Evaluating the impact of police officer body-worn cameras (BWCs) on response-to-resistance and serious external complaints: Evidence from the Orlando police department (OPD) experience utilizing a randomized controlled experiment

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ABSTRACT

Purpose: To evaluate the effect of police body-worn cameras (BWCs) on officers' response-to-resistance (R2R) incidents and serious external complaints.
Methods: A randomized experiment was used where 46 officers were randomly assigned to wear BWCs and 43 officers were randomly assigned to not wear BWCs. Pre- and post-BWC implementation outcome data was compared both between and within groups.
Results: The results suggest that BWCs are an effective tool to reduce R2R incidents and serious external complaints. Specifically, the prevalence of R2R incidents and the prevalence and frequency of serious external complaints were significantly less for officers randomly assigned to wear BWCs. Pre–post comparisons within groups demonstrated that the reduction in the prevalence of R2R incidents (53.4% reduction) and external complaints (65.4% reduction) were statistically significant for the officers who wore the BWCs, and significant reductions in the frequency of these outcomes were detected as well. Overwhelming agreement was also found among officers who wore the BWCs for the utility of BWCs to improve evidence collection and report writing and improve their behavior and police work in general by having the opportunity to review their own BWC videos.
Conclusions: Police departments would be prudent to consider adopting these devices in their agencies.

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1. Introduction

Recent state-level court proceedings on the impact of law enforcement procedures (i.e. New York's "Stop and Frisk") have thrust into national attention numerous issues surrounding police accountability and community relations (Floyd et al. vs City of New York et al., 2013). The NY court rulings have initiated discussions on novel policy recommendations to address legal and ethical responsibilities of officers and civilians alike. Specifically, the use of body-worn cameras (BWCs) on police officers has been recommended to help address liability from a purely objective "point of view" (Floyd et al. vs City of New York et al., 2013). Other more recent and tragic high profile events have also put the discussion and implementation of police BWCs in the forefront such as the Michael Brown incident in Ferguson, Missouri and the Eric Garner incident in New York City (Jennings, Fridell, & Lynch, 2014).

Although problematic issues in policing and technological advancements in policing are not necessarily anything new (Blackwell & Vaughn, 2003; Culver, 2004; Kowalski & Lundman, 2007; McElvain & Kposowa, 2004; PERF, 2012; Phillips & Varano, 2008; Weir, Stewart, & Morris, 2012; Weitzer, 2002; Zhao, Lovrich, & Robinson, 2001; Zhao, Ren, & Lovrich, 2010), the national discourse and public sentiment tends to favor the implementation of BWCs as a method to increase officer accountability and reduce an array of negative outcomes that may result from a police-citizen encounter. Furthermore, while prior research has documented the utility of technological innovations in policing such as GPS monitoring devices, (Hughes & Burton, 2014), in-car cameras (IACP, 2003), and closed circuit television (CCTV) cameras (Surette, 2005; Menichelli, 2014), there was not nearly the level of public and media scrutiny and attention directed toward these innovations as there currently exists with regard to police BWCs. Interestingly enough, media and anecdotal evidence seems to suggest that both sides (the police and the citizens) largely agree that these devices should be implemented in policing. In fact, current President Barack Obama has been vocal in his support of this technology and recently

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announced his proposal to invest $75 million over the next three years to purchase 50,000 BWCs for law enforcement agencies.

Despite all of this attention and support, limited to no academic research has been conducted on the impact of BWCs on police and citizen behavior (Ariel, Farrar, & Sutherland, 2014; Drover & Ariel, 2015; IACP, 2003; Jennings et al., 2014; Ready & Young, 2015; White, 2014). As such, research is needed to evaluate the extent to which police BWCs achieve their proposed goals because 1) the implementation of BWCs require financial resources to acquire, implement, and maintain and expand services over time, and 2) "evidence-based" outcomes derived from rigorous research designs and randomized experiments are the "gold standard" to inform effective law enforcement policies and practice in general and as they relate to BWCs specifically.

Having said this, it is important to briefly review the prior BWC evaluation research that has been conducted thus far. For example, Ready and Young (2015) relied on data from a field experiment originally conducted by the Mesa Police Department (MPD) in Mesa, Arizona where officers were equipped with Taser's Axon Flex BWCs. As part of an extension of MPD's BWC evaluation, Ready and Young used quasi-experimental data from 50 officers who were assigned to wear BWCs and 50 officers who represented a matched control group. Several noteworthy findings from this study were as follows: 1) BWC officers conducted significantly fewer stop-and-frisks and arrests; 2) BWC officers issued significantly more citations for ordinance violations; 3) BWC officers initiated significantly more contacts with citizens; and 4) BWC officers reported that having the BWCs were helpful in police-citizen encounters.

Ariel et al. (2014) provided a randomized, controlled trial evaluation of BWCs with the Rialto Police Department (RPD) in Rialto, California where they randomly assigned all officers to "experimental shifts" where they wore BWCs and to "control shifts" where they did not wear the BWCs. Based on data collected from all 54 Rialto police officers, their results suggested that the likelihood of using force in the "control shifts" was twice as great as the likelihood of using force in the "experimental shifts". Furthermore, pre–post analyses revealed that the number of complaints against officers declined as well from 0.7 complaints per 1000 contacts to 0.07 complaints per 1000 contacts. Most recently, Drover and Ariel (2015) reported their work thus far with a replication attempt of the Rialto study with 43 officers in West Midlands Police Force in Wolverhampton, United Kingdom. This study is utilizing a similar research design as the Ariel et al. (2014) study by randomizing shifts rather than subjects, and the results reported in the Drover and Ariel (2015) study focuses on an implementation evaluation with an outcome evaluation expected to be forthcoming in the future.

1.1. The current study

In recognition of the issues raised previously and in light of the limited scientific evidence, the current study seeks to address the following three primary research questions: 1) "Do police officers randomly assigned to wear BWCs differ from officers not randomly assigned to wear BWCs in response-to-resistance (R2R) incidents and serious external (citizen-generated) complaints at 12 month follow-up"; 2) "Are there significant differences in these outcomes *within* groups in the 12 months prior to implementation of BWCs compared to the 12 months post-implementation of BWCs?"; and 3) "What are the attitudes and perceptions of officers who wore BWCs post-implementation of BWCs at 12 month follow-up?"

2. Methods

2.1. Random assignment of participants

Our study relied on the "gold standard" in experimental research designs (Farrington & Welsh, 2005; Sampson, 2010; Sherman & Berk, 1984) by focusing on how officers randomly assigned to wear BWCs compare to a control group of officers not randomly assigned to wear BWCs. As such, the first step in this process was to identify the

geographic areas in the city of Orlando that corresponded to the seven police districts (sectors) as defined by the Orlando Police Department (OPD).

After the geographic areas/police sectors had been identified, OPD officers were invited to serve as participants from all of these areas.[1] Following this recruitment procedure, the research team arrived at a list of the officers (within the seven geographic areas) who were willing to be study subjects. Informed consent was then obtained through appropriate University of South Florida (USF) Institutional Review Board (IRB) protocols. Next, approximately half of the volunteer study subjects were randomly assigned to either the BWC experimental condition (n = 46) or the no-BWC control condition (n = 43). This stratified random sampling across the seven police sectors was done in order to ensure geographic representation across the jurisdiction of the OPD and to reduce the likelihood of contamination such as when an officer with a BWC was on scene with an officer without a BWC (Shadish, Cook, & Campbell, 2002) (e.g., officers were randomly assigned within each stratum/geographic area/police sector). All officers randomly assigned to wear BWCs in this study were equipped with Taser AXON Flex body-worn cameras (http://www.taser.com/products/on-officer-video/axon-flex-on-officer-video).

2.2. Officer surveys

Another component of the evaluation examined attitudes and perceptions of officers who wore BWCs post-BWC implementation at 12 month follow-up. This part of the study involved the administration of surveys to the officers at 12 month follow-up (March 2015). These surveys were administered online (via Qualtrics Survey Program) and took approximately 30 minutes to complete. Response rates were 84.8% (39 out of 46 BWC study participants) at the 12 month post-BWC implementation survey.

2.3. Official data

Official data was provided by the OPD and included officer demographic characteristics (gender, race, age, and years of experience), response-to-resistance (R2R) incidents (e.g., any incident where an electronic control device or ECD, chemical agent, impact weapon, tackle/takedown, strike, etc. is used a response-to-resistance incident form is filled out on the officer involved), and serious external (citizen-generated) complaints (e.g., aggressive, threatening, and/or intimidating officer behavior and/or excessive use-of-force) for each of the study participants in the 12 months pre-BWC implementation and in the 12 months post-BWC implementation.

2.4. Sample descriptives

Officer demographics for the entire sample of officers (n = 89) can be found in Table 1. As can be seen, the majority of the study participants were male (87.6%) and White (88.6%), and the officers, on average, were 35.10 (SD = 8.03) years of age and had an average of 6.46 (SD = 5.06) years of prior law enforcement experience.

2.5. Analytic strategy

The analysis proceeds in several stages. In the first stage, statistical (*t*-test) comparisons for officer demographics (e.g., gender, race, age, and, years of experience) and for the outcomes of interest (e.g., the frequency and prevalence of response-to-resistance incidents and serious external complaints measured in the 12 months pre-BWC implementation) are made between the officers randomly assigned to wear BWCs and the officers randomly assigned not to wear the BWCs. This analysis is necessary to evaluate the robustness of the random assignment in equating officers in the two groups and eliminating any pre-existing differences. Stage 2 involves a series of *t*-test comparisons of the frequency and prevalence of response-to-resistance incidents and serious external