UNDERSTANDING POLICE USE OF FORCE: A REVIEW OF THE EVIDENCE

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Abstract
The current study provides a thorough content analysis of use of force studies published in peer-reviewed journals between 1995 and 2008. The most commonly used explanatory factors are discussed in terms of their influence on police officers’ decisions to use force during encounters with suspects. Based on the empirical evidence summarized, it appears that few suspect and encounter characteristics are highly influential in determining use of force by police. Moreover, most of the variables used throughout the literature seem to have a mixed relationship with or appear to be poor predictors of use of force by police. We offer possible explanations for the inconsistent findings and suggestions for future research in this area.

Key Words: Police, Force, Violence, Discretion

INTRODUCTION
The police are tasked with making a variety of decisions and the duty to address “something-that-ought-not-to-be-happening-and-about-which-someone-had-better-do-something-now” (Bittner, 1974: 30). This broad mandate involves many different functions, including crime fighter (Manning, 1978, 1992), order maintenance or peacekeeper (Greene, 2000; Kelling & Moore, 1988; Wilson, 1968; Wilson & Kelling, 1982), service delivery (Eck & Rosenbaum, 1994), problem solver (Eck & Spelman, 1987; Goldstein, 1979, 1990; Kelling & Moore, 1988), and dispenser of force (Bittner, 1970,1974; Muir, 1977). This potpourri of roles produces definitions of police work that are not consistent and present a significant challenge to understanding police work from a scientific perspective.
Arguably the most defining characteristic of police work is their ability to use force to enforce the law (Bittner, 1970); they are uniquely situated and authorized to employ various levels of force to compel specific responses from citizens. These actions have been studied since the “discovery” of discretion in the middle of the 20th Century. Initially, police use of “normal” and non-lethal force only received scant attention, and it was not until the mid 1980’s that non-lethal force became a popular topic for academics. Since then, more research attention has been focused on examining the extent, nature, and correlates of non-lethal police force. Unfortunately, due to its rare occurrence (NIJ, 1999), use of force is not well understood despite the fact that scholars have been researching it for nearly sixty years.

Sherman (1980) and Riksheim and Chermak (1993) initially reported on the state of knowledge regarding police behavior broadly, and use of force specifically, by summarizing existing studies of police behavior. Since these pioneering pieces, the use of force literature has experienced significant growth over the last twenty years. Thus, a comprehensive update on the correlates of use of force by police is necessary. We aim to accomplish this goal by summarizing and grouping the primary correlates of use of force by borrowing from the template employed by Riksheim and Chermak (1993) and focusing on research within the past twenty years. This comprehensive review will assist in forming the foundation for a new wave of research questions and generate a research agenda that studies arguably the most defining aspect of police work.

METHODOLOGY

To effectively catalog and understand the correlates of force, we borrow from the pioneering and widely cited work of Sherman (1980) and Riksheim and Chermak (1993) and examine various studies of use of force by police published between 1995 and 2008. This study period was selected for several reasons. First, in 1995, a comprehensive definition for use of force within the academic community was presented (Garner, Schade, Hepburn, & Buchanan, 1995); thus, it was expected that most, if not all, studies after 1995 would use that definition of force in their assessment of this phenomenon. Second, in the mid-1990s, the use of force continuum became a prominent measure of force among scholars studying police use of force. As a result, scholars began to include nonviolent police behaviors in their measures of force that were not included in earlier studies. Last, Riksheim and Chermak’s (1993) replication of Sherman’s (1980) literature review reported on studies conducted between 1980 and 1993. Therefore, their review provided a detailed synopsis of the field’s knowledge regarding police use of force up to the mid-1990’s, but no recent comprehensive review has been undertaken.

A comprehensive and scientific methodology was instituted to identify all relevant studies. Initially, multiple Boolean search terms were created from a combination of words/phrases, such as “police”, “use of force”, “use of violence”, and “forceful encounters”. These search terms were then used to gather literature consolidated in the Criminal Justice Periodicals Index, which searches peer-reviewed journals publishing studies on criminal justice, broadly, and policing, specifically. Forty-one studies were originally identified, each directly...
addressing a dimension of use of force by police. Of these, twenty-eight used multivariate techniques: twenty-four\(^1\) analyzed incidents where police resorted to force during an encounter with a suspect; two studies examined officer attitudes or perceptions regarding the use of force\(^2\); one focused on internal affairs investigations for use of force\(^3\); and one evaluated agency level rates of reported use of force incidents\(^4\). The remaining thirteen studies did not conduct multivariate analyses and only provided a general overview of use of force in terms of univariate descriptive statistics or bivariate relationships. These studies were removed from further consideration, as the state of research has changed recently to require more rigor in analysis with multivariate analysis now considered the minimum threshold for scientific study. Two additional studies were removed from consideration because the samples focused on deported illegal immigrants, which are very different from the suspects described in traditional policing studies. Finally, three studies that relied on vignette analysis were removed due to limitations associated with those data. The remaining twenty-three studies using multivariate analyses were analyzed and summarized in Table 1.

Across the twenty-three studies a total of 212 different independent variables were employed to explain various dimensions of police use of force. Due to space limitations, all 212 are not discussed, rather the discourse here is limited to the most commonly used variables throughout the literature. Similar to Riksheim and Chermak (1993), these factors are grouped by suspect, encounter, and officer characteristics. The constellation of factors used to predict police force are discussed in this order to reflect the nested structure of police-citizen encounter data. That is, data relating to police-citizen encounters correspond to a natural, hierarchical structure in which suspect and encounter characteristics are nested within officers, which in turn are nested within agencies and communities.

**SUSPECT CHARACTERISTICS**

Suspect characteristics are frequently examined by studies exploring use of force by police. Suspect demographics (i.e., race/ethnicity, gender, and age) are common foci, but demeanor, social class, and the use of drugs/alcohol are also variables of interest in more contemporary inquiries. Each of these factors is reviewed in detail below.

**Race/Ethnicity**

Similar to studies examining other criminal justice decision points, the race/ethnicity of

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\(^1\) Alpert, Dunham, & MacDonald (2004); Burke & Mikkelsen (2004); Crawford & Burns (1998); Engel, Sobol, & Worden (2000); Garner, Maxwell, & Heraux (2002); Kaminski, Diggiovanni, & Downs (2004); Kop & Euwema (2001); Lawton (2007); McCluskey & Terrill (2005); McCluskey, Terrill, & Paoline (2005); Morabito & Doerner (1997); Norris, Birkbeck, & Gabaldon (2006); Paoline & Terrill (2004); Paoline & Terrill (2007); Phillips & Smith (2000); Phillips, Rodriguez, & Hagan (2002); Phillips, Hagan, & Rodriguez (2006); Schuck (2004); Sun & Payne (2004); Terrill & Mastrofski (2002); Terrill & Reisig (2003); Terrill, Paoline, & Manning (2003); Terrill (2005); Terrill, Leinfelt, & Kwak (2008)

\(^2\) Holmes, Reynolds, Holmes, & Faulkner (1998); Son, Davis, & Rome (1998)

\(^3\) McElvain & Kposowa (2004)

\(^4\) Alpert & MacDonald (2001)
TABLE 1. SUMMARY OF RESEARCH FINDINGS ASSOCIATED WITH USE OF FORCE BY VARIABLE

<table>
<thead>
<tr>
<th>Variables</th>
<th>Positive relationship</th>
<th>Negative relationship</th>
<th>Mixed findings</th>
<th>No relationship</th>
<th># of studies</th>
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<td><strong>Suspect characteristics</strong></td>
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<td>Race/Ethnicity (minority)</td>
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<td>8</td>
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<td>Gender (male)</td>
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<td>6</td>
<td>3</td>
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<td>Age (older)</td>
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<tr>
<td>Demeanor</td>
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<td>7</td>
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<td>Social class (lower)</td>
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<tr>
<td>Intoxication</td>
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<td><strong>Encounter characteristics</strong></td>
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<td>Weapon</td>
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<td>Proactive contact</td>
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<td>Resistance</td>
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<td>6</td>
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<tr>
<td>Other officers</td>
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<td>1</td>
<td>4</td>
<td>2</td>
<td>10</td>
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<tr>
<td>Other citizens</td>
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<td>3</td>
<td>8</td>
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<td>Conflict</td>
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<td><strong>Officer characteristics</strong></td>
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<td>Race (non-white)</td>
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<td>11</td>
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<td>Gender (Male)</td>
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<td>13</td>
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<tr>
<td>Education</td>
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</table>
the suspect occupies a considerable amount of research attention. This is particularly salient in the context of force due to the historically contentious relationship between minority communities and the police. The empirical evidence is mixed on this issue, but several studies documented that a suspect’s race/ethnicity did not influence whether an officer used force during an encounter (Engel et al., 2000; Lawton, 2007; McCluskey et al., 2005; McCluskey & Terrill, 2005; Morabito & Doerner, 1997; Phillips & Smith, 2000; Sun & Payne, 2004). Importantly, some of these findings were consistent across multiple models; for example, Engel et al. (2000) estimated nine models and race/ethnicity was not statistically significant in any of the analyses. Similarly, Phillips and Smith’s (2000) findings of no race/ethnicity effect were consistent across two models, and Sun and Payne (2004) derived the same finding across three models. Moreover, Terrill (2005) examined behavioral sequences between the suspects and officers in his sample and reported that suspect race/ethnicity did not affect whether an officer skipped levels on the force continuum or increased or decreased the amount of force they used during an encounter.

In spite of the strong evidence suggesting that a suspect’s race/ethnicity does not influence police use of force, some studies have reported contradictory findings. For example, Terrill and Mastrofski (2002) found that non-white citizens were more likely to be subjected to some form of force than their white counterparts (see also Terrill et al., 2003). Moreover, several other studies have found that suspect race/ethnicity produced mixed results, depending on the model that was estimated. Garner et al. (2002) discovered that Black suspects were more likely to have force used against them in situations of compliance, but race/ethnicity was not a factor in encounters involving resistance. Several other studies have also produced mixed results (Kaminski et al., 2004; Paoline & Terrill, 2004, 2007; Schuck, 2004; Terrill et al., 2008). For instance, Terrill and Reisig (2003) initially reported that minority suspects were more likely to have force used against them than white suspects; however, when neighborhood contextual factors were introduced into the model, suspect race/ethnicity no longer retained significance.

**Gender**

The gender of the suspect has also received considerable attention in studies of force and consistently demonstrates that male suspects are more likely to have forced used against them during police-citizen encounters (Garner et al., 2002; McCluskey et al., 2005; McCluskey & Terrill, 2005; Phillips & Smith, 2000; Sun & Payne, 2004; Terrill & Mastrofski, 2002; Terrill & Reisig, 2003; Terrill et al., 2003). Some studies indicated mixed results for gender (Crawford & Burns, 1998; Paoline & Terrill, 2004, 2007; Schuck, 2004; Terrill, 2005). For example, Kaminski et al. (2004) discovered that officers were no more or less likely to use a firm grip on male suspects compared to females; however, officers were more likely to use a higher level of force on male suspects compared to their female counterparts. Finally, a few select studies
reported that suspect gender was not related to use of force (Engel et al., 2000; Lawton, 2000; Morabito & Doerner, 1997).

Age

The third suspect demographic, age, has been inconsistently linked to the use of force. Of those studies that reported a relationship between age and use of force, the majority of empirical evidence suggested that law enforcement officers were less likely to use force on older suspects (McCluskey & Terrill, 2005; McCluskey et al., 2005; Paoline & Terrill, 2007; Phillips & Smith, 2000; Terrill & Mastrofski, 2002; Terrill & Reisig, 2003; Terrill et al., 2003). The evidence is not completely consistent, however, as Paoline and Terrill (2004) reported that male officers were less likely to use verbal and physical force against older citizens, whereas being older only reduced the likelihood of physical force when the encounter involved a female officer. Similarly, Crawford and Burns (1998) found that officers were less likely to use a physical restraint against younger citizens, but were more likely to use some form of nonlethal force (see also Terrill, 2005). They also reported that citizen age did not influence whether an officer issued a verbal command, used chemical spray or a firearm. Similar non-significant findings were presented in other studies (Engel et al., 2000; Garner et al., 2002; Kaminski et al., 2004; Terrill et al., 2008). For example, Sun and Payne (2004) discovered that police in their sample were no more or less likely to respond coercively to older citizens when resolving domestic disputes.

Demeanor

Apart from suspect demographics, suspect demeanor within the context of the police-citizen encounter has also received a considerable amount of research attention. Collectively, the evidence is mixed with some studies reporting disrespectful suspects were more likely to have force used against them, others citing no demeanor effect, and still others reporting inconsistent results within the same study. For example, Engel et al. (2000) reported that disrespectful citizens were more likely to be subjected to force than their respectful counterparts across nine different models. They also examined how demeanor interacted with other factors, but these terms did not achieve statistical significance. Sun and Payne (2004) also reported that officers were more likely to resolve a dispute by responding coercively when the citizen involved was disrespectful (see also Garner et al., 2002 and Kaminski et al., 2004).

Contrary to these findings, other studies have suggested inconsistent results. For example, in one study, poor suspect demeanor did not influence the use of a verbal command or firearm, but angry or aggressive suspects were more likely to have a chemical spray or nonlethal weapon used against them (Crawford & Burns, 1998). Similarly, Terrill (2005) reported a null effect for demeanor in three of the four models he estimated but he found that officers were less likely to jump levels of force (both up and down the continuum) when confronted with a disrespectful suspect (see explanation on p. 132). Finally, a group of studies
reported that suspect demeanor was not related to use of force (McCluskey et al., 2005; McCluskey & Terrill, 2005; Paoline & Terrill, 2004, 2007; Phillips & Smith, 2000; Terrill et al., 2003). For example, Terrill and Mastrofski (2002) reported that suspects who were disrespectful toward the police in language or gesture were no more or less likely to have force used against them than their more polite counterparts.

Studying suspect demeanor has also been criticized due to its operationalization and measurement (Engel, Klahm, & Tillyer, 2010). The most pervasive problem throughout the literature is that demeanor is measured as a number of different behaviors, all of which may not be equivalent but are nonetheless treated as reflecting the same conceptual idea. This might account for the divergent results reported across studies. Aside from this issue, in most instances, suspect demeanor is measured according to a third party assessment (observers) and thus might not truly reflect how the officer involved in the encounter perceived his or her behavior.

Social Class

Social class is a classic consideration for assessments of equal treatment by the police for all citizens. The majority of research examining suspect social class and use of force was inconclusive with some research suggesting that there was no relationship between social class and use of force (McCluskey et al., 2005; Sun & Payne, 2004), and other studies suggesting that an officer’s propensity to use force was influenced by the social class of the citizen involved in the encounter (McCluskey & Terrill, 2005; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002; Terrill et al., 2003; Terrill & Reisig, 2003). Finally, others have reported inconsistent effects for this factor in the same study (see Paoline & Terrill, 2004 and Terrill, 2005). It is important to heed Friedrich’s (1980) caution that it is difficult to disentangle the effects of race/ethnicity and social class. Thus, any findings regarding social class should be considered tenuous at best. Moreover, similar to the issue concerning demeanor, most of these studies used measures of social class that were based on an observer’s perception of the suspect, which may have been influenced by the neighborhood context and incongruent with the officer’s assessment.

Intoxication

Suspect’s use of alcohol and/or drugs (i.e., intoxication) and its relationship with police behavior has a long history of research (Reiss, 1971; Friedrich, 1980). The body of contemporary research offers a somewhat mixed picture of a relationship between intoxication and use of force. Several studies have reported that suspects who were under the influence of drugs or alcohol at the time of their encounter with police were more likely to have force used against them than their sober counterparts (Engel et al., 2000; McCluskey & Terrill, 2005; McCluskey et al., 2005; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002; Terrill et al., 2003; Terrill et al., 2008). Conversely, other studies have suggested a less direct relationship. For
example, Crawford and Burns (1998) reported that suspects under the influence of alcohol were more likely to have a verbal command levied at them, whereas drug intoxication had no effect on this outcome. Similarly, they reported that suspects under the influence of drugs were more likely to experience a nonlethal weapon attack but that police were no more or less likely to use this type of force on suspects under the influence of alcohol (see also Garner et al., 2002; Lawton, 2007; Paoline & Terrill, 2004; and Terrill, 2005). Other studies have reported null findings including Morabito and Doerner (1997) who reported that officers were no more or less likely to use OC spray against intoxicated suspects prior to or after policy changes regarding the deployment of OC spray (see also Phillips & Smith, 2000 and Schuck, 2004).

ENCOUNTER CHARACTERISTICS

Research has also explored the influence of encounter characteristics on the use of force by police. Encounters characteristics reflect factors, not directly linked to the suspect, that vary across police-citizen situations. These factors include the presence of a weapon during the encounter, if the officer proactively initiated the contact, the suspect resisted, if an arrest occurred, the presence of other officers or other citizens, and if there was conflict between the officer and citizen within the encounter. The evidence regarding each of these elements is summarized below.

Weapon

It seems intuitive that suspects possessing a weapon would be more likely to have force used against them due to the inherent danger they might pose to the officer and/or public. Few studies, however, actually assess the impact of this characteristic and the empirical evidence regarding its effect is mixed. A handful of studies have, indeed, found that suspects brandishing a weapon were more likely to have force used against them (McCluskey et al., 2005; Paoline & Terrill, 2007; Sun & Payne, 2004; Terrill & Mastrofski, 2002). Other studies, however, have reported mixed results (e.g., Crawford & Burns, 1998; Kaminski et al., 2004; Morabito & Doerner, 1997; and Terrill et al., 2003). For example, Paoline and Terrill (2004) discovered that female officers were no more or less likely to resort to verbal or physical force when the suspect involved in the encounter was carrying a weapon; however, their male counterparts were more likely to use physical force when a suspect was wielding a weapon, but no more or less likely to use verbal force. Lastly, contrary to expectation, a single study found that possessing a weapon did not influence an officer’s likelihood of using force (McCluskey & Terrill, 2005).
Proactive Contact

Very few studies prior to the mid-1990s examined the effect that an officer initiating contact had on the likelihood of using force (Riksheim & Chermak, 1993; Sherman, 1980). Since then, several studies have included such a measure and the empirical evidence is mixed. Several studies found that when police proactively initiate an encounter they were more likely to apply force (McCloskey & Terrill, 2005; McCluskey et al., 2005; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002), whereas others reported inconsistent effects across models. For example, Garner et al. (2002) discovered that proactively entering an encounter was not related to force when the suspect was compliant, but was predictive of force when the citizen resisted (see also, Paoline & Terrill, 2004; Terrill, 2005; and Terrill et al., 2003). Most recently, Terrill et al. (2008) reported that their findings were dependent upon the analytical technique they used. The results of an ordinal regression model indicated that officers were less likely to use force during a proactive encounter; however, a logistic regression model produced no statistically significant effects. Finally, Engel et al. (2000) reported no relationship between proactively engaging a citizen in an encounter and use of force.

Resistance

Terrill and Mastrofski (2002) and Garner et al. (2002) drew attention to the fact that police-citizen encounters are dynamic in nature. As such, they emphasized the importance of capturing suspect behaviors occurring during police encounters that might precipitate the use of force. Failure of early studies to capture the dynamic nature of these encounters constrained our understanding regarding how certain factors are related to police use of force (Terrill & Mastrofski, 2002). Prior to opining this sentiment, a single study (see Crawford & Burns, 1998; reported mixed results) reviewed here included a measure attempting to account for the dynamic nature of these events, but since then several studies have by including measures of suspect resistance. The empirical evidence suggests that resistant suspects were more likely to experience a forceful outcome compared to their compliant counterparts (McCloskey & Terrill, 2005; McCluskey et al., 2005; Paoline & Terrill, 2004, 2007; Schuck, 2004; Terrill et al., 2003; Terrill et al., 2008). For example, Terrill and Mastrofski (2002) reported suspects who demonstrated passive, verbal, defensive, or active resistance were more likely to have force used against them. The lone exception to this general finding is Lawton (2007) who reported no effect for this factor.

Arrest

The arrest of a suspect was not considered in early assessments of use of force (Riksheim & Chermak, 1993; Sherman, 1980), but more contemporary studies have employed a measure
of arrest to determine if this factor influences the likelihood of an officer using force. The empirical evidence is fairly consistent, suggesting that officers were, in fact, more likely to employ force when an arrest was made (McCluskey & Terrill, 2005; McCluskey et al., 2005; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002; Terrill et al., 2003). Paoline and Terrill (2004) specified this relationship by reporting that both male and female officers were more likely to use physical force when they arrested the suspect involved in the encounter; however, male officers were less likely to employ verbal force when an arrest was initiated, whereas the likelihood of a female officer using verbal force was not influenced.

Importantly, one significant limitation of these studies is the inability to determine whether force was used before an arrest was initiated; thus, the temporal ordering component of scientific research is not achieved. Moreover, some organizational policy dictates the use of handcuffing once a suspect is arrested thus eliminating discretion and requiring officers to use that level of force (see Terrill et al., 2003 footnote on page 1022). Finally, arrest is also associated with other officer behaviors captured on the use of force continuum. For example, verbal commands and pat-downs are actions officers engage in when affecting an arrest.

**Presence of Other Officers/Citizens**

Between 1980 and 1993, only one study examined the impact of other officers on the use of force (Riksheim & Chermak, 1993). More recently, scholars have become increasingly interested in how this factor might influence use of force situations. The empirical evidence, to date, is mixed, as some studies found that force was more likely to occur as the number of officers involved increases (Garner et al., 2002; Paoline & Terrill, 2007; and Terrill & Mastrofski, 2002), others reported that force is negatively related to the presence of officers (Lawton, 2007), and some suggested that there is no relationship (Engel et al., 2000; McCluskey, et al., 2005).

Other studies have produced mixed results for the effect of this factor. For example, Terrill et al. (2003) reported that the location of the encounter was influential, a positive relationship in one location, but a null relationship in another jurisdiction. Paoline and Terrill (2004) reported that the relationship depended on the operationalization of force as presence of officers was positively related to physical force, but not to verbal force. Finally, Phillips and Smith (2000) discovered a negative relationship only when more than three officers were present (see also Terrill, 2005).

The presence of other citizens has also only recently become a focus of research, as only two studies had considered this factor on police officer decision-making prior to 1993 (Riksheim & Chermak, 1993). The recent evidence is rather consistent suggesting that the number of bystanders has no influence on an officer’s likelihood of using force (McCluskey et al., 2005; Paoline & Terrill, 2004, 2007; Schuck, 2004; Terrill, 2005; Terrill & Mastrofski, 2002; Terrill et al., 2003; Terrill et al., 2008). Engel et al. (2000), however, reported conflicting results, suggesting that the police were more likely to use force against a suspect as the number of bystanders increased. Finally, Crawford and Burns (1998) found that bystanders increased
the likelihood of using physical restraints but had no influence on the use of chemical agents, nonlethal weapons, or firearms (see also Garner et al., 2002 and Phillips & Smith, 2000).

Conflict

Conflict within the encounter is also a relatively new characteristic included in assessments of force, as none of the studies reviewed by Sherman (1980) or Riksheim and Chermak (1993) considered this factor. The collective empirical evidence unsurprisingly suggests that officers were more likely to use force against a suspect if he/she was engaged in a conflict with another citizen at the time of the encounter (McCluskey & Terrill, 2005; McCluskey et al., 2005; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002). Other studies produced mixed results; for example, Terrill et al. (2003) concluded that this factor varied by jurisdiction, and Paoline and Terrill (2004) reported its effect varied by the operationalization of force (i.e., verbal vs. physical). Finally, Engel et al. (2000) reported that conflicts between citizens did not influence an officer’s likelihood of using force.

OFFICER CHARACTERISTICS

Officer characteristics reflect the intrinsic uniqueness of the officer involved in the encounter. Previous summaries considered race/ethnicity, gender, age, length of experience, and education of officers (Riksheim & Chermak, 1993; Sherman, 1980). Only a handful of early studies examined these factors, but by the time Riksheim and Chermak (1993) conducted their summary, over twenty independent findings were reported for officer characteristics. More recently, officer characteristics have received considerable attention in use of force research.

Race/Ethnicity

Early studies reported that officer race/ethnicity was not related to the likelihood or appropriateness of police use of force in general, or the use of deadly force, specifically (Friedrich, 1980; Geller & Karales, 1981). More recently, this finding has been confirmed by a series of research studies (Lawton, 2007; McElvain & Kposowa, 2004; McCluskey et al., 2005; McCluskey & Terrill, 2005; Morabito & Doerner, 1997; Paoline & Terrill, 2004, 2007; Terrill & Mastrofski, 2002). For example, Crawford and Burns (1998) reported that officer race/ethnicity did not influence the likelihood of an officer using a verbal command, physical restraint, chemical spray, non-lethal weapon, or firearm.

While the majority of research indicates no consistent relationship between officer race/ethnicity and use of force, a few recent studies have produced divergent results suggesting Black and White officers differed in their use of force practices. For example, one of Sun and
Payne’s (2004) models found that Black officers were more likely than White officers to respond coercively when asked to resolve interpersonal conflicts between citizens. Interestingly, officer race/ethnicity was no longer statistically significant once interaction terms and neighborhood level characteristics were introduced into the model. Similarly, Garner et al. (2002) reported mixed results, as they discovered that Hispanic officers were more likely than White officers to use force, while Black officers and those classified as “Other” were no more or less likely to use force compared to their White counterparts. These relationships, however, only pertained to the prevalence of force. When severity of force was their outcome measure, officer race/ethnicity was not a significant predictor. Thus, officer race/ethnicity appears to have no consistent effect on use of force by police.

**Gender**

Similarly, most studies indicate officer gender is not related to use of force by police. Arguably the most thorough analysis of gender differences and use of force involved six different models and two different analytic techniques (Paoline & Terrill, 2004). Results indicated only one significant difference between male and female officers in their sample; male officers were more likely to use higher levels of force against male suspects whereas suspect gender was unrelated to the level of force female officers used. No other statistically significant gender differences were reported in the likelihood or type of force used despite the fact that male and female officers were influenced by other factors differentially. McCluskey and Terrill (2005) found that after controlling for the number and type of complaints filed against officers, officer gender was not related to use of force in their sample. These findings have been supported by several other studies (Crawford & Burns, 1998; Kaminski et al., 2004; Lawton, 2007; McCluskey et al., 2005; Paoline & Terrill, 2007; Phillips & Smith, 2000; Sun and Payne, 2004; Terrill & Mastrofski, 2002; Terrill et al., 2008).

Despite the fact that most studies find no significant difference in how often or the type of force employed by male and female officers, some have produced results suggesting gender differences in the amount of force male and female officers used or the likelihood that they resorted to force. For example, Garner et al. (2002) found that male officers were more likely to use force and employ more severe types of force than female officers. Similarly, McElvain and Kposowa (2004) found that male officers were more likely to be investigated by internal affairs for incidents involving higher levels of force than female officers. Finally, Kop and Euwema (2001) found that male officers were more likely to resort to force than female officers in their sample; however, they found no gender differences in officer attitudes toward use of force (see also Morabito & Doerner, 1997). Thus, while not consistent in every study, the overwhelming amount of evidence suggests that officer gender is not related to use of force.
Age

Officer age has surprisingly received relatively little attention in empirical studies. One possible explanation is that officer age and years of experience are highly correlated with one another thus requiring only one of the two measures to be included in the analysis. Exceptions to this pattern include Crawford and Burns’ (1998) finding that officer age was unrelated to an officer’s propensity to use any of type of force analyzed. Conversely, Garner et al. (2002) reported that older officers were less likely to use force and, when they did, they used less severe types of force compared to younger officers. Moreover, McElvain and Kposowa (2004) reported that older officers were less likely to have been investigated by internal affairs for use of force incidents compared to younger officers. The cumulative evidence regarding the relationship between officer age and use of force is inconclusive, as too few studies have considered this factor in their analysis.

Experience

Officer’s level of experience has received a considerable amount of research attention with mixed results. Evidence has accumulated suggesting a negative relationship between officer experience and use of force: officers with more experience were less likely to use less force (Paoline & Terrill, 2007; Terrill & Mastrofski, 2002). Kop and Euwema (2001) also discovered that officers with more experience held less favorable attitudes toward the use of force relative to their counterparts with fewer years of service and were less likely to use force. Likewise, McElvain and Kposowa (2004) found that officers with more years of experience were less likely to have been investigated by internal affairs for a use of force incident.

Conversely, several other studies reported that officer experience had no influence on use of force decisions. For example, Sun and Payne (2004) found that officers with more years of experience were no more or less likely to use force than those with fewer years of service. This finding was also reported in several other studies (Lawton, 2007; McCluskey et al., 2005; McCluskey & Terrill, 2005; Terrill et al., 2008).

Finally, further complicating matters, officer experience also produced mixed results in the same study depending on how use of force was operationalized. For example, Crawford and Burns (1998) found that officers with more years of experience were less likely to use a restraining hold and a firearm than officers with fewer years of experience, but were no more or less likely to use a verbal command, chemical spray, or nonlethal weapon. Other studies found that officer experience produced mixed results as well (Kaminski et al., 2004; Morabito & Doerner, 1997; Paoline & Terrill, 2004). The relationship between use of force and officer experience is unclear and often contingent on the data examined and the operationalization of the dependent variable.
Education

One of the recommendations offered by the President’s Commission on Law Enforcement and Administration of Justice was that police agencies seek to hire college-educated personnel. Seemingly, those achieving a higher level of educational attainment possess better decision-making skills and will make better police officers (Worden, 1990). This assumption has received relatively little attention and the empirical evidence produced by the few studies that have examined this factor was mixed. A single study reported here found that an officer’s level of education did not influence the likelihood that he or she used force (Sun & Payne, 2004), while others have found a negative relationship between force and an officer’s level of education (Terrill & Mastrofski, 2002). For example, Paoline and Terrill (2007) reported that officers with a college degree were less likely to use verbal and physical force compared to their colleagues with only a high school degree. Similarly, officers with some college were less likely to engage in verbal force compared to their less educated counterparts but no more or less likely to use physical force. Other studies have reported mixed results including Morabito and Doerner (1997) who reported that officers with a Bachelor’s degree were no more or less likely to use OC spray prior to policy changes but were more likely to deploy this form of nonlethal force after departmental policy changes. Similar mixed results pertaining to the effects of officer education on the likelihood of using force were reported by Paoline and Terrill (2004).

DISCUSSION

Based on the empirical evidence to date, it appears that few suspect and encounter characteristics are highly influential in determining use of force by police. For example, male suspects, those who were intoxicated, offered resistance, or arrested during their encounter with police were much more likely to experience police force. A word of caution is warranted, as the overall consistency of these factors should be tempered with the caveat that several studies also reported mixed findings or no relationship for these factors as well. Despite this, the general trend for these factors suggests force is more likely occur when these characteristics are present. The overwhelming majority of variables used throughout the literature seem to have a mixed relationship (i.e., suspect race/ethnicity, suspect gender, suspect age, weapon, etc.) or appear to be poor predictors (i.e., other citizens present, officer race, officer gender, etc.) of use of force by police. Explaining the relative inconsistency of variables across studies is not an easy task, but a necessary one if the field of police studies wishes to further its understanding of the nature and extent of this phenomenon. We offer some plausible explanations that might put the inconsistent findings reported here in context.

First, while this body of research has improved the state of knowledge regarding correlates of force, as with all knowledge regarding police behavior, methodological issues continue to be relevant. Despite the continuity in definition offered by Garner et al. (1995), there is an on-going, pervasive problem with scholars failing to provide a consistent
operationalization and measurement of force throughout the literature. This deficiency leads to an assortment of police behaviors (e.g., verbal, physical, violent, and nonviolent ones) being measured as force and might account for why there is little consistency in terms of the reported effects of exogenous variables across studies. Further, this inconsistency raises concerns about how research findings should be interpreted. For example, it is unclear whether extant findings are related to nonviolent, violent, or both types of force. As a result, not only are research results inconsistent across studies, but also there is no way to ensure the results are explaining the same phenomenon.

Even among those studies that provided definitions of force, the degree of specificity varies considerably. For example, Terrill and Reisig (2003: 299) defined force as “… acts that threaten or inflict physical harm on suspects”, whereas Williams and Westall (2003: 471) defined it as “any act or behavior that compelled a person into submission”. Unlike Terrill and Reisig’s (2003) definition, Williams and Westall’s does not clearly convey the types of police officer behavior that constitute force and leaves the meaning of “submission” ambiguous. Such inconsistencies might account for disparate findings across studies. Future research needs to address the operationalization of force in an effort to generate consensus throughout the literature.

A second concern centers on possible omitted variable biases. The failure to consistently include a measure of crime seriousness might account for some of the disparate findings reported here. Notwithstanding a few inquiries (Alpert et al., 2004; Engel et al., 2000; Lawton, 2007), use of force studies have generally been silent on the importance of this factor. Considering this is one of the most robust predictors of criminal justice decision-making (Gottfredson & Gottfredson, 1988) and studies have consistently shown that those who commit more serious offenses are more likely to be arrested (Brown & Frank, 2006; Novak & Engel, 2005), charged (Meithe, 1987), receive longer sentences (Koons-Witt, 2002; Steffensmeier, Ulmer, & Kramer, 1998), and victims and witnesses to crimes are more likely to notify the police when they perceive a serious crime has been committed (Felson, Messner, & Hoskin, 1999), it is crucial to further explore the importance of this factor in force encounters. Similarly, only one study reviewed here made an attempt to determine whether the officer involved in the encounter had specific preexisting knowledge regarding the suspect that might heighten his/her sense of urgency and result in a greater likelihood of resorting to force. Garner et al. (2002) included measures that tapped into whether the suspect was known to be violent, possess a weapon, and a member of a gang. Given the relative consistency of prior criminal record in other areas of criminal justice research, it seems logical for scholars focusing on police use of force to make an attempt to include such measures in the future.

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5The findings from this study were not reported here, as multivariate analysis was not conducted. However, their operationalization of force exemplifies the concern being articulated. Of the 41 studies conducted between 1995 and 2008 that were located as a part of this research only twelve provided a proper operational definition of force. The remaining studies merely identified behaviors captured in their measure or failed to address operationalization all together.
The third concern deals with recent analytic improvements (i.e., hierarchical modeling) that may require a re-assessment of findings generated using traditional unilevel, multivariate models. Assessing police-citizen encounters by considering suspect, encounter, and officer factors requires consideration of the inherent nested nature of the data. Specifically, data collected on police-citizen encounters correspond to multiple levels of aggregation: suspect and encounter level factors correspond to one level of aggregation (level-1), while officer characteristics correspond to a higher level of aggregation (level-2). This logic also applies to higher other factors such as neighborhood or organizational factors (level-3). Ideally, suspect and encounter characteristics should be modeled at a different level of aggregation from officer characteristics in order to assess their independent impact on outcomes (i.e., use of force) (Terrill & Mastrofski, 2002).

Failing to acknowledge this issue violates the assumption that each outcome is independently influenced by the predictors in the model (Hanushek & Jackson, 1977). This likely leads to error terms at level-1 being correlated across officers at level-2 and may lead to invalid parameter estimates (Luke, 2004). Moreover, multicollinearity between level-1 and level-2 units and a biased F-test may result from a failure to properly model nested data (Wooldredge, Griffin, & Pratt, 2001). Studies that do not acknowledge the hierarchical nature of the police-citizen encounters might report biased estimates regarding the correlates of police use of force (as well as other decisions) and report statistical artifacts rather than actual statistical relationships.

To date, the accepted method of studying use of force has been to analyze data using pooled variance analytical techniques for categorical and limited dependent variables (i.e., ordered probit and multinomial logit models). The only exceptions to date are Lawton (2007), McCluskey and Terrill (2005), and Terrill and Reisig (2003), who used hierarchical linear modeling (HLM or HGLM) techniques to estimate the effects of the endogenous variables on police use of force. Two of these studies, however, modeled encounter level factors at level-1 and community/contextual level factors at level-2 (i.e., violent crime rate, heterogeneity measures, concentrated disadvantage, homicide rate, etc.), thus failing to address the nested nature of the data (i.e., suspect and encounter factors nested within officers). In an attempt to overcome this issue, McCluskey and Terrill (2005) modeled encounter level factors at level-1 and officer characteristics at level-2 to assess the independent effects of the variables operating at the different levels while controlling for the potential correlated error. Future research should follow their lead and explore the use of HGLM if the discipline of police studies wishes to broaden its understanding of policing outcomes in general, and use of force, specifically.

In addition to methodological issues, a consistent, yet underdeveloped, theme in policing research is the impact of organizational and contextual characteristics on encounter outcomes. While scholars have been attracted to these factors for some time, few include meaningful measures in their analysis. Sherman (1980) defined contextual characteristics as attributes of the community that influence how police carry out their role. His review identified several community level factors that might affect police officer decision-making, such as the area’s political climate, economic status, and basic demographic characteristics. However, he
discovered that few of these measures were employed in use of force studies. By the time Riksheim and Chermak (1993) replicated his review, scholars had increasingly estimated the effects of community level factors in use of force research, but still only a total of fourteen findings were reported. Aside from studies that merely included a jurisdictional measure, community level factors were incorporated in only four studies, accounting for nine different findings (see Lawton, 2007; McCluskey et al., 2005; Sun & Payne, 2004; and Terrill & Reisig, 2003).

Similarly, organizational factors have long been discussed by scholars sanctimoniously, but not given their due attention. Organizational characteristics are factors intrinsic to the agency, not the individual, but may influence officer decision-making. Sherman’s (1980) review found a total of five findings reported in police use of literature prior to 1980 and, by 1993, the number of findings reported throughout the literature had increased to thirteen (Riksheim & Chermak, 1993). Organizational characteristics have received scant attention in the more recent use of force research, as only two studies reported here included true measures of such factors (Alpert & MacDonald, 2001; Terrill et al., 2003). Several studies compared results across departments or jurisdictions, but without providing measures that tap organizational differences, the findings are difficult to interpret (Sherman, 1980). That is, merely identifying that outcomes vary across agencies does not speak to any of the characteristics of those agencies, which might explain why outcomes vary.

As advancements in analytical techniques continue to allow for more sophisticated modeling of data, it would be expected that contextual and organizational factors experience a “rebirth” throughout the literature. Considering we can assess the independent influences of characteristics operating at different levels (i.e., encounter, officer, organizational, and neighborhood context), this seems like an intuitive avenue for future research. These new and improved methods might allow for the testing of complex theoretical frameworks such as Klinger’s (1997) ecological perspective, which suggests police behavior is based on a constellation of factors ranging from encounter characteristics and personal experiences to community and work contexts.

**IMPORTANCE OF UNDERSTANDING POLICE USE OF FORCE**

Understanding the nature and extent of use of force by police is extremely important for a variety of reasons. The phrase ‘police use of force’ has a negative connotation that implies cruel, harsh, or brutal treatment, and there is evidence suggesting that these incidents erode community attitudes toward and trust in police (Thompson & Lee, 2004). Thus, use of force incidents often serve to exacerbate the historically contentious relations between the police and certain segments of society. In particular, African American communities have a long-standing tense relationship with the police and some suggest that Hispanic communities are also at odds with police (Huang & Vaughn, 1996; Walker, 1997).
In addition to the deleterious effects on police-community relations, police use of force incidents can be very costly for police organizations in terms of civil litigation payouts and subsequent resource expenditures. The very nature of their work makes police organizations susceptible to civil suits, especially claims of excessive use of force (Barrineau, 1994). Although estimating the total amount of money paid out annually for use of force claims is a difficult endeavor due to a lack of reliable data (del Carmen, 1993), a substantial number of law suits are filed against police each year claiming excessive use of force (Skolnick & Fyfe, 1993). Of equal concern is recent evidence suggesting that the number of suits filed against police organizations has been increasing since the 1980’s (see Kappeler & Kappeler, 1992 and Kappeler, Kappeler, & del Carmen, 1993).

Finally, organizational policy, in theory, should be predicated on empirical research. As such, it is imperative that we fully understand the nature and extent of police use of force as well as the factors related to its use. Only then can training protocols be tailored to its appropriate use and policy formulated to instruct officers when they can and should use force.
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BIOGRAPHICAL SKETCHES

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