organizational support; higher levels of perceived organizational support decrease burnout. Although not reported in detail here, testing departmental fixed effects confirms that the results are not explained by department, see robustness and sample discussion for more details.

Model Results

Figure 1 shows that all direct paths are statistically significant: BWCs increase burnout and decrease perceived organizational support. Law enforcement experience has similar effects. Perceived organizational support decreases burnout and mediates effects of BWCs and law enforcement experience. Figure 1 shows positive effects on burnout in officers wearing BWCs and who perceive less organizational support. Following Suhr (2010) and Shrout and Bolger (2002), we define small effects at about 0.10, medium effects at about 0.30, and large effects at about 0.50. Direct effects of both BWCs and years in law enforcement on burnout are small, and the direct effect of perceived organizational support on burnout is between small and medium. Medium effects are found between BWCs and years in law enforcement on perceived organizational support.

Table 5 reports direct, indirect, and total effects and effect decomposition mediation analysis in this model (Bollen, 1987; Bollen & Pearl, 2013; Breen, Karlson, & Holm, 2013). We calculate indirect, direct, and total effect proportions for burnout (Bollen & Pearl, 2013), while perceived organizational support has no indirect effects. Magnitudes of direct effects of each path can be

calculated from path coefficients in Figure 1.

Decomposition analysis of the effects of BWCs on burnout reveals that indirect effects are leveraged through perceived organizational support. The proportion of total mediated effect is approximately 32%. The ratio of the indirect effect to the direct effect is about 48% or about half the size of the direct effect. Finally, the total effect is about 1.5 times the direct effect. Effects of law enforcement experience on burnout are roughly similar. Perceived organizational support mediates the relationship between BWCs and burnout in patrol officers.

Model Specification

Model A is a four-factor model, with burnout as the dependent variable and BWC, Law Enforcement Experience, and Organizational Support as explanators. Model A features direct paths between law enforcement experience and BWCs to burnout and an indirect path to burnout mediated through perceived organizational support. We include law enforcement experience as an exogenous variable, as previous researchers expect age and job experience to affect both burnout (Galatzer-Levy et al., 2013) and organizational trust (Crank & Caldero, 1991). Including law enforcement experience explains variance in both latent variables and permits comparison of standardized path effects.

Identifiability Exploratory factor analysis shows that both latent variables demonstrate good internal reliability, with the a coefficients above .70 for constructs with three or four measures (Cortina, 1993). Identifiability "rests crucially on the choice of nondirected arcs" on latent variables (McDonald & Ho, 2002, p. 68) and all models meet this condition. In addition, we report standardized results to avoid problems associated with measurement scales.

Table 5. Standardized Effects Size and Decomposition.

Independent Variable	Dependent Variable	Direct	Indirect	Total
BWC	Burnout	0.128	0.062	0.191
BWC	Organizational support	−0.286	*No path*	−0.286
LeX	Burnout	0.144	0.082	0.227
LeX	Organizational support	−0.377	*No path*	−0.377
Organizational support	Burnout	−0.22	*No path*	−0.22

Note. LeX = Law Enforcement Experience (years); BWC = body-worn camera.

Identifiability also depends on justifying each directed path in the model as a causal relationship (Bollen & Pearl, 2013; Kline, 2010; McDonald & Ho, 2002) and explaining omitted paths. Modification indices show that no significant structural paths were omitted. Identifying time precedence, correctly specifying causal direction, and controlling for other variables permit us to make causality claims (Kline, 2010). Model A attains identifiability under these conditions, and model parsimony omits nonsensical paths, such as burnout causing law enforcement experience or BWCs, or levels of perceived organizational support causing the exogenous variables—both BWC and law enforcement experience precede burnout and perceived organizational support. Finally, analysis of variance rules out demographic variables as explanations for these differences.

Goodness of Fit Model A obtains good fit as measured by postestimation goodness-of-fit indicators. Model A achieves chi-square nonsignificance, indicating good fit between the model and

the sample. RMSEA below 0.05 is commonly accepted as "good fit," and under 0.01 an "excellent fit." At every level of postestimation analysis, the model achieves good to excellent fit. Table 5 provides postestimation results for Model A and alternative models.

Parameters and their standard errors. Model A was fit using maximum-likelihood estimation (Kline, 2010), which produces robust results from normally distributed data (Satorra & Bentler, 1994) and allows for use of a dichotomous exogenous variable such as BWCs. Data are distributed normally, with no skewness or kurtosis observed. All parameters achieve statistical significance at the 1% or 5% level, as standard errors for paths are small.

Discussion

Our study is the first to address the effects on officers of BWCs, successfully locating BWCs in the study of police burnout and locating officers in the study of BWCs. Perceived organizational support mediates the negative effects of BWCs. While empirical research into BWCs has grown, only a narrow set of research questions have so far been explored, typically centered around questions of the effect of BWCs on use of force and civilian complaints. Our results call into question the ethical posture of aligning future research such that the effects of BWCs on officers can be ignored.

BWCs increase burnout, but perceived organizational support mediates this effect, indicating strategies for concerned administrators to combat the effects of burnout: increased suicidality, family strain, illness, and turnover among the more serious. Police departments can increase levels of perceived organizational support through emotion-regulation training to help police officers better cope with the vicious cycles on long-term mental health of policing, which has been shown to be effective (Berking, Meier, & Wupperman, 2010). This type of deliberately focused, skill-based training can help officers deal with increasingly difficult work environments and is available to police departments interested in proactively addressing officer well-being. Departmental policy and practice surrounding BWCs could be constructed in a manner to communicate support and care for officers, as opposed to using the technology to surveil them more intensively. Importantly, burnout in police officers is not solely the product of emotional management or lack of perceived organizational support. One recent study (Galatzer-Levy et al., 2013) followed rookie officers longitudinally and found startling levels of exposure to "DSM-IV-TR 'Criterion A' Events": lifethreatening events, such as being shot at, and potentially traumatic exposure but nonlife-threatening events, such as exposure to dismembered bodies. GalatzerLevy et al. (2013) report that through 48 months, the mean number of events experienced by rookie officers was 11.58. Fully 67.5% of participants reported at least one life-threatening event within their first year and 91% had lifethreatening exposure within their first 4 years. These startling statistics put in context the high levels of stress officers already manage, emotional management strategies or surveillance notwithstanding. It is outside the scope of this article to comprehensively canvas the methods in which police departments can protect their officers, but any increase to officers' burnout must be addressed.

Limitations and Directions for Future Research

Our conclusions are compelling and suggestive but limited. First, our sample may not represent all of law enforcement; different results may surface in larger, random samples. As a robustness check, we ran fixed-effects models at the departmental level, but no significant effects were observed, likely due to the strong correlations between department and BWC implementation. Alternative specification through both logit and traditional regression techniques was conducted

among the same variables of interest, but no concerns were noted, with the results consistent (but with less explanatory power) with our SEM findings. Second, SEM explains relationships within the sample, not within an unobserved population. Our sample, despite careful selection, may suffer from unknown departmental, geographic, or cultural parameters which differentiate officers in our sample from those nationally. We selected SEM in the spirit of McDonald's (1999) simultaneous justification and critique of the technique: "It has long been recognized that all SEMs are simplified approximations to reality, not hypotheses that might possibly be true" (p. 367). SEM does not establish causality by association alone, but instead reveals measure and fit for proposed or inferred causality. Through careful SEM estimation, the causal associations we hypothesize achieve fit, leaving future research to validate, challenge, and build on our findings.

Our study is further limited by the cross-sectional survey design used. Our findings are promising, establishing a framework to begin exploring BWCs in the context of well-studied workplace phenomenon such as burnout and perceived organizational support. However, we survey a particular sample of police officers in a specific geographic area which may not be representative of the larger policing population in the United States, limiting the ability for understanding how officers in other areas may experience the introduction and use of BWCs.

Further research and attempts to replicate our findings are strongly suggested, due to limitations within this study's design and context. Beyond limitations of study design, caution in interpreting this study's findings more broadly is warranted in light of departmental variation and impact on officers. Of the two largest departments selected for this study, one has fully implemented BWCs across all divisions, while the other had not implemented the technology at all. While this structure is useful and appropriate to this study, most police departments fall somewhere between full- and no-implementation. There is likely a great deal of variation left unexplained, and efforts to replicate our findings in other departmental contexts can help understand potentially spurious variables not uncovered here. In addition to differences in the communities they serve, departments have differing cultures, leadership, and histories, any or all of which are likely to impact officer burnout and perception of organizational support. In particular, our findings could be tested in a more rigorous manner if future researchers conducting experimental BWC research with pre- and posttest components included measures of officer burnout and perceived organizational support in their designs.

Future research would also benefit from greater methodological pluralism in attempting to understand how BWCs impact officer burnout and perceived organizational support, particularly how the technology specifically affects the antecedents of perceived organizational support: fairness, supervisory support, and job conditions. Previous survey research has reported both negative and positive feelings toward BWCs among officers (Gaub et al., 2016; Jennings et al., 2014; Smykla et al., 2016), but little is known about granular experience in this regard (see Gaub et al., 2017, for an initial look at differences in perceptions of specialized units). Qualitative and interpretivist approaches would be well suited to investigate questions about why BWCs might negatively impact on officers, with the researcher able to "interpret observations and experiences systematically by looking for sociocultural patterns" (Pader, 2014, p. 232) Do officers feel the department has used BWCs in an unfair way against them? Have officers experienced specific incidents where BWCs undermined their perception that the department "backed them up"? How have BWCs affected interpersonal relations with other officers and other first responders such as the fire department?

How have BWCs affected officers' interactions with victims, particularly vulnerable victims who might have reasons to avoid being filmed or surveilled (Adams & Mastracci, 2017)? Future research should also place the emotional labor burdens on BWC-equipped officers at the center of analysis, as Grandey, Rupp, and Brice (2015) remind us that the well-being of the frontline worker

must always remain at the forefront of academic inquiry:

> Emotional labor has very real costs, which are paid primarily by employees. We must look into the shadows and weigh in as a research community on whether it is ethical to place the burden of emotional labor on employees and consequently, question the ethicality of organizationally sanctioned emotional display rules. (p. 780)

Finally, long-term studies of BWC effects are of critical importance, particularly as untested changes to costs and benefits over time are likely. As we establish here, even the concepts of "cost and benefit" are not well understood in the context of BWCs. Future research ought to expand the relevant definitions, rather than rely on financial costs and proposed benefits via the technology on use of force, complaints, and arrests; the map of potential effects to study is not yet complete. While BWC scholarship continues apace, we understand little about both expected and unexpected impacts on officers charged with wearing BWCs. This study has contributed to BWC scholarship by uncovering one effect of the technology in our sample through interactions with both perceived organizational support and officer burnout. Future research in this area is critical, given the known negative consequences of burnout, particularly in frontline first responders.

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