# Understanding police use of force
## Rethinking the link between conceptualization and measurement

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## Abstract

**Purpose** – The study of police use of force remains a primary concern of policing scholars; however, over the course of the last several decades, the focus has shifted from deadly and excessive force to a broader range of police behaviors that are coercive in nature, but not necessarily lethal, violent, or physical. The purpose of this paper is to highlight the critical disjuncture between the conceptualization of police use of force and operationalizations of the construct throughout policing literature.

**Design/methodology/approach** – The current study provides a thorough, systematic review of 53 police use of force studies published in peer-reviewed outlets. These manuscripts were reviewed to determine whether authors cited a conceptualization of use of force and explained how the construct was operationalized, as well as the police behaviors captured in measures of force across studies, and how the data were collected.

**Findings** – The findings suggest that police use of force is conceptually ambiguous, as 72 percent of the studies failed to cite a conceptual definition of the construct. Moreover, there is little consistency in the types of police behaviors operationalized as force across studies.

**Originality/value** – The authors illustrate that problems associated with poorly conceptualized constructs make it more difficult for researchers to interpret empirical findings. That is, conceptual ambiguity has resulted in a line of literature that includes inconsistent and contradictory findings, making it difficult to summarize in a meaningful way and inform policy.

**Keywords** Methodology, Use of force

**Paper type** Conceptual paper

Bittner's (1970) iconic sketch of the police role defines police work as the business of controlling people. Coercive force is the primary tool of the trade, or the means by which police resolve an endless variety of social problems. Coercive force obviously includes acts of physical violence – kicks, punches, and the use of weapons; but also an assortment of verbal commands, threats, and other nonviolent behaviors meant to effectively respond whenever "something ought not to be happening and about which something ought to be done about right now" (p. 249). Bittner's (1970) conceptualization is also evident in the work of other police scholars who recognize the explicit or implicit presence of coercive force in almost every police action: traffic control gestures; the cajoling of recalcitrant teenagers and skid row bums; verbal threats; escorts and leverage techniques used to complete an arrest (Muir, 1977; Rubinstein, 1973; Sykes and Brent, 1980). These and other behaviors form a continuum that ranges from

nonviolent acts of coercion to those that are more readily identified as violent acts of force. Taken as a whole, the continuum provides a broad conceptualization of coercive behavior that captures the myriad ways in which police accomplish their goals and gain compliance from citizens.

Theories of police are contingent on an understanding of police coercion and use of force. Historically researchers have lamented the lack of available data to fully explore police use of force. Police agencies have been reluctant to disclose information, especially when the data include descriptions of violent acts committed by police. At the same time, data that describe behaviors that occur on the other end of the continuum-verbal commands, threats, and other nonviolent acts – are not typically collected on official records. Still, scholars have been able to obtain enough data, to construct a substantial body of research on the topic. Our review of the literature, for example, identified 53 peer-reviewed studies on police use of coercive force published between 1996 and 2011. The number of scholarly articles published suggests that the source of complications in this line of research are likely due to problems that go well beyond an absence of data.

The purpose of this study is to highlight the most profound issues facing this expanding body of work and to propose possible advancements that will improve the value of this research to both academics and policy makers. The note examines what we define as a critical disjuncture between the conceptualization of police use of force and operationalizations of the construct. We begin with a historical perspective on the conceptualization of use of force in policing research. Next, we detail the limitations that flow from a failure to fully explicate the police use of force construct and how the disjuncture between concepts and measures unfolded over time. Then, we summarize policing literature as it relates to conceptualizations and operationalizations of police use of force. Finally, we suggest that improving the linkage of concepts and measures would provide more valid estimates on how often police use coercive force in their interactions with citizens, accurate conclusions about the correlates of both violent and nonviolent police responses, and benefit police executives by enhancing the development of use of force policies and training protocols that are based on accurate correlates of force.

**The etiology and evolution of conceptualizing police use of force in research**
Research on police use of force began during the 1950s and focussed on acts of physical force that were violent, excessive, and/or deadly. Westley (1953, p. 37), for example, identified "the club" and "the gun" as primary tools of police violence, and he provided quotes from police officers to demonstrate exactly how they used violence to control citizens: "Now in my own case when I catch a guy like that I just pick him up and take him to the woods and beat him until he can't crawl." Reiss' (1968, p. 12) classic observational study identified encounters in which police, "struck the citizen with his hands, fist, feet, or body, or where he used a weapon of some kind–such as a nightstick or pistol." Wilson (1968, pp. 165, 167-171) articulated how the use of force helped to define unique police styles, and he described how the "occasional eruption of violence," including physical beatings, contributed to racial tensions in some communities. Chevigny (1969) incorporated excerpts from witness accounts of street-level confrontations in New York City in which police hit, whipped, and dragged citizens. These studies are considered among the classics of police scholarship, in part because of their comprehensive quality and breadth of topics covered; but, for our purposes what is perhaps most striking is the similar manner in which these scholars

conceptualized police use of force in terms of physical violence–punches, kicks, and the use of weapons.

Police use of force research experienced significant advancements in 1990s. These advancements were marked by contributions to the literature by Garner *et al.* (1995), among others. Garner and colleagues can be credited with at least two significant contributions to this area of study. To begin, they proposed a formal conceptual definition of police use of force:

> The National Academy of Sciences recently defined violence as "behaviors by individuals that intentionally threaten, attempt or inflict physical harm on others." There is no similarly explicit definition of the meaning of "force" in the police literature, but the academy's definition of violence, which incorporates threats, attempts, and actual physical force, does a good job of capturing what the research literature on police use of force typically means by "force" (p. 152).

Citing a conceptual definition filled a major gap in the literature and provided scholars with a benchmark for measuring police behaviors that are forceful in nature.

Garner *et al.* (1995) also offered a new approach to measurement that expanded traditional measures of police use of force to include nonviolent behaviors. The new approach involved coding schemes that embodied the use of force continuums that had become part of the official policies and training of most large police agencies (Connor, 1991). The use of force continuums adopted by police agencies incorporated categories of police responses that progressively intensified to match corresponding increases in the level of suspect resistance. Garner *et al.*'s (1995, p. 154) operationalization included five response codes that captured the essence of these official continuums: voice including verbal threats and shouts/curses, motion including foot, bike, and vehicle pursuits, restraints including handcuffing, tactics including holds, strikes, punches, kicks, and weapons including batons, chemical agents, handguns, rifles, and other instruments of force. This approach improved upon previous methodologies because the scheme included a more complete range of police responses and recognized the progression from nonviolent acts of coercion to violent acts of force.

Findings from studies that incorporated Garner *et al.*'s (1995) conceptual definition and measurement scheme began to appear during the early 2000s (see e.g. Terrill and Mastrofski, 2002). These studies appear to be a response to Garner *et al.*'s (1995) plea for scholarly innovation and creativity, and many of the studies heeded the call to clearly define force as well as operationalize the construct to incorporate police behaviors that were nonviolent and nonphysical (see Appendix).

### Limitations

While the pioneering scholars studying police use of force made significant contributions to the field, their efforts fell short in at least one regard. They failed to explicitly conceptualize what was meant by force, and their descriptions of forceful encounters led to a narrowly focussed measure throughout the literature (i.e. instances in which police acted violently). Bittner (1970, p. 38) commented on this issue four decades ago when he opined, "Our expectation that policemen will use force, coupled by our refusals to state clearly what we mean by it (aside from sanctimonious homilies), smacks of more than a bit of perversity." In essence, he acknowledged that the concept of police use of force was devoid of any conceptual meaning.

The fact that police use of force research initially focussed on violent physical behaviors is not surprising given the historical context (i.e. Civil Rights era, Vietnam

War protests) surrounding the evolution of this body of literature. As a result of pioneering scholars focussing their research almost exclusively on deadly, excessive use of, or use of excessive police force (see Adams, 1999 for distinction), use of force became implicitly defined as police actions that are violent in nature, often resulting in physical harm to its recipients (Garner *et al.*, 1995).

This narrow focus on violent police behavior failed to consider other more common, nonviolent forms of police coercion and how police use a broad continuum of responses to gain compliance from citizens. Bittner (1970, p. 44) suggested that the police response follows a broad continuum of coercive behavior that "lends homogeneity to such diverse procedures as catching a criminal, driving the mayor to the airport, evicting a drunken person from a bar, directing traffic, crowd control" […]. Police do not usually resort to acts of physical violence in these situations; instead they employ remedies that are indeed "non-negotiably coercible," but also plainly nonviolent, including verbal commands, threats, and other forms of intimidation (Bittner, 1970. pp. 44-45).

Several other scholars collectively demonstrated how research had oversimplified the broad continuum of coercive behaviors used by police. Toch's (1969, pp. 35-38) research, for example, described the anatomy of violent police-citizen contacts, and portrayed these encounters as a "sequence of moves" or behaviors between police and suspects that sometimes "degenerate" from acts that are nonviolent to those that are violent. Reiss (1980, p. 12) criticized research that focussed exclusively on deadly force on the grounds that the measure ignored "all decisions where force gave way to alternative ways of coping with situations." Adams (1995, p. 65) outlined problems in the identification of excessive force and suggested that researchers "relinquish exclusive concern with situations in which police use too much force and broaden our view to include circumstances in which force is applied frequently."

The efforts of Garner *et al.* (1995) represented an important step toward both conceptually defining the construct and identifying police behaviors that capture the full range of coercive outcomes. Their contributions marked a significant advancement in police use of force literature. First, they explained that existing studies had narrowed the range of possible police responses to "simple dichotomies: lethal force vs. non-lethal force, physical force vs. nonphysical force, and excessive force vs. non-excessive force" (p. 146). The various critiques are semantically distinct, but related in substance; all of them outline problems that refer to the collective failure of scholars to capture in their operationalizations the broad and sequential application of coercive force as it occurs on the street. As such, Garner *et al.* (1995) highlighted the complexity of this social phenomenon and acted as a catalyst for moving the field beyond simple, dichotomous measures.

Second, they proposed a conceptual definition of police use of force to guide future research examining this phenomenon. Despite these advancements, Garner *et al.* (1995) contributions also created a conundrum for policing scholars. Their claim that the NAS' definition of violence is synonymous with what is usually meant by police use of force was correct based on a historical perspective, as outlined above. However, several of the categories captured in their operationalization of police use of force were not consistent with their conceptual definition of the construct (e.g. police presence, verbal commands, and control and restraint techniques). Although conceptual clarity might have been addressed by Garner and colleagues, the discrepancy between their conceptualization and operationalization of police use of force led to confusion.

As an example, Terrill and Mastrofski (2002, p. 228) conceptually defined force as, "acts that threaten or inflict physical harm on citizens," yet measured police behaviors that were inconsistent with their conceptual definition. Case in point, they operationalized verbal commands as force, and claimed, "Wait right here" and "Leave that now" reflect police behaviors that threaten or inflict physical harm on citizens (p. 230). Clearly, these verbal commands do not threaten or inflict physical harm upon suspects, and this exemplifies the issue addressed here. The disjuncture between conceptual definitions and operationalizations like this has blurred the meaning of findings in regard to the correlates of police use of force.

## Methods
A comprehensive and scientific methodology was instituted to identify relevant studies attempting to explain police use of force. 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 (CJPI). In total, 53 peer-reviewed articles published between January 1, 1996[1] and December 31, 2011 were reviewed to determine if they merited inclusion in the literature analysis[2]. These manuscripts were reviewed to determine whether authors cited a conceptualization of use of force and explained how the construct was operationalized, as well as the police behaviors captured in measures of force across studies, and how the data were collected.

### Findings
Table AI lists the conceptualizations and operationalizations of force provided in each of the 53 studies considered in this review. Table AII displays the police behaviors captured in measures of force and documents how the data were collected across studies. After examining the tables, it is obvious that several distinct, yet related issues are associated with this line of research.

To begin, police use of force appears to remain a conceptually ambiguous construct, as less than one-third (28 percent) of the studies cite a conceptual definition of police use of force. Furthermore, the degree of specificity, as it relates to conceptualizations of force, varies considerably across studies. For example, Terrill *et al.*'s (2003, p. 1019) conceptualization of coercion (see Table AI) clearly indicates the types of behaviors that should be included in their operationalization of the construct. The conceptualization of force provided by Williams and Westall (2003, p. 471) is much less specific, and does not clearly convey the types of police behavior that constitute force, leaving the reader to infer what actions compel one into "submission."

The remaining studies in Table AI (72 percent) fail to provide a meaningful conceptual definition that guided the operationalization of force. These studies merely identify behaviors that were measured as force, while failing to define the construct in a meaningful manner that illustrates what actions should or actually constitute force within their study. In some instances, scholars allow the availability of data to determine their definition of force. Bazley *et al.* (2007, p. 186) noted, "For the purposes of this study, use of force was defined by the conduct that was reportable on this form." Herein lies part of the problem; data availability should not influence conceptualizations of a construct. Conceptually speaking, force is what it "is" and measurable behaviors either constitute force or not. The meaning of force should be consistent across studies even though the behaviors measured as such might vary based on the availability of data.

Second, and relatedly, Table AII illustrates that there is little consistency in the types of police behaviors operationalized as force across studies. This is partially a product of how the data were collected across studies, but even within categories of data collection methodology there is variability in the behaviors measured as force. The most commonly analyzed data were collected from official police records (41.5 percent). Comparatively, 26.4 percent of studies analyzed data collected from a systematic social observation (SSO) methodology, while 24.5 percent analyzed survey data[3]. The remaining 11.3 percent of studies analyzed other[4] types of data (see Table AII)[5]. It is generally thought that studies using a SSO data collection strategy are able to provide more nuanced measures of force, particularly with regard to accounting for low-level forms of coercion, compared to other methods. However, Table AII indicates some studies using official police data include commands, threats, and handcuffing in their measure of force. So, while a SSO methodology might furnish more opportunities to collect and analyze data on lower-level forms of coercion, it is not the only data collection strategy that can produce information on these behaviors.

Table AII also illustrates that 56.6 percent of the studies made it difficult to interpret what behaviors were measured as force. As an example, Lumb and Friday (1997) measured "physical" force, which could mean a great many behaviors. Does this mean any physical contact between officers and suspects or instances in which the officer struck the suspect with a body part or extension thereof? Similarly, Gallo *et al.* (2008) measured "restraints" as force; however, it is unclear what is meant by restraints. Did they measure handcuffing, wristlocks, or other forms of restraints? Failing to clearly identify what behaviors were measured makes it difficult to compare results across studies and know exactly what behaviors are being "predicted."

Based on the information presented in Table AII, there also appears to be a lack of standardization regarding the behaviors that are measured as force across studies. For example, handcuffing was operationalized as force in 32 percent studies, but in 68 percent[6] this practice was not measured as force. And, while we certainly acknowledge that data availability influences whether a behavior is measured as force, the fact that some studies explicitly exclude handcuffing from their measure lends support to our concerns (Engel *et al.*, 2000; Phillips *et al.*, 2002; Williams and Hester, 2003). Similarly, verbal commands/threats were captured in 39.6 percent of studies, but not in 60.4 percent, some of which specifically exclude such police actions. With this in mind, it is not difficult to understand how estimates of police use of force might vary considerably across studies.

It should also be noted that researchers have used police use of force as an explanatory variable. Mastrofski *et al.* (1996, p. 285), for example, measured "searches, physical force, [and] brandishing a weapon" as force, but included a separate measure to capture officer commands/threats. Similarly, Piquero and Bouffard (2003) used two measures to differentiate verbal and physical police actions, suggesting that verbal forms of coercion are distinct from physical force. Reisig *et al.* (2004) measure of force, on the other hand, included commands/threats, suggesting there is no distinction between verbal and physical forms of force. Thus, whether used as an independent or dependent variable, there seems to be a lack of consistency in terms of what police behaviors are considered force.

The final point we would like to address is perhaps the most problematic and centers on studies that provide a conceptualization of force and then go on to use overly inclusive operationalizations of the construct. For example, Terrill and Reisig's (2003) conceptualization of force involved threatening or inflicting physical harm, yet their

operationalization included commands, handcuffing, and pat downs, among other behavior. The question remains, does a command, handcuffing, or patting down a suspect really inflict or threaten physical harm? Are these the types of police behavior police use of force literature is most concerned about explaining? And, does including these behaviors lead to problems when interpreting results of studies using such an inclusive measure? From our perspective, the answer to the first two questions is no, and the latter, yes; we address these questions more thoroughly below.

## Discussion

Taken as a whole, Table AI and AII reflect a literature based on an ill-defined concept, resulting in inconsistent operationalizations of police use of force. The vast majority of studies (72 percent) failed to provide a conceptualization of force, which is the cornerstone of sound social science research. Conceptualization is the process of formulating and clarifying ideas with the ultimate goal of developing precisely stated definitions (Singleton *et al.*, 1993). Moreover, conceptual definitions that are specifically stated permit more valid assessments regarding the meaning of research findings (Blalock, 1982). Problems associated with conceptual ambiguity make it more difficult for researchers to interpret empirical findings.

Also contributing to the conceptualization issue is the usage of loose terminology. Some scholars fail to distinguish between the terms coercion and force and/or use them interchangeably across and within studies. Terrill *et al.* (2003, p. 300), for example, use the term coercion to describe a measurement scheme that includes "commands, threats, pat-downs, handcuffs," among other behaviors. Terrill (2003, pp. 62-63) uses the term force to describe an identical measurement scheme that incorporates the exact same behaviors. What is more, Paoline and Terrill (2004, p. 115) note "the terms coercion and force are used interchangeably throughout the article." The problem is that coercion and force are conceptually distinct constructs, and while all police use of force is certainly coercive in nature, not all coercive acts rise to the level of force, as – sometimes – conceptualized in the literature.

One might define this issue as a simple point of semantics and contend that it is of no consequence to the goal of understanding research findings. We offer an alternative position, one that recognizes inherent problems with the liberal exchange of the terms "coercion" and "force," and also raises concerns regarding how problems in terminology might lead to more substantive issues involving: conceptualization, operationalization, and the interpretation of data on police use of force. Thus, including and referring to nonviolent acts of coercion as force creates problems for interpreting research findings. To begin, when nonviolent and violent behaviors are included in the same measure and referred to as force, it is difficult to discern whether the findings relate to acts of coercion, force, or both.

We illustrate how these issues converge to create confusion using Terrill's (2003) groundbreaking study on the micro process of the police-suspect encounter. The study utilizes an explicit conceptualization of police force, but the operationalization incorporates behaviors that are nonviolent acts of coercion, including verbal commands, handcuffing, and pat downs. The analysis concluded that 58.4 percent of the 3,544 observed encounters involved some form of force being used at least once. The problem lies in the interpretation of this research finding within the context of the conceptual definition cited by Terrill (2003) and associated research that suggests police use of force is a rare outcome (see Pate and Friddell, 1993; Alpert and Dunham, 2004). Terrill (2003) does provide narrative and analyses designed to parse out the effects of different levels

of police force, but problems related to the disjuncture of the conceptual meaning and operationalization of force complicate these distinctions. Still, the reader may be left wondering if the police become more likely to use force in interactions with citizens over time or have operationalizations of police use of force changed considerably to include a wider array of police conduct. Based on the conceptualization cited by Terrill (2003), it would appear that the nature and extent of police use of force might have changed over time when comparing his results to prior studies.

Citizens engaged in street-level encounters with police likely distinguish between nonviolent coercive behaviors and acts more readily identified as violent, physical force, and they likely perceive clear differences in consequences between commands, strikes, and the use of weapons. At the same time, police agency administrators and municipal policy makers likely differentiate between violent physical police conduct and other nonviolent, coercive police behaviors. The consequences generated by violent police behaviors have the potential to be far more troublesome for agency administrators and local politicians (e.g. lawsuits, public relations) than lower-level, nonviolent coercive actions.

There is also an important point to consider regarding the inclusion of handcuffing in measures of force. Handcuffing is most often dictated by organizational policy as a result of arrest (Rubinstein, 1973), and, therefore does not involve an officer making a choice to handcuff a suspect. Terrill and Reisig (2003, p. 317), for example, reported that 11 percent of the cases in their study involved an arrest "whereby officers were required to pat down and handcuff the suspect." Including handcuffing in measures of force might be revealing more about organizational responses toward arrest than about individual officer decisions to use "force."

With all of the aforementioned evidence in mind, we advocate for a renewed discussion regarding the conceptualization of coercive police behaviors. It is beyond the scope of this manuscript to mandate a specific conceptualization of police use of force, but we recommend that conceptualizations of force be consistent with Garner *et al'*. (1995) formally stated definition, and a review of the conceptual definitions presented in Table AI provide support for this conceptualization. Two-thirds of studies that cite a conceptualization for use of force suggest the phenomenon involves actions that threaten, attempt, or inflict physical harm upon recipients. Thus, when scholars do cite conceptual definitions they do so in a fairly consistent manner, even if they do not measure behaviors that are commensurate with their conceptualization.

Police behaviors that are nonnegotiable coercive force, but not physically harmful, should be conceptualized as police coercion because there are distinct qualitative differences between nonviolent coercive behaviors and violent forceful ones. Moreover, the consequences of violent force and nonviolent coercive actions are much different for the citizen, the police agency, and the officer. Lastly, community reactions to nonviolent coercion and violent force are not the same. Outcome measures that capture both violent force and nonviolent police behaviors obscure the differences between the two conceptually distinct constructs, and leads to nonviolent and violent police actions being treated as equivalents in terms of how we discuss findings, when they are not.

It is our hope that this manuscript will help guide and improve future research on police use of force. While there is value in studying different operationalizations of a phenomenon, it is easier to summarize research findings based on similar operationalizations, which is more useful for addressing policy related questions because the robustness of relationships can be compared across studies and contexts with greater confidence in knowing researchers are explaining the same outcome.

Stenning *et al.* (2009, p. 99) recently opined, "Without clear agreement about such definitional matters, gaining a reliable picture of the extent, nature and circumstances of the police use of force through research poses a significant challenge." Simply stated, until the field agrees on what police use of force means, it is difficult to say what factors influence "it." A conceptual definition of force ultimately guides assessments regarding the behaviors captured under this moniker. But, as Gerring (1997, p. 960) noted, it matters "not what you call it but how you measure it." And, so, while a consensus among scholars about the conceptual meaning of police use of force is imperative, consistent operationalizations of the construct across studies is equally important. Only then can research findings be summarized and assimilated to properly inform policy.

## Notes

1. Articles other than Garner *et al.* (1995) published in 1995 were excluded from the analysis because of the lag in the publishing process.

2. Book reviews, research notes, anonymously authored pieces, public support/opinion pieces, pieces focusing on litigation, illegitimate/excessive, and deadly force were omitted. Four additional peer-reviewed articles that were not included in the CJPI were included in the review.

3. Includes officer and agency survey data.

4. This includes suspect interviews, citizen surveys, secondary data (e.g. court cases, newspaper stories, etc.), and official data. Official data refers to data collected by a governmental agency/entity other than a police department.

5. Percentages do not equal 100 because one study used two data collection methods (see Kop and Euwema, 2001).

6. In some instances it was difficult to determine what behaviors were captured in the operationalization of force. For example, Gallo *et al.* (2008) measured restraints as force, leaving the reader unclear on what behaviors were actually measured. Unless a behavior was specifically mentioned in the description of the measure of force, it was assumed the behavior was not measured.

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**Appendix**

| Study | Conceptualization of force/coercion | Operationalization of force/coercion |
|---|---|---|
| Lumb and Friday (1997) | No conceptual definition (NCD) | Physical force, deadly force, baton, chemical |
| Morabito and Doerner (1997) | NCD | Wrist locks, transporters/come-alongs, takedowns, pressure point applications |
| Holmes et al. (1998) | NCD | Faulkner's (1991) Action Response use of force continuum |
| Crawford and Burns (1998) | NCD | Commands, restraints, chemical, tactics/nonlethal weapons, firearms |
| Phillips and Smith (2000) | NCD | Push, poke, grab/grapple, punch/kick, baton |
| Engel et al. (2000) | NCD | Hit/swing at with weapon, come-alongs, physical force beyond handcuffing |
| Homant and Kennedy (2000, p. 153) | "[…] any attempt by police to control a subject by the application of some level of contact other than the use of a firearm" | Baton, chemical, taser, beanbag/rubber/wooden bullets, manually overcome, place hands on |
| Alpert and MacDonald (2001) | NCD | Physical force, chemical, weapon |
| Kop and Euwema (2001) | NCD | Verbal force, abusive language, physical force |
| Terrill and Mastrofski (2002, p. 228) | "[…] acts that threaten or inflict physical harm on citizens, including forms of both verbal and physical force" | Commands/threats, pat downs, firm grips, handcuffing, pain compliance, takedowns, strikes with body/extension |
| Garner et al. (2002) | NCD | Weapon, weaponless tactic, severe restraints |
| Phillips et al. (2002, p. 292) | "[…] physical coercion beyond handcuffing" | Hitting, beating |
| Terrill and Reisig's (2003, p. 299) | "[…] acts that threaten or inflict physical harm on suspects" | Commands/threats, pat downs, firm grips, handcuffing, pain compliance, takedowns, strikes with body/extension |
| Terrill (2003, p. 56) | "[…] acts that threaten or inflict physical harm on suspects" | Commands/threats, restraint techniques, impact methods |
| Terrill et al. (2003, p. 1019) | "[…] acts that threaten or inflict physical harm on citizens" | Commands/threats, pat downs, firm grips, handcuffing, pain compliance, takedowns, strikes with body/extension |
| MacDonald et al. (2003) | NCD | Presence, verbal direction, strong verbal order, forcibly subdued (defensive), forcibly subdued (offensive) |
| Williams and Westall (2003, p. 375) | "[…] any physical action taken by an officer to control a suspect" | All behaviors *except* "verbal commands, firm grip escorting, frisking, pointing of weapons, handcuffing" |
| Williams and Westall (2003, p. 471) | "[…] any act or behavior that compelled a person into submission" | Weapon display, chemical, physical, canine, baton, weapon discharge |

*(continued)*

**Table AI.**
Conceptualizations
and operationalizations
of force

**Table AI.**

| Study | Conceptualization of force/coercion | Operationalization of force/coercion |
|---|---|---|
| Engel and Calnon (2004) | NCD | Push/grab (no pain/pain), handcuffing, kick/hit, canine bite, chemical, gun displayed/fired, any other physical force |
| Paoline and Terrill (2004, p. 104) | "[…] acts that threaten or inflict physical harm on citizens". | None, verbal, physical |
| Sun and Payne (2004) | NCD | Advise, command, threat, investigation, restraint, arrest |
| Schuck (2004) | NCD | Severe restraint, weaponless tactic, weapon (threatened/used) |
| Kaminski et al. (2004) | NCD | Greater than firm grip, firm grip/holding, verbal tactics only |
| McElvain and Kposowa (2004) | NCD | Control hold, excessive handcuffing, strike, chemical, impact weapons, firearms |
| Carter (2004) | NCD | None provided |
| Alpert et al. (2004) | NCD | Presence, strong order, defensive force, offensive force, intermediate weapon, deadly force |
| McCluskey and Terrill (2005, p. 521) | "[…] acts that threaten or inflict physical harm on citizens" | Command/threats, pat downs, firm grips, handcuffing, pain compliance, takedowns, strikes with body/extension |
| McCluskey et al. (2005, p. 25) | "[…] acts that threaten or inflict physical harm on citizens" | Command/threats, pat downs, firm grips, handcuffing, pain compliance, takedowns, strikes with body/extension |
| Terrill (2005, p. 115) | "[…] acts that threaten or inflict physical harm on citizens" | Commands/threats, pat downs, firm grips, handcuffing, pain compliance, takedowns, strikes with body/extension |
| Hoffman and Hickey (2005) | NCD | Firearm, flashlight, baton, another hard object, chemical, unarmed physical force |
| Bazley et al. (2006) | NCD | Handcuffs, restraints, pressure points, transporter techniques, countermeasures, chemical, impact weapon, firearm (pointed/fired), canine bite |
| Manzoni and Eisner (2006) | NCD | Threats, physical force, baton, chemical, firearm (threaten/used) |
| Phillips et al. (2006) | NCD | Strike, takedown, chemical, CED |
| Norris et al. (2006) | NCD | Verbal control, restraints, striking, impact weapon, gun |
| Paoline and Terrill (2007, p. 185) | "[…] acts that threaten or inflict physical harm on citizens" | Commands/threats, pat downs, firm grips, handcuffing, pain compliance, takedowns, strikes with body/extension |
| Lawton (2007) | NCD | Control hold, strike, chemical, CED, baton |
| Bazley et al. (2007) | NCD | Handcuffs, restraints, pressure points, transporter techniques, countermeasures, chemical, impact weapon, firearm (pointed/fired), canine bite |

*(continued)*

| Study | Conceptualization of force/coercion | Operationalization of force/coercion |
|---|---|---|
| Terrill et al. (2008) | NCD | Handcuffing, muscling, joint lock, arm bar, Taser, body/weapon strike, pressure point, chemical, K9, shots fired |
| Gallo et al. (2008, p. 487) | "[…] coercive action to make somebody do something" (p. 480). | Presence, commands, restraints, pursuit, bodily force, chemical agents, impact weapons, deadly force |
| Bazley et al. (2009) | NCD | Handcuffs, restraints, pressure points, transporter techniques, countermeasures, chemical, impact weapon, firearm (pointed/fired), canine bite |
| Wolf et al. (2009) | NCD | Presence, gentle hold, handcuff, restraints, takedown, chemical, CEW, strike, impact weapon, less lethal munitions, K9, choke, deadly force |
| Sousa et al. (2010) | NCD | Verbal force, empty handed force, simulated weapons |
| Rydberg and Terrill (2010, p. 101) | "[…] acts that threaten or inflict physical harm on citizens" | None provided |
| Taylor and Woods (2010) | NCD | Firearms (use), CED, chemical, any other weapon, chokes, hard hands, take downs, canine |
| Lin and Jones (2010) | NCD | Lethal force, non-lethal force |
| Lee et al. (2011) | NCD | Presence, verbal direction, restraints, transporter, takedown, pain compliance, countermoves, intermediate weapons, deadly force |
| Cheong and Yun (2011) | NCD | Threats, physical force, weapon (threat/use) |
| Crow and Adrion (2011) | NCD | Taser, takedowns, physical force, chemical, impact weapons, K-9, vehicle, firearms |
| Johnson (2011) | NCD | Physical touching, striking, weapon (use) |
| Kane and Cronin (2011) | NCD | Weaponless control tactics, weaponless affront-response tactics, weapon (displays/threats/use) |
| Paoline and Terrill (2011) | NCD | Questioning, commands/threats, pain compliance, empty-hand (soft/hard), chemical, CEW, baton , projectile launchers |
| Ready and White (2011) | NCD | TASER |
| Klahm et al. (2011) | NCD | Commands/threats, handcuffing, pat-down, firm grips, pain compliance, takedowns, firearms, strikes with body/extension |

**Note:** $n = 53$

**Table AI.**

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Table AII.
Behaviors measured as force

| Study | DCM | Presence | Commands | Threats | Handcuffing | Pat downs | Firm grip | Grab | Takedowns[a] | Restraints | Pain compliance[b] | Pressure point manipulation | Transporter/ come-alongs | Choke holds | Striking with body part/ extension[c] | Alternative ammunition[d] | Chemical spray | CED | K-9 | Impact weapons | Weapon display | Firearm | Some behaviors unclear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lumb and Friday (1997) | OPD | × | | | | | | | | | | | | | × | | × | | | | | | × |
| Morabito and Doerner (1997) | OPD | | | | | × | | | × | | | × | × | | | | | | | | | | |
| MacDonald et al. (2003) | OPD | × | × | | | | | | | | | | | | | | | | | | | | × |
| Williams and Hester (2003) | OPD | | | | | | | | | | | | | | | | | | | | | | × |
| Williams and Westall (2003) | OPD | | | | | | | | | | | | | | | | | | | | | | |
| McElvain and Kposowa (2004) | OPD | | | | X[e] | | | | | | | | | | × | | × | | × | | × | × | × |
| Alpert et al. (2004) | OPD | × | × | | | | | | | | | | | | × | | × | | × | × | | × | × |
| Hoffman and Hickey (2005) | OPD | | × | | | | | | | | | | | | × | | × | | × | × | | × | × |
| Bazley et al. (2006) | OPD | | | | × | | | | | × | | × | × | | × | | × | | × | × | × | × | |
| Lawton (2007) | OPD | | | | | | | | | | | | | | × | | × | × | | | | × | |
| Bazley et al. (2007) | OPD | | | | × | | | | | × | | × | × | | × | | × | | × | × | × | × | × |
| Terrill et al. (2008) | OPD | | | | | | | | | | × | × | | | | | × | × | × | × | × | × | × |
| Gallo et al. (2008) | OPD | × | × | | × | | | | | × | | | | | | | | × | | × | × | | × |
| Bazley et al. (2009) | OPD | | | | × | | | | | × | | × | × | | × | | × | × | × | × | × | × | × |

(continued)

| Study | DCM | Presence | Commands | Threats | Handcuffing | Pat downs | Firm grip | Grab | Takedowns[a] | Restraints | Pain compliance[b] | Pressure point manipulation | Transporter/ come-alongs | Choke holds | Striking with body part/ extension[c] | Alternative ammunition[d] | Chemical spray | CED | K-9 weapons | Impact weapons | Weapon display | Firearm | Some behaviors unclear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sousa et al. (2010) | OPD | | | | | | | | | | | | | | | | | | | | | | |
| Taylor and Woods (2010) | OPD | X | X | | | | | | | | | | | | X | | X | X | | | | X | X |
| Lin and Jones (2010) | OPD | | | | | X | | | X | | | | | X | | X | | X | X | X | | | X | |
| Lee et al. (2011) | OPD | X | X | X | | | | | X | X | X | | X | | | | | | | | | | X |
| Crow and Adrion (2011) | OPD | | | | | | | | X | | | | | | X | | X | X | X | | X | X | X |
| Johnson (2011) | OPD | | | | X | X | | | | | | | | | X | | X | X | X | | | X | |
| Kane and Cronin (2011) | OPD | | | | | X | | X | X | | X | | | | X | | X | | | X | | X | X |
| Engel et al. (2000) | SSO | | | | | | | | | | | | X | | X | | | | | | | | X |
| Kop and Euwema (2001) | SSO/ OS | X | X | | | | | | | | | | | | | | | | | | | | |
| Terrill and Mastrofski (2002) | SSO | X | X | X | X | X | X | | X | | X | | | | X | | | X | | | | | |
| Terrill and Reisig (2003) | SSO | X | X | X | X | X | X | | X | | X | | | | X | | | X | | | | | |
| Terrill (2003) | SSO | X | X | X | X | X | X | | X | | X | | | | X | | | X | | | | | |
| Terrill et al. (2003) | SSO | X | X | X | X | X | X | | X | | X | | | | X | | | X | | | | | |
| Paoline and Terrill (2004) | SSO | | | | | | | | | | | | | | | | | X | | | | | X |

(continued)

**Table AII.**

**Table AII.**

| Study | DCM | Presence | Commands | Threats | Handcuffing | Pat downs | Firm grip | Grab | Takedowns[a] | Restraints | Pain compliance[b] | Pressure point manipulation | Transporter/come-alongs | Choke holds | Striking with body part/extension[c] | Alternative ammunition[d] | Chemical spray | CED | K-9 | Impact weapons | Weapon display | Firearm | Some behaviors unclear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sun and Payne (2004) | SSO | × | | | | | | | × | | | | | | | | | | | | | | × |
| McCluskey and Terrill (2005) | SSO | × | × | × | × | × | × | | × | | × | | | | × | | | × | | | | | |
| McCluskey et al. (2005) | SSO | × | × | | × | × | × | | × | | × | | | | × | | | × | | | | | |
| Terrill (2005) | SSO | × | × | | × | × | × | | × | | × | | | | × | | | × | | | | | |
| Paoline and Terrill (2007) | SSO | × | × | | × | × | × | | × | | × | | | | × | | | × | | | | | |
| Rydberg and Terrill (2010) | SSO | | | | | | | | | | | | | | | | | | | | | | × |
| Klahm et al. (2011) | SSO | × | × | | × | × | × | | × | | × | | | | × | | | | | | | × | |
| Holmes et al. (1998) | OS | | | | | | | | | | | | | | | | | | | | | | × |
| Crawford and Burns (1998) | OS | × | × | | | | | × | × | | | | | | | | × | | | | | × | × |
| Alpert and MacDonald (2001) | AS | | | | | | | | | | | | | | | | × | | | | | | × |
| Garner et al. (2002) | OS | | × | | | | | | | × | × | | | | × | | | | | | | | × |
| Schuck (2004) | OS | | | × | | | | | | × | | | | | | | | | | | | | × |
| Kaminski et al. (2004) | OS | | | | | | × | | | | | | | | | | | | | | | | |
| Manzoni and Eisner (2006) | OS | | × | | | | | | | | | | | | × | | × | | | | | × | × |
| Norris et al. (2006) | OS | × | × | | | | | | × | | | | | | × | | | | | | | × | |

*(continued)*

| Study | DCM | Presence | Commands | Threats | Handcuffing | Pat downs | Firm grip | Grab | Takedowns[a] | Restraints | Pain compliance[b] | Pressure point manipulation | Transporter/come-alongs | Striking with: Choke holds | body part/extension[c] | Alternative ammunition[d] | Chemical spray | CED | K-9 | Impact weapons | Weapon display | Firearm | Some behaviors unclear |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wolf et al. (2009) | AS | X | | | X | | | | X | X | | | | X | | | X | X | X | | | | X |
| Cheong and Yun (2011) | OS | | | X | | | | | | | | | | | X | | X | | | | | X | |
| Padline and Terrill (2011) | OS | | X | X | | | X | X | X | | X | | | | X | X | X | X | | | | | |
| Ready and White (2011) | OS | | | | | | | | | | | | | | | X | X | X | | | | | |
| Homant and Kennedy (2000) | O | | | | | | | | | X | | | | X | X | X | X | X | | | | | X |
| Phillips and Smith (2000) | O | | | | | | X | X | | | | | | X | | | | | | | | | |
| Phillips et al. (2002) | O | | | | | | | | | | | | | X | | | | | | | X | | X |
| Engel and Cahon (2004) | O | | | | X | | X | X | X | | | | | X | | | X | X | X | X | | X | X |
| Carter (2004) | O | | | | | | | | | | | | | | | | | | | | | | X |
| Phillips et al. (2006) | O | | | | X | | | X | X | | | | | X | | | X | X | | | | X | |

**Notes:** $n = 53$. DCM, Data collection method; OPD, Official police data; SSO, systematic social observation; OS, officer surveys; AS, agency surveys; O, other; X, indicates behavior was clearly identified; [a]takedowns, pushing, shoving, throwing, leg sweeps, etc.; [b]Hammerlocks, wristlocks, finger grips, carotid control, and arm bar control; [c]hands, feet, elbows, radio, flashlights, batons, etc.; [d]Beanbag, rubber or wooden bullets and the like; [e]excessive handcuffing

**Table AII.**

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Dr Charles Frank Klahm IV is an Assistant Professor of Criminal Justice at the Wayne State University. He received his PhD from the School of Criminal Justice at the University of Cincinnati in 2009. His research interests include understanding police behavior, especially their use of force, the use of evolving technology in policing, as well as how technology influences crime prevention initiatives. Recent journal articles have appeared in *Justice Quarterly, Police Quarterly, Journal of Crime and Justice*, and the *Southwest Journal of Criminal Justice*. Dr Charles Frank Klahm IV is the corresponding author and can be contacted at: charles.klahm@wayne.edu

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