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Police Use of Less Lethal Force: Does Administrative Policy Matter?

William Terrill and Eugene A. Paoline III

Scholars have long theorized that constraining police officer discretion via organizational policy improves decision-making. Empirically, prior research shows that more restrictive lethal force policies result in a reduction in the number of police shootings and in racial disparity. Yet, researchers have never examined the impact of less lethal force policies in relation to the full spectrum of less lethal force tactics. In addressing this research void, we examine 3,340 use of force incidents from three US agencies, each varying in terms of policy direction and restrictiveness. The results consistently show that officers working within the most restrictive policy framework used force less readily than officers who operated within more permissive policy environments. Hence, police administrators wishing to reduce coercion should consider the potential effect that a more restrictive policy may have on such behavior.

Keywords: police; use of force; policy; discretion; continuum

In 1969 Kenneth Culp Davis published *Discretionary Justice: A Preliminary Inquiry*. The merits of Davis' work, in relation to administrative rule-making and criminal justice decision-making, have been widely acknowledged (Gottfredson & Gottfredson, 1988; Walker, 1993). There is perhaps no greater example of the influence that organizational policy can have on police behavior than that of lethal force. Fyfe's early work (1978, 1979, 1980, 1981, 1982) demonstrated the effect that restrictive lethal force policies can have, which helped stimulate a national shift in policy and legal development. Along with Fyfe, scholars such as Gellar and Scott (1992), Walker

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(1993), and White (2001), offered further support for the impact of administrative policy on lethal force. Much of this work illustrates that more restrictive policies are related to a reduction in the overall number of police shootings and deaths.

Research on less lethal force policies has taken a much different direction, focusing instead on describing the composition of disparate approaches utilized by police agencies. Specifically, studies have illuminated the various structural features of force policies (e.g. existence of written directives, permissible tactics, thresholds of reporting, training, and review processes; Hough & Tatum, 2012; McEwen, 1997; Pate & Fridell, 1993, 1995); the extent to which a use of force continuum is utilized (Alpert & Dunham, 2004; McEwen, 1997; Terrill & Paoline, 2013a); the different types of use of force continuum designs (Terrill & Paoline, 2013a); the placement of less lethal weapons on the use of force continuum (Alpert & Dunham, 2010; Thomas, Collins, & Lovrich, 2010, 2012; United States Government Accountability Office, 2005); and the ordering of various forms of hands and weapon-based use of force tactics relative to citizen resistance along the continuum (Terrill & Paoline, 2013a). Somewhat surprisingly, unlike that of lethal force, the effect of *less lethal* force policies on officer use of force behavior has received little empirical attention.

Drawing on data collected from a national multiagency use of force project (i.e. *Assessing Police Use of Force Policy and Outcomes*), the current inquiry examines the relationship between organizational use of force policy and varying use of force outcome measures. More specifically, we examine 3,340 use of force incidents from three agencies, each varying in terms of policy direction and restrictiveness, to assess the extent to which less lethal use of force policy is related to street-level behavior. While researchers (Ferdik, Kaminski, Cooney, & Sevigny, 2014; Morabito & Doerner, 1997; Thomas et al., 2010) have assessed the role of policy in relation to a specific force tactic (i.e. Oleoresin Capsicum spray and TASER®), the present inquiry seeks to extend this work by focusing on the connection between policy and less lethal force behavior by considering the full spectrum of less lethal force tactics, including but not limited to chemical and electronic weapons.

The current study is relevant for both police scholars and practitioners. As noted by Walker (2007), researchers need to examine the connection between organizational policy and the use of less lethal force behavior to determine if there is an effect. Moreover, police practitioners have the ability to change policy; and if certain types of administrative policies are related to less use of force behavior, similar to deadly force policies, instances of officer injuries, citizen injuries, and civil lawsuits might also be expected to be less likely. Moreover, less coercive tactics over citizens may enhance community support and the legitimacy of the police as an institution, as violations of procedural justice during arrest decisions may also be less likely (Jackson, Bradford, Hough, et al. 2012; Jackson, Bradford, Stanko, & Hohl, 2012).

Use of Force Policies and Police Behavior

Extant research on the impact of administrative use of force policy on officer behavior has concentrated heavily on the highest end of the force continuum (i.e. lethal/deadly force). Community concerns in the 1960s over the shooting of unarmed citizens, many of whom were fleeing felons, prompted police agencies to create (or revise) deadly force policies that were more restrictive in nature (White, 2000). Such efforts to limit the discretion of police officers' application of lethal force became the focus of empirical inquiries across a variety of geographic locales (see for example, Fyfe, 1978, 1979, 1980, 1981, 1982; Meyer, 1980; Sherman, 1983; Uelmen, 1973). The results of these studies uniformly reported that more restrictive lethal force policies were not only associated with fewer police shootings of citizens, but did so without compromising officer safety, crime levels, and arrest behavior (Gellar & Scott, 1992). In illustrating the magnitude of such efforts, Walker (1993, pp. 25–26) explains, "The control of deadly force is arguably the greatest success story in the long effort to control police discretion. It is one decision point where we have persuasive evidence documenting a positive impact of new rules without any unintended consequences." Such research, in conjunction with abolishing the "fleeing felon" rule via the Supreme Court ruling in *Tennessee v. Garner* (1985), resulted in a fairly uniform policy approach for the use of lethal force across American police departments.

Less lethal use of force direction for police officers is far from the uniformity found for that of lethal. Similar to lethal force, guidance is provided by the Supreme Court, via *Graham v. Connor* (1989), although such instruction of utilizing "objectively reasonable" behavior is much more open to interpretation when compared to the "defense of life" principle that guides the decision to take a citizen's life. A far more salient operational guide for formally directing less lethal force is the use of administrative policy. Such organizationally-based directives are not only used to instruct officers as to when to use various forms of coercive tactics (relative to varying levels of citizen resistance), but are also used, *ex post facto*, to assess whether the force applied was proper. At the same time, because there is no agreed upon universal approach for instructing less lethal behavior, policies can vary greatly from jurisdiction to jurisdiction. In a recent national survey of police agencies, Terrill and Paoline (2013a) found that while the majority of police departments utilized a linear force continuum design, there was enormous variation in the number of force levels, as well as the placement of hands- and weapon- based tactics relative to various forms of citizen resistance.

Similar to the public controversy surrounding police shootings of citizens that facilitated past research on lethal force, concerns regarding the (over) use of less lethal weapons prompted examinations geared toward assessing whether more or less restrictive weapon policies (i.e. chemical spray and conducted energy devices—CED) impacted street-level use of force behavior.

Again, police departments are given a great deal of latitude in determining where on the force continuum chemical spray and CEDs are placed, as some policies permit officers to use them for lower forms of citizen resistance (i.e. verbal, passive), while others place them higher on the continuum as a last resort before lethal force (Alpert & Dunham, 2010; Terrill & Paoline, 2013a; Thomas et al., 2012; United States Government Accountability Office, 2005).

In providing empirical evidence to a growing concern over chemical sprays in the 1990s, Morabito and Doerner (1997) assessed behavioral change in Oleoresin Capsicum (OC) spray use when the Tallahassee Police Department changed their policy to be less restrictive in nature (i.e. authorized use of OC spray from responses to active physical citizen resistance to verbal and/or passive physical resistance). The researchers found that when the OC policy became less restrictive, officers relied on the less lethal weapon more frequently. Further, their multivariate analyses revealed that the correlates of OC usage also changed when the policy became less restrictive for officers. Specifically, whereas officer and suspect level characteristics exerted no statistical influence when the policy mandated that police encounter active physical citizen resistance, when the policy allowed for OC usage on lesser forms of citizen resistance, officers who were more experienced, college educated, and male were more likely to use OC spray. Further, citizens who had a height and weight advantage, and those who displayed a weapon (or threatened to attack), were more likely to be the recipient of OC spray when the policy was less restrictive.

More recent public debate regarding CED weapons has generated research on the relevance of varying administrative directives. Thomas et al.'s (2010) analyses of a national survey of 210 municipal police departments, examined the restrictiveness of CED policies on total CED deployments for one year, as well as respondent perceptions that CEDs reduced lethal force during the previous 12-months. The researchers found agencies that had policies which placed CEDs higher on the force continuum (i.e. more restrictive) had fewer CED deployments than those that placed it lower on the force continuum. Conversely, CED policy restrictiveness was not statistically related to perceptions that CEDs reduced lethal force.

Ferdik and colleagues (2014) also examined the effect of CED policy restrictiveness on CED usage and lethal force (i.e. fatal shootings of citizens by police). In analyzing policy restrictiveness and the number of CED deployments, the researchers relied on a 2006 PERF mail survey (i.e. 259 organizations that authorized the use of CEDs). To capture the number of fatal police shootings, the authors gleaned data from government agencies, newspapers, and internet searches. Based on two measures of policy restrictiveness (i.e. vignettes that queried respondents regarding authorized use of CEDs across three hypothetical levels of citizen resistance and subtracting the level where CEDs were located from that of lethal force), Ferdik et al. (2014) found that less restrictive policies (for both measures) were statistically related to higher amounts of CED deployments. In terms of policy effects on citizens fatally shot

by the police, only the very least restrictive (i.e. those that authorize CEDs for passively resistant suspects) policies resulted in reductions in fatal police shootings, while a positive relationship was found for policies that allowed CED usage on suspects that tensed up/pulled away or were directly combative.

Cumulatively, these studies (Ferdik et al., 2014; Morabito & Doerner, 1997; Thomas et al., 2010) offer important insights regarding policy restrictiveness and weapon usage. That is, less restrictive OC spray and CED policies result in less use of both by police. Importantly, however, Ferdik et al. (2014) and Thomas et al.'s (2010) work on CED policies is limited by an inability to directly account for important situational factors (e.g. suspect resistance, mental/alcohol/drug impairment, weapons) which has consistently been among the strongest correlates of police behavior including, but not limited to, the use of force (Riksheim & Chermak, 1993; Terrill & Mastrofski, 2002; Worden, 1989). In this sense, our ability to fully assess the merits of such findings is restricted, as it could be that the effects of administrative policies are spurious. That is, perhaps those working in agencies with more restrictive policies are not encountering the same type of combative citizens as those in departments where officers are permitted to use these weapons more readily. In this sense, fewer CED deployments may have more to do with variation in citizen behavior over policy differences. While Morabito and Doerner (1997) chemical spray study does not suffer from such limitations, it does rely on data from a single research site. The extent to which their findings would generalize equally to other police agencies of varying size and locale is unknown.

Current Inquiry

In a review of policing research, Walker (2007, p. 7) noted a fundamental deficiency in the existing less lethal force literature stating "There are no studies that directly investigate whether restrictive policies on the use of force reduce either the overall rates of force or the incidence of excessive force by officers." Researchers have recently started to examine the relevance of OC spray and CED policy restrictiveness on use of force behavior. Less lethal policy inquiries to date, like lethal force ones before them, focus on a single force application, and ones where public concern has been expressed over citizen injury. In this sense, research is slowly working, from high to low, down the force continuum.

The current study seeks to add to (and extend) existing use of force policy research by investigating the impact of less lethal force policies on the full spectrum of use of force behavior,[1] as opposed to just one force tactic. In

[1]. Force types include soft hand (e.g. restraint control maneuvers, firm grips/escorts, pressure point techniques) and hard hand tactics (e.g. empty hand strikes with a hands/legs), as well as numerous less-lethal weapons including chemical sprays (e.g. Oleoresin Capsicum), CEDs (e.g. TASER®) and ASP baton.

doing so, data are utilized from a large scale multiagency use of force project to assess the degree to which varying less lethal policies, with pronounced differences in direction and restrictiveness, are related to variation in force levels, overall forcefulness, and CED usage. Multivariate analytical models are presented that isolate the potential policy effects, while controlling for a number of situationally-based causal factors with regard to police use of less lethal force.

Methodology

The data for the current inquiry are drawn from the *Assessing Police Use of Force Policy and Outcomes* project, a National Institute of Justice (NIJ) federally funded study designed to look at a host of use of force issues (see Terrill, Paoline, & Ingram, 2012). The initial phase of the project consisted of researchers surveying a nationally representative sample of over 1,000 police agencies, of which 662 responded (see Terrill & Paoline, 2013a). Eight agencies were then selected for deeper exploration as part of the second phase of the project, and include: Columbus, Ohio; Charlotte-Mecklenburg, North Carolina; Portland, Oregon; Albuquerque, New Mexico; Colorado Springs, Colorado; St. Petersburg, Florida; Knoxville, Tennessee; and Fort Wayne, Indiana.

The selection of phase two agencies was based on several criteria. First, agencies must have engaged in the regular reporting of force via officer use of force reports, which offers the most promising means of collecting large amounts of data in the most efficient manner. Second, agencies must have had some degree of policy variation across departments and a consistent use of force policy and reporting procedure for two consecutive years. Hence, each of the agencies had a similar policy with respect to the threshold regarding the reporting of force. More directly, officers were required to file a force report whenever they used any hands on physical force above handcuffing/simple restraint, as well as the use of any less lethal weapon. Third, mid-to-large sized agencies were selected to ensure a sufficient number of force incidents. Finally, jurisdictions must have been reasonably comparable from a socioeconomic perspective (e.g. unemployment, poverty, crime rates).

Upon securing agreements with police administrators from each of the cities, we collected the population of use of force incidents as captured in official records (i.e. use of force reports) over a two-year period.[2] The model

[2]. The exact two-year time frame of force data collection for each site was as follows: Fort Wayne (18 December 2004—17 December 2006), Columbus (2006—2007 calendar years), Colorado Springs (2006—2007 calendar years), St. Petersburg (1 April 2006—31 March 2008), Knoxville (1 June 2005—31 May 2007), Charlotte-Mecklenburg (2006—2007 calendar years), Portland (5 November 2005—4 November 2007), and Albuquerque (13 April 2006—12 April 2008). For additional information concerning the department selection process, study department characteristics, and data collection methodology, please see Terrill et al. (2012).

variables detailed below are taken directly from these use of force reporting forms and a master SPSS database was created. For the present examination, we focus on the three agencies (i.e. Charlotte-Mecklenburg, Albuquerque, and Colorado Springs) offering the greatest degree of policy variation. As demonstrated by Terrill and colleagues (2012) and Terrill and Paoline (2013a, 2013b) in prior work, while each of the eight agencies used a slightly different force policy approach, the differences were often marginal. Thus, these three agencies offer the greatest variation in terms of policy restrictiveness (i.e. most pronounced differences) so as to best assess the potential effect of organizational policy on use of force behavior.

Table 1 identifies the three study locations across a multitude of agency and city characteristics. With respect to sworn officers, while the total number varies between 1,638 in Charlotte-Mecklenburg Police Department (CMPD) to 669 in Colorado Springs Police Department (CSPD), when the number of sworn officers per 1,000 population is considered, the range is just 2.23—1.79. We also see that varying socioeconomic indicators are relatively closely situated. For example, percent unemployed is tightly grouped between 3.1 in Colorado Springs and 3.8 in Albuquerque, as is percent female headed households (ranging from 7.1 to 8.0%). We tend to see a little more variation on some other measures. For instance, percent non-White ranges from 19.3 percent in Colorado Springs to 36.0 percent Charlotte-Mecklenburg.

Independent Variables

Our primary independent variables of interest are the *agency policy* measures. A series of dummy variables (Charlotte-Mecklenburg = 1, all others = 0; Albuquerque = 1, all others = 0; Colorado Springs = 1, all others = 0) are utilized to assess the different organizational approaches the three agencies use in

Table 1 Study sites

	Charlotte-Mecklenburg	Albuquerque	Colorado Springs
Agency characteristics			
Total # Sworn officers	1,638	986	669
# Officers/1,000 pop.	2.23	1.92	1.79
City characteristics			
Population	733,291	513,124	374,112
% Non-white	36.0	28.4	19.3
% Female headed	7.6	8.0	7.1
% Below poverty	6.6	10.0	6.1
% Unemployed	3.7	3.8	3.1
Part I crimes/1,000 pop.	79.8	66.9	49.5

guiding their officers in relation to the use of force. By incorporating these measures, we are most closely able to isolate policy effects across the cities.

After procuring and reviewing the official written departmental policy on less lethal force (including both the narrative and graphical depiction components), project staff conducted a series of open-ended interviews (using a snowball method) with a variety of police personnel of varying ranks and assignments (e.g. patrol officers, middle managers, top-level executives, trainers, special tactics members, public information officers, internal affairs personnel) in an effort to detail how policies were structured and implemented within the organization. This allowed for a richly detailed description on use of force directives beyond simply obtaining a copy of the department's policy. Such a process helped illuminate the precise ways in which the policies vary as detailed below.

Less lethal force policy #1: the Charlotte-Mecklenburg approach

Drawing on three interrelated use of force policy directives, including a graphic depiction (i.e. use of force continuum, less lethal, and deadly force), the CMPD, North Carolina, uses a linear continuum design, with explicit force levels, and a link to varying types of resistance. Although the policy specifies that it is not designed to be a step-by-step progression model, it explicitly outlines six levels of citizen resistance (cooperative, verbal and non-verbal, passive, defensive, active aggression, aggravated active) along with seven levels of force (professional presence and verbal dialog and commands, soft hands, chemical spray, hard hands, conducted energy devices, impact weapon, and deadly force).[3] While there is not a complete overlap between resistance and force options, there is fairly explicit direction as to which types of force are most appropriate given different types of resistant behaviors (e.g. the policy indicates that oleoresin capsicum spray will normally be used when the officer is confronted with defensive resistance). The progression of force is somewhat measured (e.g. the use of soft empty hand control prior to oleoresin capsicum spray before hard empty hand control) and restricts the use of empty hard tactics, conducted energy devices (each of study agencies relied on TASERs® as their CEDs), and impact weapons (e.g. ASP baton) to suspects presenting a range of resistance between defensive and active. It is important to note, however, that TASER® and other impact weapons are placed higher than hard hand tactics and reserved for cases where suspects are aggressively resistant. On the whole, CMPD's policy would appear to offer fairly explicit guidance to officers, while also being rather restrictive in nature.

[3]. Each of the study departments equipped their officers with the same less-lethal weapons, which include OC spray, TASER®, and ASP baton.

Less lethal force policy #2: the Albuquerque approach

Drawing on one policy directive that incorporates three use of force components along with a graphic depiction (i.e. less lethal force, non-deadly, and deadly force), the Albuquerque Police Department (APD), New Mexico, also uses a linear force continuum design (i.e. the Reactive Control Model or RCM), which lays out varying force options that are linked to varying forms of citizen resistance. This model specifies four levels of citizen resistance (cooperative, non-cooperative, unarmed assailant, armed assailant) along with four broad based "officer mental conditions" (alert, control, active, survival), which serve as an overarching context to varying force tactics. Within each of the four broad levels there are specific force types outlined (e.g. under active it instructs officers to consider anything from verbal commands to the use of an intermediate weapon).

Despite the similarity between CMPD and APD in terms of both using a linear continuum design, there are distinctive differences between the two policy approaches. First, APD's resistance and force categories are quite broad. Passive, verbal, and defensive resistance are all grouped together into one category (i.e. non-cooperative), as is the recommended officer force response (i.e. control), which suggests anything from the use of verbal persuasion, to compliance holds, to chemical agents, to leveraged or impact takedowns. Second, such a setup demonstrates that the recommended progression of force is less measured, as officers are permitted to use relatively higher levels of force on lower levels of resistance. For instance, unlike CMPDs policy, APDs policy does not specify the expectation that oleoresin capsicum spray should primarily be used solely when officers are confronted with defensive resistance. Third, TASER® is not explicitly identified on the RCM, but the policy identifies the device as being equivalent to chemical sprays, with but one exception—that the weapon should not be used on passively resistant suspects. Thus, a TASER® may be used on a verbally resistant suspect as well as a suspect demonstrating defensive resistance (e.g. pulling/moving or running away). Conversely, CMPD restricts the use of a TASER® to suspect resistance closer in form to active aggression resistance (e.g. suspects attempting or actually attacking an officer or other citizen). Such differences suggest that APD's policy would appear to offer less explicit guidance and restrictiveness, compared to CMPD's policy approach.

Less lethal force policy #3: the Colorado Springs approach

Drawing on three inter-related use of force policy directives along with a graphical depiction (i.e. use of force continuum, less lethal, and deadly force), the CSPD, Colorado, relies on a non-linear design policy (i.e. Situational Force Model). This policy envisions an officer standing in the middle of a circle (or wheel-like object) with various force options placed in random surrounding

him/her to indicate there is no natural progression of force (e.g. lethal force placed next to soft control techniques, impact weapons placed next to voice commands). Unlike CMPD and APD's linear based models, there is no depiction of citizen resistance as to which types of force are most appropriate given different types of resistance (e.g. officers that encounter verbally resistant citizens are not explicitly required to use a specific type of force in response). Thus, officers are provided a substantial degree of flexibility with respect to what type of force to use when dealing with any number of citizen resistant behaviors. In fact, departmental officials reported that officers operate under the philosophy that there are "no absolutes" and that the use of force policy is not intended to indicate that officers may never do something, but rather that their actions should be justified based upon the situation. Within this context, CSPD's policy appears the least restrictive of the three agencies.

Despite the great leeway offered to officers via the use of a "Situational Force Model," the policy does identify various types of force options (e.g. presence, voice, soft control, control and compliance tools, hard control, impact munitions) and resistance types (i.e. psychological intimidation, verbal, passive, defensive, active, and aggravated active). Part of this description includes language offering officers guidance in varying situations (e.g. soft control techniques are appropriate when subject fails to respond to verbal direction or resists in a defensive manner), although other parts of the policy offers conflicting direction (e.g. TASER® may only be used to control violent or potentially violent persons, but also states that the device may be appropriate when dealing with *non-aggressive non-compliant persons*). Moreover, the policy calls for officers to escalate and de-escalate force as the subject escalates and de-escalates resistance, as well as consider the least amount of force possible given the situation.[4]

Control variables

In addition to the agency policy variables of primary interest, we also include a number of situationally-based control variables, which have been used in prior studies on police use of force (see for example, Terrill & Mastrofski, 2002). *Citizen resistance* serves as our key control. When examining the highest level of force as our dependent variable (see below for further), we use a similarly situated ordinal citizen resistance measure (1 = failure to comply, 2 = defensive physical resistance, and 3 = aggressive physical resistance). Failure to comply includes both passive (i.e. citizen behaviors that were

[4]. Like nearly all police agency policies nationally (see Terrill & Paoline, 2013a), each of the three agencies here provide for "out-clauses" (e.g. taking into account such factors as citizen age, size, skill level, disability, officer backup, proximity of available weapons). Thus, officers are not explicitly locked into having to follow specific policy mandates so long as exigent circumstances are present and the officer can account for such.

unresponsive to police verbal communication or direction) and verbal resistance (i.e. citizen verbally rejecting police verbal communication or direction). Defensive physical resistance includes a citizen's attempt to evade police attempts at control (e.g. attempts to leave the scene, flee, hide from detection, pull away from officer's grasp). Aggressive physical resistance includes the citizen either attempting or actually attacking or striking an officer (e.g. lunging toward the police, striking police with hands, fists, kicks). When examining cumulative force as our dependent variable (see below for further), we use a cumulative measure of resistance, given that citizens can engage in multiple forms of resistance (e.g. defensive and aggressive physical resistance) during a given encounter (Terrill, 2003, 2005). To construct this measure we created a weighted additive scale based on the values assigned to the highest level of resistance measure noted above. For instance, if an encounter involved a suspect failing to comply by verbally resisting (=1) and defensively resisting (=2), the outcome variable would equal three. If a suspect resisted both defensively (=2) and aggressively (=3), the result would equal five.

Finally, we control for *citizen race, gender, age, drugs/alcohol, weapon possession,* and *mental* impairment, as determined by the reporting officer and captured in the use of force reports (e.g. officers had individual discretion to code a citizen as impaired by drugs/alcohol or mental illness based on displayed signs such as slurred speech or disorientation).[5] Each of these variables have been used in prior police use of force research (Terrill & Mastrofski, 2002). For example, one would expect that officers may resort to force, irrespective of explicit resistance, if a suspect has a weapon. Similarly, prior research has shown suspect characteristics such as sex, race, age, drug/alcohol and mental impairment influence police behavior. Table 2 provides descriptive statistics for the independent and dependent variables.

Dependent Variables

To ensure that force types are comparable across agencies, common measures were created from the agencies official records (i.e. use of force reports) that categorized force according to the use of soft hand tactics (e.g. control maneuvers involving physical manipulation such as a wristlock, arm bar, pressure point, and takedown techniques), hard hand tactics (e.g. empty hand/leg strikes, punching, and kicking), chemical sprays (e.g. Oleoresin Capsicum), conducted energy devices (e.g. TASER®), and other impact weapons (batons, flashlights, and bean bags). We then created three dependent variables to

[5]. We were somewhat limited with respect to the independent variables that could be used in the analyses given that the official reports did not capture some situational factors (e.g. suspect demeanor, suspect wealth/class, or number of bystanders/officers present).

Table 2 Descriptive statistics of all model variables

Variable	Range	Mean	Std Dev.
Officer force			
Highest (N = 3,440)	1–3	1.89	.84
Cumulative (N = 3,440)	1–9	2.26	1.28
TASER (N = 1,165)	0–1	.10	.30
Agency			
Charlotte-Mecklenburg	0–1	.38	.48
Albuquerque	0–1	.41	.49
Colorado Springs	0–1	.21	.40
Controls			
Citizen resistance			
Highest	1–3	2.40	.54
Cumulative	1–6	3.11	1.26
Race			
White	0–1	.28	.44
Black	0–1	.37	.48
Latino	0–1	.29	.45
Other	0–1	.06	.23
Male	0–1	.88	.32
Age	10–75	29.96	10.65
Drugs/alcohol	0–1	.54	.49
Weapon	0–1	.09	.28
Mental impairment	0–1	.07	.26

comprehensively examine the potential impact that organizational policy may have on officer use of force behavior.

The first measure is based on the *highest level of force*. While prior research shows that it is difficult to identify a typically used force continuum approach that ranks or places hands- and weapon-based tactics in relation to citizen resistance levels (and hence, difficulty determining the "highest" level of force), it does demonstrate there are commonalities offering guidance (Terrill & Paoline, 2013a; Terrill et al., 2012). For instance, soft hand tactics (e.g. restraint control maneuvers, firm grips/escorts, pressure point techniques) are widely considered to be less forceful than hard hand tactics (e.g. empty hand strikes with a hands/legs) or the use of a less-lethal weapon.

The greatest challenge in terms of ranking force involves less-lethal weapons, particularly in relation to where agencies place chemical sprays (e.g. Oleoresin Capsicum) and CEDs (e.g. TASER®). Fortunately, a fairly recent federal appellate court decision out of the 9th circuit, *Bryan v. McPherson* (2009), helps shed light on OC spray and CED placement with regard to ranking the severity of force. More specifically, the court ruled that the use of a TASER® is more coercive than that of chemical spray. Extant research also offers guidance on these weapons in terms of ranking. Terrill and Paoline's (2013a)

national survey of 662 police agencies illustrated that when agencies place OC spray at the same level as other force forms, 59.7 percent place it with pain compliance techniques or hard hand tactics. When OC spray occupies its own force level, 66.2 percent place it after pain compliance or hard hand tactics. Hence, the majority of agencies consider OC spray to be more forceful than soft hand tactics, but less forceful than impact level force (e.g. baton, CED, bean bag munitions). Conversely, when agencies place CEDs at the same level as other force forms, 59.4 percent place it with impact force; and when the CEDS occupy its own force level, 77.0 percent place it at some point after hard hand tactics and similar to other impact munitions (e.g. baton, bean bag). As a result, the following ordinal scale is used for the highest level of force: 1 = soft hands, 2 = OC spray and hard hands, and 3 = TASER® and other impact weapons (e.g. ASP baton). In specifying the highest level of force, we utilize a hierarchy rule. For instance, if an officer simply used soft hands force the case was coded as a 1. If the officer used soft hands force and hard hands force, the case was coded as a 2.

The second dependent measure is based on *cumulative force*. Given that officers can use multiple forms of force (e.g. soft and hard hand tactics) during a given encounter (Terrill, 2003, 2005), this measure offers another way to assess the degree of forcefulness. To construct this measure we created a weighted additive scale based on the values assigned to the highest level of force variable outlined above. For instance, if an encounter involved an officer using both soft hand force (=1), as well as hard hand force (=2), the outcome variable would equal 3. If an officer used both hard hand force (=2) and a TASER® (=3), the result would equal 5. Hence, this measure of force accounts for the totality of force used in a given encounter as opposed to simply the highest level of force used.

The final dependent measure examines *TASER®* use when officers are presented with "physically defensive" resistant citizens. There are several advantages of looking at TASER® use within this context.[6] First, recall that Charlotte-Mecklenburg officers are instructed to refrain from using a TASER® except when dealing with physically aggressive suspects, while both Colorado Springs and Albuquerque are permitted to use a TASER® on suspects displaying defensive resistance. Hence, we are able to assess whether officers are guided by their agency policy when using a TASER®. Specifically, we expect officers in Colorado Springs and Albuquerque to be more likely to rely on a TASER® when dealing with defensively resistant suspects. Second, such an approach allows us to add to the work of Thomas et al. (2010) and Ferdik et al. (2014) in assessing the potential relationship between policy and TASER® usage. As such,

[6]. Further, estimating models on how officers respond to "failure to comply" resistance (verbal and passive) would result in too few instances for meaningful multivariate analyses, as only three percent of the cases fell into this category. Estimating models on how officers respond to "physically aggressive" resistance offers little substantive meaning from a policy perspective. In other words, short of deadly force, officers are permitted to use any type of force on such suspects.

cases where officers used a TASER® were coded as a 1, and cases where officers did not use a TASER® were coded as 0. While a TASER® may be deployed in either a stun or probe mode, given that the substantive focus of the current inquiry centers on CED use, as oppose to the mode of use, this distinction is not made here.

Analyses and Findings

We begin by assessing the *highest level of force*. McKelvey and Zavoina (1975) have demonstrated the inherent weakness of using linear regression techniques with ordinally-ranked (i.e. nonlinear) dependent measures; namely, such models underestimate the effects of independent variables on the dependent measure. As a result, given the ordinal nature of this dependent measure, we employ an ordered logit regression model using SPSS version 22.0, with results presented in Table 3. As shown, the overall model is statistically significant as evidenced by the chi-square statistic with roughly 13 percent of the variance explained (although caution is required as ordered logit only generates a pseudo *R*-squared statistic).[7]

As illustrated in Table 3, both of the agency variables are significantly related to police use of force in the predicted direction. More specifically, officers in both Albuquerque and Colorado Springs are significantly more likely to use higher levels of force than officers in Charlotte-Mecklenburg, the agency employing a more restrictive use of force policy. Such a finding lends support in terms of a policy effect. Further, several of the control variables are also significantly related to force usage. As expected, citizens engaged in higher levels of resistance are more likely to experience higher levels of force. Additionally, citizens who are male, possess a weapon, and those exhibiting signs of mental impairment, are all more likely to experience higher levels of force. Further, officers are significantly less likely to use higher levels of force on citizens showing signs of drug or alcohol use. In terms of race, there was no difference when comparing non-White suspects (Black, Latino, or other) to White suspects, which is the reference category.

Next, we assess *cumulative force*. Given that this is a weighted count variable with a skewed distribution (i.e. fewer incidents as cumulative force increases) and over-dispersion (i.e. conditional variance exceeds the

[7]. Given the effects may not operate uniformly across the full range of force levels, we also employed a multinomial logistic regression model (Aldrich & Nelson, 1984; Long, 1997). In effect, such a model allows for separate modeling across the individual ascending force levels to explore this potential. The results are presented in Appendix A, with the lowest level of force (soft hands) serving as the reference category, and show that both of the agency variables remain statistically significant at the $p < .001$ level, and there are but a few changes to the control measures (i.e. Black and age are significant at the hard hand & OC spray level, but not the TASER® & other impact force level, while drugs/alcohol and mental impairment are significant at the TASER® & other impact force level, but not the hard hand & OC spray level).

Table 3 Ordered logit regression predicting highest level of force (N = 3,340)

	B	SE	*p*
Agency			
Albuquerque	.694***	.100	.000
Colorado Springs	1.682***	.106	.000
Controls			
Resistance			
Highest	.507***	.063	.000
Race			
Black	.185	.098	.056
Latino	−.111	.095	.243
Other	−.168	.157	.284
Male	1.108***	.110	.000
Age	.001	.003	.750
Drugs/alcohol	−.222**	.069	.001
Weapon	.486***	.116	.000
Mental impairment	.534***	.132	.000
Intercept 1	−1.765***	.362	.000
Intercept 2	−.504*	.422	.017
Model Chi-square	454.900		
−2 log likelihood	4,726.553		
Cox and Snell pseudo *R* square	.127		

*p > .05; **p < .01; ***p < .001.

conditional mean), Poisson and negative binomial models were compared to determine the better technique. Goodness of fit tests (scaled deviance and scaled Pearson chi-square) using SPSS Version 22 showed that negative binomial modeling better fit the data and thus we used this statistical technique.[8] As shown in Table 4, the chi-square statistic indicates that the overall model is significant.

Similar to the previous model, once again both of the agency variables are significantly related to force in the predicted direction. That is, officers in Albuquerque and Colorado Springs are significantly more likely to use a greater amount of cumulative force than officers in Charlotte-Mecklenburg, the agency employing a more restrictive use of force policy. Such a finding lends additional support in terms of a policy effect. Further, citizens engaged in a greater amount of cumulative resistance are also more likely to experience a greater amount of cumulative force used against them. Beyond these effects,

[8]. Diagnostics showed that the highest correlation between variables was .48, while the highest variance inflation factor was 2.2, indicating no multi-collinearity problems. A check for homoscedasticity (via checking standardized residual and prediction values) was also evaluated, which demonstrated no concerns.

Table 4 Negative binomial regression predicting additive force (N = 3,340)

	B	SE	*p*
Agency			
Albuquerque	.200***	.063	.002
Colorado Springs	.329***	.064	.000
Controls			
Resistance			
Cumulative	.057**	.017	.001
Race			
Black	.050	.059	.400
Latino	−.033	.060	.586
Other	−.064	.100	.522
Male	.317***	.066	.000
Age	.000	.002	.928
Drugs/alcohol	−.050	.043	.255
Weapon	.132	.071	.066
Mental impairment	.106	.080	.186
Constant	1.189***	.207	.000
Model Chi-square	60.179***		
−2 log likelihood	6,676.682		

**p < .01; ***p < .001.

the other variable significantly related to this measure of force was gender, with males subjected to greater force. Unlike the highest level of force model, however, neither the drugs/alcohol, weapon, or mental impairment variables were related to cumulative force.

Our third model involves isolating those cases where suspects are "defensively resisting" in a physical manner (e.g. attempting to leave the scene, flee, hide from detection, pull away from the officer's grasp). Here we assess the extent to which officers in the three agencies use a *TASER®* on such suspects. Recall that Charlotte-Mecklenburg officers are instructed to refrain from using a TASER® unless dealing with physically aggressive suspects, while officers in Colorado Springs and Albuquerque are permitted via their agency policy to use a TASER® in such a situation. Thus, controlling for varying situational factors that may prompt officers to engage in force beyond their agency policy (e.g. suspect has a weapon), we expect officers in Colorado Springs and Albuquerque to be more likely to use a TASER® if use of force policy matters per se.

Using SPSS version 22.0 we employ a logistic regression model, which is the appropriate method for use with a dichotomous outcome variable (TASER® = 1, no TASER® = 0) (Liao, 1994). As shown in Table 5, the chi-square statistic indicates that the overall model is significant, while the pseudo *R*-square indicates that nearly 17 percent of the variance is explained. With Charlotte-Mecklenburg serving as the reference category, we see that officers in both Colorado Springs

Table 5 Logistic regression predicting TASER® usage (N = 1,125)

	B	SE	*p*	Odds ratio
Agency				
Albuquerque	1.745***	.276	.000	5.76
Colorado Springs	3.130***	.271	.000	22.871
Controls				
Race				
Black	.662**	.234	.005	1.939
Latino	−.128	.209	.539	.880
Other	−.817*	.416	.050	.442
Male	1.734***	.420	.000	5.665
Age	.003	.008	.693	1.003
Drugs/alcohol	−.301	.164	.740	.740
Weapon	.292	.296	.324	1.339
Mental impairment	.594	.341	.098	1.758
Constant	4.703***	.576	.000	
Model Chi-Square	205.249***			
−2 log likelihood	1,008.727			
Cox and Snell pseudo *R* square	.167			

*p > .05; **p < .01; ***p < .001.

and Albuquerque are more likely to use a TASER® when dealing with defensively resistant suspects. In fact, we see that officers in Albuquerque are nearly six times more likely to use a TASER®, while Colorado Springs officers are nearly 23 times more likely to use a TASER®. Such a finding lends yet additional support in terms of a policy effect. That is, less restrictive policies, with respect to TASER® placement, result in more TASER® usage. Finally, similar to our other two models, we again see a male gender effect, but in this case we also see a race effect. More specifically, officers are more likely to use a TASER® on both Black and "other" race suspects compared to their White counterparts.

Discussion

Police officials have long relied on administrative policies in an attempt to govern officer behavior, as the use of such policies became a key component of the professionalization movement in the early to-mid 1900s. The greatest success with respect to organizational policy influencing officer behavior is found within the lethal force literature. A number of scholars (e.g. Fyfe, 1978; Gellar & Scott, 1992; White, 2001) have shown that more restrictive policies reduces lethal force. Somewhat surprisingly, however, there has not been a similar movement with respect to assessing the effect of administrative policies on

less lethal force. To our knowledge, the present inquiry is the first empirical examination focusing on the connection between policy and less lethal force behavior considering the full range of forceful tactics.

While controlling for a number of situationally-based factors, we examined the potential effect of less lethal force policy on three force outcomes. We consistently found that officers in Charlotte-Mecklenburg, which relied on a more restrictive policy framework, used force less readily than officers in Colorado Springs and Albuquerque, who operated within less restrictive policy environments. Interestingly, Charlotte-Mecklenburg was the largest of the three study sites in terms of both the number of sworn officers and by citizen population, and also had the highest crime rate, yet officers in this city relied on less force. Moreover, the results show that officers working in the agency (i.e. Colorado Springs) with the least restrictive, or loosely-coupled policy, were most apt to use force. Hence, we offer evidence that administrative policy *does* matter with respect to less lethal use of force. Thus, it appears there is merit to incorporating an administrative policy that is quite specific and directs officers to use a linear and specific progression of less lethal force as it pays tangible dividends with respect to less forceful outcomes.

Foundational police scholars, ranging from Bittner (1970) to Muir (1977) to Klockars (1995), have emphasized the inherent benefits of a less coercive policing environment, arguing that the best officers are those who use less, not more force. In effect, a good officer is one who can handle a conflictual encounter with a citizen in the least coercive manner possible. Within this context, the present findings offer police administrators a readily available, and within their control, means (via policy development) of reducing the amount of force in encounters with the public. The tangible benefits are plentiful as using less force may lead to a reduction in both citizen and police injuries. Using less force may also reduce the frequently of citizen complaints and/or lawsuits for alleged police misconduct. Perhaps most importantly, a less coercive police style may enhance police-community relations and public trust in the police.

Of course, simply reducing the amount of force used by police officers is not the only consideration police administrators need to be sensitive to when considering the use of a more restrictive force policy. For instance, as illustrated in previous work (see Terrill & Paoline, 2013b), not all police officers may want a more restricted policy. In fact, the most lobbied criticism by street-level officers in Charlotte-Mecklenburg involved the perceived restrictive nature of the agency's policy—with much of the concern directed at where the TASER® was located on the continuum. Thus, while a more restrictive use of force policy may bring many benefits, there may also be some drawbacks with regard to officer morale.

While the present inquiry demonstrated a link between administrative policy and street-level behavior within the context of less lethal police use of force, it is not without limitations.

For one, these data are derived from officer use of force reports, and as such, one must use caution associated with self-reporting, particularly in the context of a highly sensitive issue such as police use of force. The reporting officer is, in effect, an interested party who may be more likely to report such behavior in a manner most favorable to the police.

Second, we do not know the mechanism(s) for which written policy trickles down to street-level behavior and the role or influence that the internal or external work environment did or did not have. White (2001) offers convincing evidence demonstrating the relative influence that the internal working environment can have in relation to lethal force, especially with respect to the informal customs and views of upper level supervisors such as the Chief of Police. Within the context of the current inquiry, perhaps Charlotte-Mecklenburg supervisors were more active with respect to emphasizing use of force policy, thereby giving policy on paper more "substance" so to speak. Alternatively, perhaps Colorado Springs and Albuquerque supervisors were more lax in terms of policy guidance (e.g. "rubber stamping" force reports). In short, the behavioral differences found here may have to do more with how administrative policy is treated and filtered by organizational members from top to bottom than the official written policy itself.[9] We encourage future researchers to tap into this worthy area of inquiry.

Further, while we did not find a relationship between citizen race and the highest level or cumulative amount of force used by officers, we did find that officers were more likely to tase Black citizens who were displaying defensive resistance. Race clearly continues to be an important issue within American society. As witnessed this past year, the US experienced the most widespread civil unrest since the 1960s. Hence, future research should also examine the varying ways race may play a factor across varying policy environments. For instance, perhaps a potential race effect is more nuanced, and best assessed through varying race dyads of officers/citizens (e.g. White officer/Black citizen, Black officer/White citizen) within different policy environments.

Given recent high profile cases involving police use of force and persons displaying signs of mental illness, it is also worth noting, similar to what other researchers have recently found (see Kesic, Thomas, & Ogloff, 2013; Mulvey & White,2014), that officers were more likely to use higher levels of force against those suspects they believed to be mentally impaired. Perhaps officers are less confident or skilled in managing encounters with persons displaying signs of mental illness, and as a result are more apt to rely on coercive means. Officers may also use more force on such citizens because it is an efficient solution to a complex problem. Furthermore, such citizens may not acquiesce as quickly as other citizens due to feelings of vulnerability and fear, and

[9]. Among other reforms (e.g. the use of body-worn cameras), a recent 2014 consent decree between the US Department of Justice and the City of Albuquerque calls for enhanced supervisory oversight and the development of new use of force policies.

officers may misinterpret this "flight or fight" response resulting in officers using higher levels of force.

Researchers should also incorporate different research methodologies that tap into a variety of outcomes. For example, observational methods could be utilized to examine use of force encounters with citizens to measure the potential costs and benefits of different policy approaches as they play out behaviorally on the street. Such first-hand observation would allow for an examination of the sequencing of force as officers (and citizens) ascend and descend through the force continuum. These techniques could also capture instances where officers were effectively able (or unable) to utilize non-reportable verbal coercion in their encounters with citizens. As part of observational approaches, researchers could also incorporate debriefing techniques (i.e. open-ended discussions with officers following citizen encounters) to tap into officer cognition regarding the operational effectiveness of less lethal policy. For example, debriefing could examine (and detail) the extent to which policies specifically guide officer behavior during different types of force encounters, or instances where policy direction comes up short.

Future work could also focus on the impact of varying policy approaches on injuries to officers, as perhaps some policies may be more beneficial in terms of resulting in less force, but may also place officers in harm's way. Conversely, it could very well be that less restrictive force policies, with presumably more frequent police use of force, could result in more community frustration, thereby leading to enhanced resistance from suspects during encounters with the police, and consequently higher rates of injuries. Such investigations were natural extensions of lethal force research that found more restrictive policies did not result in more officer injuries (Fyfe, 1978, 1979).

By comparing various less lethal force related outcomes, research could highlight the balancing of benefits and costs associated with divergent policies, similar to that of recent concerns over conducted energy devices (i.e. the potential increase in citizen injuries but decreased likelihood of officer injuries; e.g. Paoline, Terrill, & Ingram, 2012; Terrill & Paoline, 2012). In order to adequately address these (and other) avenues of research on less lethal policy, however, large-scale funding will be required. While agency-based survey designs are efficient starting points for collecting a wide variety of summary information related to less lethal policies, the intricacies of trying to examine policies-in-practice requires a substantial amount of time, energy, and funding. For instance, the results of the work presented here are based on field research of over three years. A great deal of time was spent detailing the policies and gathering force data. We collected and reviewed the official written force policies for each of the study agencies, and then sat down with officials to discuss how these policies were structured and implemented within the organization. We also collected two years of force reports so as to carefully document the precise types of force used in each encounter, which allowed us to create dependent measures of actual force usage, as opposed to asking officials how often they used force or presenting them with hypothetical

scenarios. Yet, despite such, we are still left with numerous limitations as detailed above.

Finally, it is important to note that if we develop additional empirical evidence that a given less lethal use of force policy is exemplary we might get closer to a uniformed policy. Public pressure and empirical research has done this to a limited extent with CEDs. This could also get us closer to a uniform use of force reporting system, like that of the UCR, which would allow for equal comparisons of coercive tactics across American police agencies, as well as (much needed) national estimates of the prevalence and levels of force employed by police (Fyfe, 2002; McEwen, 1996; Pate & Fridell, 1995). While such goals may be a stretch—they are worthy pursuits.

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Appendix A. Multi-nominal Regression—Type of Force Used (N = 3,340)

Variable	Hard hand and OC spray B (SE) odds ratio	TASER and other impact B (SE) odds ratio
Agency		
Albuquerque	1.298*** (.137) 3.663	.669*** (.133) 1.951
Colorado Springs	1.722*** (.155) 5.598	2.028*** (.141) 7.597
Controls		
Resistance		
Highest	.693*** (.086) 2.001	.633*** (.083) 1.883
Race		
Black	.331* (.136) 1.392	.216 (.126) 1.241
Latino	.105 (.127) 1.111	−.176 (.128) .839
Other	.299 (.196) 1.349	−.354 (.229) .702
Male	.713*** (.135) 2.040	1.569*** (.161) 4.802
Age	−.011* (.004) .989	.000 (.004) 1.000
Drugs/alcohol	−.013 (.093) .987	−.325*** (.092) .722
Weapon	.373* (.139) 1.453	.637*** (.152) 1.890
Mental impairment	−.259 (.207) .772	.606*** (.168) 1.834

−2 log likelihood = 4,560.9777

Chi Sq = 620.476***

Cox and Snell pseudo R-Sq = .170

*p > .05, **p < .01, ***p < .001.