Examining police use of force: a smaller agency perspective

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Abstract

Purpose – This research seeks to examine police use of force from a smaller police agency perspective in comparison with what is known from previous research using data from larger-scale agencies.

Design/methodology/approach – Using police use of force reports involving arrests ($n = 3{,}264$) over a three-year period (2002-2004) from a small police agency located in the upper-Midwest, this study utilizes descriptive and multivariate analyses to examine how and why officers use force.

Findings – While officers resorted to physical force (beyond handcuffing) in 18 percent of the arrest encounters, the majority of force is located at the lower end of the force continuum (e.g. soft hand control). However, unlike officer behavior, much of the resistant behavior displayed by suspects is toward the upper end of the spectrum (e.g. defensive/active). The results also indicate that the most powerful predictor of force is the presence and level of suspect resistance presented to officers. These findings are placed within the context of prior work.

Research limitations/implications – Since the current study relies on official data from a single police agency, the findings come with caution in terms of generalizability.

Originality/value – This study contributes to the literature on police use of force by examining everyday force usage in a small police department.

Keywords Policing, Crimes, Control, Law, United States of America

Paper type Research paper

Introduction

The ability to use force has long been considered a crucial element of the police role (Bittner, 1970). Researchers, policy makers, police administrators, as well as the public at large, all profess a keen interest in the manner in which police officers go about applying varying forms of forceful control. Not surprisingly, the amount of inquiry generated over the years is substantial, ranging from looking at how often officers use force (Adams, 1995), to the varying types of force used (Klinger, 1995), to officer attitudes toward force (Westley, 1970), to the use of excessive (Klockars, 1995) or lethal (Fyfe, 1979) force, to exploring reasons why officers use force (Worden, 1995). Such

The points-of-view in this document are those of the authors and do not necessarily represent the official position of the police department from which the data are drawn.

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investigation has consequently led to a substantial degree of knowledge surrounding how and why police officers use force. While there are many strengths associated with the extant research, there are also some notable limitations. For instance, much of the prior work focuses on mid-to-large sized police agencies. Lacking in the literature are studies that examine force usage in smaller police departments. Moreover, much of the prior work in this area comes from data collected over a relatively short period of time (e.g. several weeks, over a summer, one year).

The current inquiry seeks to shed light on the application of force from a smaller police agency perspective using data gathered over a three-year period (2002-2004) from the River City Police Department (RCPD), which employs 50 officers in a town of approximately 33,000 citizens[1]. In particular, we examine the extent and nature of police use of force as it relates to suspect resistance, variation in force and resistance behaviors, and numerous situational factors posited to predict the severity of force. Our primary purpose is to determine how and why officers use force in comparison to what is known from previous studies using data from larger scale police agencies over a relatively short time frame.

Prior work

With some exception (e.g. Westley, 1953), the first wave of scholarly attention toward police use of force began during the 1960s. Initially, much of the research was directed toward excessive (Reiss, 1968) and lethal force (Fyfe, 1988), including cases of citizens killed by police in metropolitan areas (Sherman and Cohen, 1986), homicide by police (Sherman and Langworthy, 1979), and racial disparities in police-involved shootings (Geller and Scott, 1992). Since this early work, researchers have broadened their focus by studying the nature of everyday force usage, most notably less-lethal force that does not necessarily reach a level of inappropriateness (Garner *et al.*, 2002; Terrill and Mastrofski, 2002). This latter work is generally driven by the notion that understanding all forms of force, not just excessive or lethal, is crucial within the context of Bittner's (1970) assertion that the defining aspect of the police role revolves around the capacity to use force. The present inquiry follows in this tradition. As such, we begin by reviewing previous research that has primarily centered on examining the extent of less-lethal force used by officers in the course of their duties, variation in the types of force applied, and factors affecting the likelihood of force. Where appropriate, we also discuss findings from studies that have incorporated the extent and variation found in suspect resistant behaviors, along with the role suspect resistance plays in prompting police use of force behavior.

Prevalence in force and resistance

Numerous studies have been conducted over the years concerning the nature and frequency of police use of force. Inquiries relying on official records, as well as observational studies, have formed the basis for much of what we know about the prevalence of force usage[2]. Overall, the findings indicate that force is a somewhat rare occurrence, although there is a degree of variation found from one study to another[3].

Studies relying on official data most frequently compute force usage based on the extent to which officers rely on force as part of the arrest process. Croft and Austin's (1987) analysis of two years of arrest data from Rochester and Syracuse showed that force was used in 5 percent of arrests in Rochester and 4 percent of arrests in Syracuse. Around this same time, using force reports from custody arrests over a 12-month

period in St. Paul, Lundstrom and Mullan (1987) found that force was used in 14 percent of the cases. A few years later, McLaughlin (1992) looked at use of force reports filed by Savannah police officers, finding that physical force, beyond handcuffing, was used only 1 percent of the time in arrest cases. Finally, Garner *et al.* (1995, 2002) examined force usage in two different studies. The first looked at arrests over a two-week period in Phoenix and found that officers used some form of physical force in 22 percent of the cases (Garner *et al.*, 1995). Their most recent study examined use of force behavior across six jurisdictions (Charlotte, Colorado Springs, Dallas, St. Petersburg, San Diego city, San Diego Sheriff) and showed that officers used physical force in 17 percent of the arrests (Garner *et al.*, 2002).

Unlike studies based on official data, observational studies have generally examined force usage compared to all observed police-suspect encounters rather than just those involving an arrest. Within this context, data gathered in the 1960s (Crime and Law Enforcement Study) and 1970s (Police Services Study) showed that officers resorted to some type of physical force, beyond handcuffing, in roughly 3 percent (Friedrich, 1980) and 2 percent (Worden, 1995) of the observed police-suspect encounters, respectively. The former study involved the Boston, Chicago, and Washington DC police departments, while the latter consisted of 24 departments in three surrounding metropolitan areas (Rochester, St. Louis, and Tampa)[4]. In the 1980s, data collected by Bayley and Garofalo (1989) in New York City showed that officers used some form of physical force in about 8 percent of their encounters with suspects, a slight increase in force behavior. A decade later, findings reported in two different studies indicated even higher reported force usage. For instance, Klinger's (1995) analysis of data collected from the Miami-Dade study in 1995, showed that police turned to physical force in 17 percent of the police-suspect encounters. Similarly, Terrill's (2001, 2003) analysis of Project on Policing Neighborhoods (POPN) data in Indianapolis and St. Petersburg indicated that officers relied on physical force, beyond handcuffing, in roughly 15 percent of the observed police encounters with suspects. When the unit of analyses was restricted to only arrest cases (similar to the threshold set by studies using official records), he found that officers relied on physical force in 19 percent of the cases.

In addition to looking at force usage by officers, both of the Garner *et al.* (1995, 2002) studies, as well as Terrill's analyses of POPN data (Terrill, 2001, 2003), incorporated varying levels of suspect resistance into their work, which is also a focal point of the current inquiry presented here. In their Phoenix study, Garner *et al.* (1995) found that suspects presented varying levels of resistance (ranging from psychological to aggressive and firearm use) in 38 percent of the arrest cases, with 21 percent being in the form of physical resistance. In their more recent study (Garner *et al.*, 2002), they found that suspects displayed some form of resistance in 23 percent of the arrests, with 12 percent in the form of physical resistance. Terrill (2001) found that suspects offered some type of resistance (ranging from passive to active) in 12 percent of all observed police-suspect encounters, with 3 percent in the form of physical resistance. When the unit of analyses was restricted to only arrest cases, he found that suspects posed some degree of resistance in 29 percent of all arrests, with 12 percent being in the form of physical resistance.

Variation in types of force and resistance

Researchers have also offered some insight into the variation of force types that officers use. Much of the findings indicate that officers rely on tactics at the lower end

of the force spectrum (i.e. weaponless tactics such as physical restraint). For example, Bayley and Garofalo (1989) found that the majority of force in their study was coded as either "grabbing" or "restraining." In another study, conducted by Pate and Fridell (1993) consisting of a national survey of police departments, the researchers found that city departments reported handcuffing to be the most frequently used type of force (490 incidents per 1,000 sworn officers) followed by 'bodily force' (272 incidents per 1,000 sworn officers). Similarly, Garner and Maxwell (1999) reported that police relied on empty hand force techniques in the majority of observed force incidents (80 percent) in their study of urban police departments.

Both Klinger (1995) and Terrill's (2003) work went a step further than much of the previous work in this area. As originally pointed out by Klinger (1995), prior research generally failed to examine how various types of force are used within individual encounters. In other words, different types of forceful police actions can take place within single encounters (e.g. grabbing to restrain and striking to subdue). Following up on this point, Terrill (2003) analyzed the POPN data in an attempt to determine what impact multiple force acts within individual encounters might have on overall force usage. He found that of the 744 encounters involving some type of physical force, 222 involved multiple uses of force resulting in another 542 acts. Overall, while physical force was used in 744 encounters, 1,064 acts actually occurred. Finally, Terrill (2003) also looked to determine if this type of pattern occurred when considering suspect resistance behavior (i.e. that suspects display multiple forms of resistance within individual encounters) and found that while 446 of the observed police-suspect encounters involved some form of resistance, 200 of the 446 involved more than one resistant act. These 200 accounted for an additional 695 resistant acts on top of the 246 that occurred one time, for a total of 941 across the 3,544 encounters.

Situational causes of force

What affects, shapes, or influences police use of force? The literature would suggest that use of force in police-suspect encounters tends to be more common under particular situational circumstances. For example, force has been found to be more frequent during situations when suspects resist attempts at police control, in encounters that are officer initiated, and during arrest situations (e.g. Alpert and Dunham, 1999; Bayley and Garofalo, 1989; Garner *et al.*, 1996; Terrill and Mastrofski, 2002). Similarly, suspect intoxication (e.g. drugs and/or alcohol) has been shown to increase the odds of police use of force (Adams, 1999; Ross, 1999; Henriquez, 1999; McEwen, 1996). Indeed, situations where police officers are faced with intoxicated individuals are volatile and capricious, as the police are faced with a potential irrational and unpredictable suspect thereby increasing the likelihood of force (Reiss, 1967; cf. Alpert and Dunham, 1999). Other situational factors such as the number of citizens or officers present have also been posited to influence force usage, although the evidence bearing on such is less consistent (Terrill, 2001).

Extant research has also documented variations in subject characteristics and the use of force. For instance, ethnic/racial minorities are more likely to have force used against them than are Whites, younger individuals are more likely to have force used against them than older individuals, and males are involved in use of force situations more frequently than are females (e.g. Greenfield *et al.*, 1997; Locke, 1995; Ross, 1999; Terrill and Mastrofski, 2002; Weisburd *et al.*, 2000). To a lesser extent, prior research has also

found a connection between some officer based characteristics such as officer sex, race, experience, and educational levels (Terrill and Mastrofski, 2002; Worden, 1995).

Examining the non-Metropolitan department

As illustrated, studies conducted in urban and metropolitan police departments have dominated the policing literature. Hence, non-metropolitan departments have been largely ignored in favor of research in larger jurisdictions. Falcone *et al.* (2002) make several important observations about the associated problems with this oversight:

- it presupposes that policing is inherently similar in shape, form, and function regardless of geographical location;
- by assuming that policing is similar across jurisdictions, we can apply and generalize what we know about urban policing to policing in smaller towns; and
- it largely accepts the notion that small town policing has little to offer as it represents unorthodox and unprofessional policing practices.

By extension, Falcone *et al.* (2002, p. 372) argue that the lack of relevant empirical research in smaller jurisdictions will lead to uninformed decisions and "a one-size-fits-all approach to policing".

While the number of inquires concerning the nature of policing in smaller cities and rural areas has been relatively small (Falcone *et al.*, 2002), these studies have examined a fairly wide variety of topics, such as community oriented policing in rural areas (Weisheit *et al.*, 1999), policing in rural Alaska (Marenin and Copus, 1991), county law enforcement social control (Decker, 1979), and police work and culture in non-urban settings (Christensen and Crank, 2001). Fundamentally absent from this body of literature, is research on police use of force in non- metropolitan areas. This timely and central topic to the study of American policing has almost exclusively been concentrated to urban departments. This phenomenon is remarkable considering that the urban, big-city, department frequently encountered in the use of force literature embodies only a small minority of American police departments. For instance, according to the Bureau of Justice Statistics in 2003, approximately 95 percent of state and local law enforcement agencies in the USA employ fewer than 100 full-time sworn officers (Hickman and Reaves, 2006). Only 0.7 percent of US agencies employ more than 500 full-time sworn officers and just 0.4 percent of state and local law enforcement agencies in the USA employ 1,000 or more sworn officers (Hickman and Reaves, 2006).

Research questions

The current inquiry seeks to contribute to the literature on police use of force by examining everyday force usage in a police department that is readily generalizable with many similarly sized agencies found throughout the USA. We focus our efforts on three key research questions:

RQ1. What is the extent of officer use of force and suspect resistance?

RQ2. How does officer use of force and suspect resistance vary within individual encounters?

RQ3. What situational factors influence the presence and level of officer use of force?

In short, we are interested in examining how and why officers apply force in the manner they do. More importantly, we wish to ascertain how the findings to these questions compare to findings from previous studies that have relied on data from larger scale police agencies.

Data and methodology

The data source comes from use of force reports generated by River City police officers over a three-year period (2002-2004). River City is a Midwestern community with a population of roughly 33,000 (US Census Bureau, 2000) located within a larger Standard Metropolitan Statistical Area (SMSA) of approximately 175,000 residents. There is easy access to two major US freeways and close proximity to an International Airport and Amtrak railway system, helping to establish the current SMSA as a transportation hub. River City also accommodates approximately 12,000 college students annually, which are distributed between two- four-year institutions (one public and one private) and a public two-year community college.

The community and the surrounding geographical region has historically been predominantly White with Scandinavian heritage (US Census Bureau, 2000). In the examined jurisdiction, Whites account for 92.1 percent of the population, followed by 4.5 percent Hispanics or Latino, 1.9 percent Native Americans, 1.3 percent Asians, and less than 1 percent of the population is accounted for by African Americans (0.8 percent). The remaining 3.9 percent are classified as "other" and/or as a combination of two or more ethnicities (US Census Bureau, 2000). Census data from 2000 show that the median family income in the examined jurisdiction was $49,118 (US Census Bureau, 2000). Occupational data show that minorities are disproportionately represented in the lower tiers of the occupational distribution whereas Whites hold a disproportionate number of jobs in the upper tiers, such as administration and management (US Commission on Civil Rights, 1999).

The police department has a budget for 50 full-time sworn peace officers and approximately 30 full-time support staff and is relatively homogeneous (95 percent of officers are White males)[5]. The command structure within the department includes seven sergeants, four lieutenants, six detectives, a deputy chief, and a chief of police. The city is broken down into three patrol beats, which divide the city horizontally (North, Middle, and South). Officers are assigned to one beat for six months at a time, although beat rotations are sometimes altered to account for staffing needs.

River City officers filed use of force reports in instances where any from of physical force was applied (including handcuffing), as well as in cases where a suspect was injured or complained of injury. Upon submitting use of force report forms to departmental administrators, the information was entered into an Excel database and was subsequently imported into a SPSS data file for analyses purposes. Use of force report forms captured a variety of information including suspect demographics (e.g. age, race), situational factors (e.g. whether the suspect displayed signs of intoxication, whether the officer or a citizen initiated the encounter, whether an arrest was made, the number of citizens present) and importantly, the type of force and resistance used during the incident.

RCPD officers recorded a multitude of force and resistance types as part of their reporting process. In terms of force, in addition to handcuffing, the varying options include: muscling, joint lock/arm bar, pressure points, hand strike, leg/foot strike,

impact weapon strike, OC aerosol, Taser, firearm (displaying and firing), and an other category (e.g. use of K9, striking with flashlight). The first three involve soft empty hand type tactics (e.g. firm-grip, come-along, pain compliance) designed to restrain suspects, while the remaining types involve more aggressive techniques (e.g. hitting with the body or impact weapon, OC spray/Taser, use of a firearm) designed to more readily incapacitate suspects[6].

Similar to forceful behaviors, officers also recorded several different types of suspect resistance types, including: verbal, passive, defensive, and active forms. Verbal resistance involved verbal comments by the suspect indicating non-compliance (e.g. explicit statements of non-compliance); passive resistance involved attempts by the suspect to avoid attempts at the officers' control, but in a manner that was neither verbal nor physically threatening (e.g. going limp, non-response); defensive resistance involved actions whereby the suspect physically attempted to prevent an officer from gaining control (e.g. pulling/pushing); and active resistance involved physical actions by the suspect toward the officer (e.g. attempted or actual assault)[7].

A total of 4,853 force report forms were filed over the three-year period. A number of cases were removed from the data file for a variety of reasons. First, in 206 cases the only discernable action documented by the officer involved verbal direction, and no complaint of injury lodged by the suspect. Although officers were required to file a force report only when some form of physical force was applied or when a suspect alleged a complaint due to some type of police action, officers sometimes filed a report only when they engaged in verbal direction. Since not all officers filed such reports in all cases, thereby creating inconsistency in verbal force usage and hence incompatibility for analysis purposes, these cases were deleted from the data file. Second, in 113 cases the only action recorded was an officer displaying his or her firearm. Given the ambiguity as to how such an action fits into the department's policy (e.g. when employed as a measure of precaution and/or officer safety when responding to certain types of calls, such as burglary alarms, etc.), these cases were also removed[8]. An additional 69 cases involved incomplete or conflicting information on the case being reported (e.g. wrong dates, cases numbers, etc.) and were excluded. Finally, given that most of the previous studies on force usage using official data were restricted to force used during the arrest process, we further narrowed the data file to exclude non-arrest cases ($n = 1{,}201$). Thus, the final data file for analyses purposes consists of 3,264 cases.

Findings

We begin by examining the extent and variation in force behavior. We then turn to a similar analysis with respect to resistance behaviors. Following this, we look at the interplay between force and resistant behaviors. Finally, we conduct a multivariate examination of the situational factors predicting the level of force applied within individual suspect encounters.

Force

Table I details the extent of force across the 3,264 arrest encounters broken down by type of force[9]. As shown, officers documented a variety of force options ranging from handcuffing to the use of deadly force. By far, handcuffing accounts for the most frequently used form of force at 94.2 percent. The next most frequently applied type of

Force type	Number of encounters	Percent of encounters
Handcuffing	3,074	94.2
Muscling	514	15.7
Joint lock, arm bar	169	5.2
Taser	58	1.8
Body/weapon strike	45	1.4
Pressure point	43	1.3
OC aerosol	35	1.1
K9		9
Shots fired		5

Table I.
Extent of force by type

Note: Of total number of arrest encounters (n = 3,264)

force involved muscling, which occurred in 15.7 percent of the cases. The remaining types of force all occurred in five or less percent of the reported cases. Clearly, the driving factor in the number of reported incidents of force usage simply involves handcuffing suspects. This is not surprising considering that RCPD policy dictates handcuffing whenever an official legal agenda is carried out; that is, handcuffing is mandatory during transports of persons and/or in circumstances deemed by the officers to be perilous or hazardous (e.g. investigative detention, etc.).

Officers used force greater than handcuffing in 18.0 percent ($n = 586$) of the arrest cases ($n = 3{,}264$) across the three-year study period. This figure is a bit lower than that uncovered by Garner *et al.* (1995) in Phoenix (22 percent) and Terrill (2001) in Indianapolis and St. Petersburg (19 percent), while a little higher than that reported by Garner *et al.* (2002) in their six-city study (17 percent) and Lundstrom and Mullan's (1987) examination in St. Paul (14 percent). However, recall that in similar analyses (i.e. extent of force beyond handcuffing in arrest cases) conducted by Croft and Austin (1987) in Rochester and Syracuse, and McLaughlin (1992) in Savannah, the figure was substantially less (ranging from one to 5 percent).

Another way to view the extent of force across encounters is to examine the frequency of force within encounters. As pointed out and demonstrated by Terrill (2003), one cannot discount the role of multiple uses of force within single encounters if a more accurate count or depiction of force is to be gleaned. Table II displays findings when looking at multiple uses of force. While a large majority of the encounters resulted in only one type of force being applied ($n = 2{,}801$, 85.8 percent), multiple force encounters quickly add to the total number of forceful acts used. Of the 463 encounters involving

Number of force types	Number of encounters	Total number of force acts
1	2,801	2,801
2	289	578
3	132	396
4	36	144
5	4	20
6	1	6
7	1	7
Total	3,264	3,952

Table II.
Number of different types of force used within individual encounters

multiple uses of force, nearly two-thirds ($n = 289$, 62.4 percent) involve force being used twice. In 132 encounters force was used three times within the same encounter, followed by 36 cases involving four types of force, four cases involving five types of force, and one case each where six and seven different types of force were applied to the suspect. Thus, these multiple force encounters account for an additional 1,151 acts of force, on top of the 2,801 single use encounters, for a total of 3,952. As Table II illustrates, failure to examine multiple uses of force within encounters can alter the perception of just how much or often the police use force in their daily interactions with suspected offenders. Reliance only on the number of encounters involving force distorts, and in this case substantially underestimates, how much force is actually applied[10].

To determine what forms of force are most prevalent in what combinations, Table III provides the top 10 combinations of force (including one time and multi-force encounters). While 54 different combinations of force were used across the 3,264 encounters, the top ten account for over 96 percent ($n = 3,149$) of the 3,264. Not surprisingly, handcuffing is the single most frequent behavior ($n = 2,678$) and is found in seven of the top ten. The second most frequent application involved muscling techniques along with handcuffing, which occurred in 207 cases. With the exception of Taser usage, which is found in three of the top ten, the types of force most readily applied by officers lies on the lower end of the force spectrum. In one respect, such findings serve more as a baseline for future researchers interested in determining the combinations of force within individual encounters. Klinger (1995) and Terrill (2003) offer a similar type of analysis, but given that both centered on verbal force combinations as much as physical force (an enhanced benefit of observational data, which is not usually systematically captured in official records), their findings offer little guidance with respect to the focus of the current inquiry. Nonetheless, as outlined by Adams (1995) in his review of previous force studies, the findings here are similar with respect to force usage being primarily centered at the lower end of the continuum.

Resistance

Table IV offers a breakdown of the varying types of resistance offered by suspects throughout each of the 3,264 arrest encounters. As shown, in nearly four of every five cases suspects offered no resistance ($n = 2,601$, 79.7 percent). Alternatively, suspects

Force combination	Number of encounters	Percent of encounters
Handcuff	2,678	82.0
Handcuff/muscling	207	6.3
Muscling	94	2.9
Handcuffing/muscling/joint lock, arm bar	77	2.4
Muscling/joint lock, arm bar	30	0.9
Handcuff/taser	16	0.5
Handcuff/muscling/taser	14	0.4
Handcuffing/muscling/joint lock, arm bar/pressure point	13	0.4
Taser	12	0.4
Handcuffing/muscling/pressure point	8	0.2

Note: Of total number of arrest encounters ($n = 3,264$)

Table III.
Top 10 combinations of force within individual encounters

presented officers with some degree of resistance in 20.3 percent of the cases ($n = 663$), with 13.6 percent being in the form of physical resistance ($n = 444$). The most prevalent form of resistance was verbal ($n = 593$, 18.2 percent), followed by defensive ($n = 394$, 12.1 percent), passive ($n = 267$, 8.2 percent), and active ($n = 151$, 4.6 percent) resistance. If the percentages are computed based on the total number of encounters involving at least one resistant act ($n = 663$), verbal resistance was offered in 89.4 percent of the cases, defensive in 59.4 percent, passive in 40.2 percent, and active in 22.8 percent of the encounters.

The overall extent of resistance (20.3 percent) compares fairly similarly to Garner *et al.*'s (2002) six-city study (23 percent), but substantially lower than their Phoenix (Garner *et al.*, 1995) study (38 percent), as well as Terrill's (2001) study (29 percent). In terms of physical resistance the finding in River City (13.6 percent) is nearly identical to that found by Garner *et al.* (1995) in their six-city study (1995) (12 percent), and by Terrill in Indianapolis and St. Petersburg (Terrill, 2001) (12 percent). However, compared to what Garner *et al.* (1995) found in Phoenix (1995) (21 percent), River City police officers faced less physical resistance from suspects (13.6 percent).

Similar to our examination of force, we turned next to the extent of resistance within individual encounters. Table V shows the number of resistant types used across the 663 encounters where officers reported some degree of suspect resistance. While 204 encounters involved one type of resistant behavior, 459 of the 663 cases (69.2 percent) involved more than one resistant act. These 459 accounted for an additional 1201 resistant acts on top of the 204 that occurred one time, for a total of 1,405 across the 663 encounters. Terrill (2003) uncovered a similar pattern of resistant behavior in Indianapolis and St. Petersburg.

Finally, we also analyzed the varying types of resistance combinations offered by suspects (including one time and multi-resistant encounters). Table VI displays the 14 different combinations of resistance that occurred throughout the 663 cases where resistance was reported.

Table IV.
Extent of resistance by type

Resistance type	Number of encounters	Percent of encounters
None	2,601	79.7
Verbal	593	18.2
Defensive	394	12.1
Passive	267	8.2
Active	151	4.6

Note: Of total number of arrest encounters (n = 3,264)

Table V.
Number of different types of resistance used within individual encounters

Number of resistant types	Number of encounters	Total number of resistant acts
1	204	204
2	231	462
3	173	519
4	55	220
Total	663	1,405

Resistance combination	Number of encounters	Percent of encounters
Verbal	145	21.8
Verbal/defensive	129	19.4
Verbal/passive/defensive	125	18.8
Verbal/passive	63	9.5
Verbal/passive/defensive/active	55	8.3
Verbal/defensive/active	41	6.1
Defensive	33	5.0
Verbal/active	29	4.3
Active	15	2.2
Passive	11	1.6
Verbal/passive/active	6	0.9
Passive/defensive	6	0.9
Defensive/active	4	0.6
Passive/defensive/active	1	0.1

Note: Of total number of resistant arrest encounters (n = 663)

Table VI. Combinations of resistance within individual encounters

Verbal resistance was the most frequent form offered by suspects, occurring in 145 of the cases (21.8 percent). Following this were cases involving verbal and defensive resistance ($n = 129$, 19.4 percent) and verbal, passive and defensive resistance cases ($n = 125$, 18.8 percent). Interestingly, officers reported some form of physical resistance (defensive or active) in 11 of the 14 combinations or in 444 of the 663 cases (67.0 percent). Unlike the findings from similar analyses of force usage (Table III), a good portion of the resistant behavior was toward the upper end of the continuum. Thus, officers report suspects displaying relatively higher forms of resistance, while they themselves are primarily using lower levels of force. Such a finding contrasts to what was reported by Terrill (2001), although not necessarily substantially different than that found by Garner *et al.* (1995). This raises the possibility that the methodology employed via data collection may affect the results. While observational studies rely on a third-party to capture the participants' behavior (i.e. the observer), official records are generated by an interested party (i.e. the officer). Hence, the latter may be more inclined to emphasize the suspects' behavior, while downplaying his or her behavior. Such an interpretation should be taken with a degree of caution, however, as it is merely speculative.

Resistance and force

In addition to looking at officer force and suspect resistance separately, we also examined the nature of resistance offered by the suspect and the officers reported response across each of the 3,264 cases. Recall that suspects offered 14 different combinations of resistant behavior while officer force cut across 54 different combinations. Adding a 15th category whereby the suspect displayed no resistance results in 810 unique combinations of resistance and force. For illustrative purposes, Table VII presents results from the 15 most frequent combinations. These combinations account for more than 90 percent of the total number of arrest encounters and constitute all combinations in which there were at least ten cases. As shown, the bulk of cases involved non-resistant suspects being handcuffed ($n = 2{,}554$,

Resistance	Force	Number of encounters	Percent of encounters
None	Handcuff	2,554	78.2
Verbal	Handcuff	89	2.7
Verbal/defensive	Handcuff/muscling	50	1.5
Verbal/passive/defensive	Handcuff/muscling	42	1.3
Verbal	Handcuff/muscling	33	1.0
Verbal/passive	Handcuff/muscling	26	0.8
Verbal/defensive	Muscling	23	0.7
Verbal/passive/defensive	Muscling	22	0.7
Verbal/passive/defensive	Handcuff/muscling/joint	20	0.6
Verbal/defensive	Handcuff/muscling/joint	19	0.6
None	Handcuff/muscling	18	0.6
Verbal/passive/defensive/active	Handcuff/muscling/joint	14	0.4
Defensive	Handcuff/muscling	13	0.4
None	Muscling	12	0.4
Verbal/passive	Muscling	10	0.3

Table VII.
Top 15 resistance/force combinations within individual encounters

Note: Of total number of arrest encounters (n = 3,264)

78.2 percent). The next most frequent combination, verbal resistance with handcuffing, occurs much less frequently (n = 89, 2.7 percent) as do the remaining combinations. Upon closer review a somewhat telling finding emerges. The nature of forceful behavior is all on the lower end of the force spectrum. In fact, not one of the combinations involves anything other than low-level empty hand type tactics. None of the combinations involve force such as striking or the use of impact methods. Further, only three of the combinations involve anything more than simple handcuffing or muscling techniques. Conversely, eight of the 15 combinations involve some form of physical resistance, albeit primarily in the form of defensive as opposed to active forms. These findings further indicate that while suspects display greater levels of resistance, officers engage in minimal use of physical force (at least as reported by officers themselves).

Table VIII allows for a slightly different picture of resistance/force behavior. Here, resistance and force are broken down according to the highest level displayed during the encounter. Both forms of behavior are condensed into one of three levels according to severity. As shown, as the level of resistance is enhanced, so too is the level of force, which is a similar pattern as reported by Terrill (2001, 2003) in his analyses. It appears

	Resistance (n = 3,264)							
	None		Non-physical		Physical		Total	
	n	(%)	n	(%)	n	(%)	n	(%)
Force:								
Handcuffing	2,554	(98.2)	99	(45.2)	25	(5.6)	2,678	(82.0)
Physical	32	(1.2)	97	(44.3)	318	(71.6)	447	(13.7)
Impact	15	(0.6)	23	(10.5)	101	(22.7)	139	(4.3)
Total	2,601	(100.0)	219	(100.0)	444	(100.0)	3,264	(100.0)

Table VIII.
Resistance/force combinations – highest levels

that officers are able to readily resolve encounters involving resistant suspects primarily with lower forms of force. For instance, nearly 90 percent ($n = 196$) of the 219 encounters involving a passive or verbally resistant suspect are handled using no more than minimal restraining or controlling tactics. Even in cases involving physically resistant suspects, officers are much more likely to rely on nothing more than low-level force (343 of 444 cases). From another angle the picture becomes more clouded. For example, while the percentage is small, officers applied some form of physical force beyond handcuffing in 47 cases (1.8 percent) where the officer reported the suspect displaying no resistance at all. Additionally, over 10 percent of the cases ($n = 23$) involving non-physically resistant suspects resulted in force on the upper end of the continuum (i.e. impact).

Situational influences on force severity

Our final analysis involves a multivariate examination of situational factors posited to predict the severity of force applied within individual police-suspect encounters. For parsimony, we begin by estimating a logistic regression model whereby the nine-category force measure is collapsed into a dichotomous dependent variable consisting of simple restraint (i.e. handcuffing) and all other forms of force (0 = handcuffing, 1 = all other force). In addition, we also estimate an ordinal regression model with a three category dependent measure (0 = handcuffing, 1 = physical, 2 = impact) in an attempt to capture any potential differences as the severity of force is further refined (see Terrill and Mastrofski, 2002 for a more detailed discussion on the benefits of utilizing ordinal regression models to examine force severity)[11].

The independent variables included in the model have been posited or shown to predict police use of force in prior work (see Garner *et al.*, 2002; Terrill and Mastrofski, 2002). Specifically, there were eight usable measures available for the present inquiry (i.e. captured as part of the RCPD use of force report). Several of these variables are suspect related and demographic in nature. Suspect race (1 = non-white, 0 = white) and intoxication (1 = yes, 0 = no) are dichotomous measures, while age is an interval-level variable by years. Resistance is measured according to the severity of defiance posed to police (0 = none, 1 = non-physical, 2 = physical). In addition, two officer-based measures are examined. These include officer sex (1 = male, 0 = female) and years of experience. Officer race was also available, but was a constant (i.e. all officers were white) and thus could not be included in the models. Finally, two additional variables are examined including the number of citizens on the scene and whether the incident was officer initiated (1 = yes, 0 = no). Table IX provides descriptive statistics for the dependent and each of the independent measures, while Table X presents results from the multivariate models.

As shown in Table X, both models are significant as evidenced by the chi-square statistic, with 47.6 and 45.9 percent of the variance explained in the logistic and ordinal regression models respectively according the pseudo R square. Two of the eight variables reach statistical significance regardless of the model employed (i.e. suspect intoxication and resistance).

Officers were more likely to use elevated levels of force on suspects who displayed signs of intoxication, a finding that falls in line with past studies (Adams, 1999; Ross, 1999; Henriquez, 1999; McEwen, 1996; Terrill and Mastrofski, 2002). The effect of suspect resistance on police use of force was also expected given previous research. As

Variables	Range	Mean	Std. Dev.
Dependent:			
Highest level force – logistic (Handcuff = 2,678) (Physical/impact = 586)	0-1	0.18	0.384
Highest level force – ordinal (Handcuff = 2,678) (Physical = 447) (Impact = 139)	0-2	0.22	0.508
Predictors:			
Suspect race	0-1	0.36	0.480
Suspect intoxication	0-1	0.63	0.482
Suspect age	7-81	28.36	10.698
Suspect resistance	0-2	0.34	0.705
Officer sex	0-1	0.89	0.309
Officer experience	1-29	7.39	5.517
Number of citizens	1-50	2.49	3.955
Proactive encounter	0-1	0.47	0.499

Table IX.
Descriptive statistics

	Logistic			Ordinal	
Variables	B	S.E.	Odds ratio	B	S.E.
Suspect race	0.467*	0.187	1.595	0.207	0.138
Suspect intoxication	0.486*	0.208	1.626	0.318*	0.158
Suspect age	0.004	0.009	1.004	0.008	0.006
Suspect resistance	3.526**	0.136	33.998	3.033**	0.105
Officer sex	0.455	0.316	1.576	0.439	0.234
Officer experience	-0.007	0.017	0.993	0.008	0.012
# of citizens	0.007	0.015	1.007	0.005	0.011
Proactive encounter	-0.327	0.191	0.721	-0.329*	0.151
Pseudo *R* Square		0.476		0.459	
Model Chi-square		2107.432**		2,004.577**	
-2 log likelihood		965.210		1,681.717	

Table X.
Logistic and ordinal model estimates ($n = 3{,}264$)

Notes: $^{*}p < 0.05$, $^{**}p < 0.001$

found elsewhere, encounters where suspects resist officers' attempts at control are significantly more likely to result in more forceful encounters. As illustrated by Garner *et al.* (1996), who employed more that 50 contextual control variables in their work, suspect resistance was often the strongest predictor of police use of force. This finding has also been found to be an important predictor of police use of force elsewhere (e.g. Leinfelt, 2005; Hall, 1997; McEwen, 1996; Terrill and Mastrofski, 2002; Worden, 1995). Clearly, such an effect is readily evident in the present inquiry as seen in the odds ratio outcome of the logistic regression model, which is an advantage of estimating this model as opposed to sole reliance on an ordinal regression model as suggested by Terrill and Mastrofski (2002). As indicated in Table X, suspects displaying enhanced levels of resistance were nearly 34 times more likely to have physical or impact force used against them. Thus, while a substantial amount of overall variation is accounted

for in the model (47.6 percent), this is primarily driven by this one variable (i.e. suspect resistance). That is, the additional variance explained by suspect resistance is about 40.3 percent and the effect of suspect resistance is statistically significant at .001 level ($LRX^2 = 1861.28$, df = 1, $p < 0.001$; Long, 1997).

Interestingly, suspect race (i.e. nonwhites) predicted an increased likelihood of force in the logistic model, but failed to reach statistical significance in the ordinal model. Hence, officers were more likely to use force beyond handcuffing when dealing with nonwhites, but such force cannot be distinguished between physical and impact levels. Somewhat surprisingly, incidents where officers initiate contact with suspects on their own, as opposed to being called to respond, were less likely to result in more force in the ordinal model, but not logistic model. This is contrary to some prior work indicating that such encounters are more likely to result in higher levels or more severe force (Terrill and Mastrofski, 2002).

Discussion

As discussed at the outset, the extant research on police use of force has been primarily driven by research conducted in mid-to-large sized police agencies involving data collected over a relatively short period of time. The present inquiry attempts to supplement this prior work by examining police use of force behavior in a smaller police agency using data collected over a three-year period. The findings uncovered indicate some overlap with prior work in several respects, although there are some noteworthy differences. Below we outline and discuss four key findings, followed by the study's limitations, and then offer some potential avenues of future research.

First, River City police officers resorted to physical force, beyond mere handcuffing, in 18 percent of the arrest cases. This percentage is lower than the 22 percent reported by Garner *et al.* (1995) in Phoenix (1995) and the 19 percent uncovered by Terrill (2001) in Indianapolis and St. Petersburg, and a little higher than other studies conducted in mid to large-sized cities (i.e. 17 percent by Garner *et al.* (2002) in Charlotte, Colorado Springs, Dallas, St. Petersburg, San Diego; and 14 percent by Lundstrom and Mullan (1987) in St. Paul). However, compared to studies by Croft and Austin (1987)in Rochester and Syracuse, as well as McLaughlin in Savannah (1992), the percentage is substantially higher (one to 5 percent), despite similar methodology (i.e. force beyond handcuffing during arrest cases). Interestingly, the percentage of force used by River City officers is the highest when compared to four of these six studies even though it is by far the smallest agency examined. While it is difficult to posit *a priori* exactly what one might expect in terms of force usage from a small agency given the lack of prior research on such agencies, it is somewhat of a surprise that force occurred with more regularity in River City when compared to larger cities such as Charlotte, Colorado Springs, Dallas, Indianapolis, Rochester, St. Paul, San Diego, Savannah, and Syracuse.

Second, officers in River City primarily rely on force located at the lower end of the force continuum (i.e. soft hand type techniques compared to hard hand or impact weapons). This is a fairly long and well-established outcome uncovered by several researchers including Garner *et al.* (2002), Klinger (1995), Pate and Fridell (1993), and Terrill (2001). Unfortunately, the extent to which these low levels of physical force interacts with even lower forms of verbal force, as examined by Klinger (1995) and Terrill (2003), could not be adequately determined using these particular data due to the non-systematic documentation of verbal force.

Third, the findings show that the most powerful predictor of force is the presence and level of suspect resistance presented to officers. While this might be expected given the consistency of this effect over many studies across many cities, and especially given the fact that the data source is use of force reports filled out by officers themselves, the power of the effect is very strong. In particular, enhanced levels of suspect resistance increased the odds of a forceful response by 34.

Fourth, an interesting pattern is uncovered when suspect resistance is placed against the type of force officers' use in response. More specifically, recall that officers reported some form of physical resistance (i.e. defensive, active) in 11 of the top 14 combinations of resistance. As such, and unlike officer behavior which is primarily on the lower end of the force continuum, a good portion of the resistant behavior was toward the upper end of the spectrum comparatively. In effect, officers generally report that while suspects readily display higher forms of resistance, they are able to resolve these incidents using lower levels of force.

The present study is but an initial attempt to begin exploring the dynamics of force usage within a relatively small police agency compared to previous work relying on data gathered from larger departments. While the findings might readily be generalizable with many similarly situated police agencies, we offer caution in terms of over-generalizing at this early stage. First, River City is predominately white, and to some degree economically well off. Second, the data source with respect to the manner in which officers reliability report force is difficult to measure. Third, the analyses are based on just one agency, rather than multiple agencies like many of the previous studies (Croft and Austin, 1987; Friedrich, 1980; Garner *et al.*, 2002; Terrill, 2003; Worden, 1995).

Given the findings of this study and the limitations involved, researchers are left with many areas of inquiry to examine further. For instance, River City officers used force at a higher rate than many of the studies looking at larger cities (in some cases a little higher, but in others substantially higher). Is this a function of this one specific agency studied or do smaller town police officers more readily tend to resort to force more often than their larger city counterparts? Future research should attempt to study police use of force behavior across several smaller jurisdictions ranging in relative size. For instance, Garner *et al.* (2002) looked at six agencies ranging from mid-size to large-size (i.e. the smallest city, St. Petersburg, served a population of 238,000, while the largest, San Diego, served a population of over 1 million). A similar approach can be used with smaller towns. This will allow for more definitive conclusions as to the extent of forceful behavior in such agencies and even permit comparisons based on relative size (e.g. from very small up to mid-sized).

Another area of future study might examine whether the pattern of higher levels of suspect resistance and lower levels of force in response to such resistance holds across other small agencies or whether this might be more a function or limitation of using official records (e.g. officer reports). If it is the latter, this would offer some evidence to police administrators who might be considering transitioning from officer based reporting to supervisor based reporting, which is currently done in places like Charlotte and Spokane. Perhaps, by having supervisors report to the scene to interview suspects and witness, in addition to officers, the nature of resistance and force would mirror more of what findings from observational studies suggest – that the severity of suspect resistance is less and the force used by officers is more. To date, this is an empirically unexamined research area calling for additional study.

Notes

1. The agency name has been changed to protect research participants.
2. Note that use of the term force throughout the article generally involves physical force. While some prior work (e.g. Klinger, 1995) has included verbal force into the equation, reported verbal force rates using official records (e.g. use of force reports) have been limited given the lack of comprehensive data gathering (i.e. the threshold for triggering a force report is at least some degree of physical force, often at a level more than simple handcuffing during the arrest process).
3. A degree of caution is required when comparing force rates across studies due to differing definitions and methodologies applied. See Garner *et al.* (2002) for an excellent discussion concerning the difficulties with strict comparisons of force usage across studies.
4. As PSS data were obtained from multiple jurisdictions of different size and composition, as opposed to single departments (often larger metropolitan jurisdictions), Worden's findings offer some degree of confidence about the frequency of force otherwise lacking in previous big-city studies (Adams, 1999).
5. During the three-year study period, the actual staffing level fluctuated between 45-50 sworn officers.
6. Although not considered a "force" act or behavior, officers also had a check-off box on the use-of-force report indicating verbal direction as well.
7. Officers also had an opportunity to record whether the citizen displayed non-verbal signs of "psychological intimidation" (e.g. blank stare, tightening of jaw muscles) indicating potential resistance.
8. Note that in the following analyses verbal direction and firearm displays are included when they occur in cases where at least one other form of force was used in the encounter. That is, only cases where they were the sole force mechanisms are excluded.
9. Note that use of force acts sum to greater than 3,264 since officers can use more than one type of force per arrest encounter. The same is true of suspect resistance as illustrated in Table IV.
10. It is also noteworthy that the number of force acts is probably even higher. Given the limitations of the data source (use of force reports) we are unable to determine how many encounters involved multiple uses of the same *type* of force. It is quite conceivable, as illustrated by Terrill's (2003) analysis of POPN data, that officers sometimes use the same type of force more than once within an encounter (e.g. multiple forms of pain resistance techniques).
11. The physical category included muscling, joint lock/arm bars, and pressure point control, while the impact category included Taser, body/weapon strike, OC spray, K9, and shots fired.

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