Examining the Relationship Between Agency Size and Aggression During Police-Citizen Encounters

by

Christine M. Galvin-White

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Graduate Supervisory Committee:

Danielle Wallace, Chair
Michael D. White
Hank F. Fradella

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ABSTRACT

Prior ethnographic research has found some relatively consistent factors that influence an officer's use of force (e.g., organizational and suspect and officer characteristics). However, very little research has explored the effect department size in and of itself may have on force displayed during a police/citizen encounter. This study used data from the 2010 – 2013 Arizona Arrestee Reporting Information Network (AARIN) to examine the relationship between departmental size and officer use of force. Participants in this data collection cycle were limited to adult male and female arrestees (N = 2,273). AARIN personnel conducted confidential interviews and used a Police-Contact Addendum to document the type of forced employed by police during their current arrest. This study sought to answer the following research question: does the likelihood of an officer employing use of force increase (or decrease) in relation to department size the officer is nested in? The results indicate that citizens who are arrested by officers from a larger agency are more likely to report experiencing use of force during their arrest when compared to those arrested by officers from small and medium sized agencies.

DEDICATION

I want to thank my wife, Lindsey, for her unrelenting faith and support throughout my academic career. As the saying goes, behind every successful woman is an even stronger and more successful one. This one is for us. To my amazingly awesome beautiful daughter, Irelynn Marguerite (IMGW), you have brought more joy to my life than any thesis, academic accomplishment, or degree ever could. Keep on keeping on my little cheeky monkey. Lastly, I want to dedicate this to my 9-year-old nephew, Seth Christopher. You are facing a greater battle than my thesis could have ever posed to me. However, if there is one trait we share, it is the strength not to just overcome any obstacle, but to do so with success. You will win your battle with cancer and I will be with you the entire way. As always, love Aunt Chriss.

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Introduction

Given the potentially devastating consequences of police use of force, researchers have devoted a significant amount of scholarly attention to identifying the causes and correlates of use of force. Over the last 40 years, researchers have identified ecological, organizational and individual-level attributes that influence police use of force decision making (Alpert & Dunham, 1997; Alpert & MacDonald, 2006; Bolger, 2014; Brandl & Stroshine, 2012; Fyfe, 1988; Jacobs & Britt, 1979; Klinger, 1995; Mulvey & White, 2014; Muir, 1977; Reiss, 1968; Terrill & Mastrofski, 2002; Terrill & Reisig, 2003; Worden, 1995). For example, studies framed by ecological factors have revealed that the socioeconomic status and crime rate of a neighborhood influences an officer and suspect's use of force (Belvedere, Worrall, & Tibbets, 2005; Terrill & Reisig, 2003). Ethnographic works indicate a suspect or an officer's behavior and personal characteristics influences the degree and type of force/resistance displayed during an encounter (Engel, 2003; Mulvey & White, 2014; Telep, 2011). At the organizational level, research has focused on how the culture or ethos of an agency can affect use of force decisions and behaviors (Fyfe, 1988; Wilson, 1968), such as use of force. Research has also highlighted how formal policies and procedures can curtail officer discretion and direct their use of force *(*Mastrofksi, Ritti, & Hoffmaster, 1987; see also Paoline, *2003)*. Conversely, an organizational ethos that is focused on "crime fighting" (enforcing laws and order) increases the likelihood of an officer engaging in improper use of force because of some perceived affront to their authority (Wilson, 1968). Wilson (1968) recognized the significance of examining the interactions between police organizations and use of force; however, forty-five years later, the extent to which organizational

characteristics affect police use of force still remains unclear (Klinger, 2004). There are, however, a handful of empirical studies that have explored the interaction between organizational characteristics and use of force, but the topic remains under-developed (Klinger, 2004; see also Worden, 1995).

With attention to police organizational literature, little research has explored the effect that organizational features other than culture, such as department size, have on force/resistance during a police/citizen encounter. Of particular interest is the extent to which use of force varies across department size. For example, does an officer from a smaller agency use less force when taking a suspect into custody than an officer from a larger agency? Examining if use of force increases (or decreases) in relation to departmental size can provide additional insight into the coercive force relationships between citizens, officers, and organizations. Moreover, expanding our knowledge of the link between use of force and organizational characteristics may provide some understanding and insight into the recent increase in tension between minorities and police, as well as to what may be influencing officer use of force decisions during these encounters.[1] Additionally, an improved understanding officer use of force and suspect resistance during a police/citizen encounter can also inform use of force policy and shed light onto areas of training that can be improved.

The present study seeks to contribute to the use of force literature by examining the relationship between departmental size and officer use of force. Put more simply, the

[1]The recent increase in tension between minorities and the police likely is, in part, due to the number of police shootings involving minorities. Two examples, the shooting death of a 37-year-old African American, Alton Sterling, in Baton Rouge, Louisiana, and of African American Philando Castile by a St. Paul, Minnesota patrol officer; both victims were believed to be unarmed.

study attempts to answer the following research question: does the likelihood of an officer employing use of force increase (or decrease) in relation to department size the officer is nested in? Data from the 2010 – 2013 Arizona Arrestee Reporting Information Network (AARIN) collection cycle is used to investigate this question. Here, survey participants, specifically adult male and female arrestees, were interviewed and submitted a urine samples during intake or within 48 hours of being booked into Central Intake of Maricopa County Fourth Avenue Jail. Also, a Police-Contact Addendum was used to examine suspect resistance and the intensity of forced employed by police from different sized departments during the arrestee's arrest (White, 2013a). The author ran a logistic regression to determine if the likelihood of police use of force increases (or decreases) in relation to departmental size independent of controls. It is expected that citizens who are arrested by officers from a larger agency are more likely to be subject to use of force during their arrest when compared to those arrested by officers from small and medium sized agencies.

Literature Review

Police Use of Force

The implicit power to exercise coercive force is considered to be a distinctive and crucial police function (Bittner, 1970). Tyler (1990) highlights the central importance of fair treatment of citizens by police to insure police legitimacy. In the mid-to-late 1960s society (especially African Americans) called into question the methods in which police were exercising power, force, and treatment of citizens. When the police are perceived to have violated socially prescribed criteria in a way that is procedurally unjust (e.g., unnecessary or excessive use of force), citizens will question their authority, act

disrespectfully, ignore or deliberately resist the police (Tyler, 1990). For these reasons, police scholars have dedicated a substantial amount of time understanding police (and suspect) use of force and to identify factors that influence the decision to use force during a police/citizen contact (Fyfe, 1988; Mulvey & White, 2014; Muir, 1977; Telep, 2011).

Prior ethnographic and qualitative research has found some consistent factors that influence an officer's use of force (Engel, 2003; Garner, Schade, Hepburn & Buchanan, 1995). These factors include: 1) officer and suspect characteristics, 2) situational factors, 3) community characteristics, and 4) organizational characteristics. In the coming sections, I discuss each set of factors in detail and highlight how they are related to differential uses of force.

Officer and suspect characteristics. The first factor is suspect and officer characteristics. These studies attempt to explain how characteristics of the individual officer or suspect, such as race/ethnicity, sex, age, and mental illness, influence use of force and resistance decisions.

Officer characteristics. Research exploring the effect an officer's race/ethnicity and sex have on the use of force has revealed mixed findings (see Bolger, 2014). To demonstrate, Schuck and Rabe-Hemp (2007) examined data collected between 1996 and 1997 from multiple agencies regarding force used by the police and force used against the police. Their study revealed that female officers used less physical force than male officers and citizens were no more likely to use force against female officers as they would against male officers. Another study found if the contacting officer is female, the likelihood of physical force is diminished altogether (Paoline & Terrill, 2005). In contrast, Worden (1989) found that the sex of the officer had no influence on use of force

decisions and Crawford and Burns (1998) found officer sex had no statistically significant relationship with force (see also, Lawton, 2007; Rydberg & Terrill, 2010). With regard to an officer's race/ethnicity, research, once again, has produced conflicting findings and in general, the results lack empirical evidence of its influence on use of force (see Crawford & Burns, 1998; Geller & Karales, 1981; Lawton, 2007; McCluskey, Terrill, & Paoline, 2005). Despite these conflicting findings, when an officer's race/ethnicity and sex are found to have only some influence on force these characteristics are generally not strong predictors (Riksheim & Chermak, 1993).

Studies have revealed, however, that officer education is positively correlated with use of force decisions (Paoline & Terrill, 2005, 2007; Rydberg & Terrill, 2010; Terrill & Mastrofski, 2002). Officers with higher levels of education are seen to have a more flexible attitude about policing requirements and are less authoritarian (Dalley, 1975; as cited in Holtfreter & Gaub, 2015). Consistent with Dalley (1975), scholars have found that officers, who have some college education and/or a bachelor's degree prior to joining the force, are less likely to have positive attitudes toward abuse of power (Telep, 2011) and their odds of being involved in misconduct decreases (Kane & White, 2009, 2013; Kappeler, Sapp, & Carter, 1992). Although higher education has a positive influence on policing attitudes and authority, it does not prevent misconduct. It does, however, increase the time between hire and termination (White & Kane, 2013). More simply, if an officer has a college degree, they are less likely to experience early termination.

Suspect characteristics. A number of studies have examined the relationship between suspect characteristics and police use of force, such as race/ethnicity, sex,

mental health, and age. Recently researchers have widened the scope and have been incorporating correlates such as mental health, suspect demeanor, resistance, and drug and alcohol impairment (see Crawford & Burns, 1998; Engel, Sobol, & Worden, 2000; Mulvey & White, 2014; Terrill & Reisig, 2003). The following subsections will discuss the current suspect characteristics literature in greater detail.

Suspect race/ethnicity. Studies examining police use of force and suspect resistance have produced inconsistent empirical findings (see Klahm & Tillyer, 2010). A number of studies have reported that a suspect's race *is not* a significant predictor of use of force (Buchanan, Schade, & Hepburn, 1996; McCluskey & Terrill, 2005; Klahm & Tillyer, 2002; Sun & Payne, 2004) while other studies indicate that race *is* a significant influencing factor (Durose, Schmitt, & Langan, 2005; Friedrich, 1980; Leinfelt, 2005; Terrill & Mastrofski, 2002). For instance, in 2014, Bolger conducted a content analysis of police use of force studies and reported that the suspect's "… race plays a significant, but minor role in officer decision-making" (p. 18) (see also Kochel, Wilson, & Mastrofski, 2011).

Conversely, Kaminski, Digiovanni, and Downs (2004) found that a "non-White" arrestee's odds of having high force used against them increased by 53 percent and the odds of having low force increased by 49 percent, when compared with White arrestees.[2] More importantly, non-White citizens experience higher rates of police misconduct are

[2] Kaminski, et al. (2004) defined "high force" as force above the use of a firm grip or holding. "Low force" was described as a firm grip or holding and below and "no force" equates to the use of verbal commands/tactics. Being non-White has a significant effect on low force verses no force.

more likely to be arrested, and are more likely to sustain an injury from an altercation with the police than White citizens (Decker & Wagner, 1985).

Other research has focused on the relationship between the use of deadly force, suspect race, and officer racial bias (Goldkamp, 1976; Fachner & Carter, 2015; James, L, James & Vila, 2016; White, 2001). These studies have produced conflicting and mixed findings. Race plays an insignificant role in the use of deadly force when the significance of the charge and violent crime rates are taken into consideration (Fyfe, 1982; MacDonald, Kaminski, Alpert, & Tennenbaum, 2001; as cited in James, et al., 2016). Yet, scholars find that police use more deadly force in non-White communities (Liska & Yu, 1992) and in "cities with a larger Black population, a recent growth in the Black population, and greater economic stratification based on race…" (Jacobs, 1998; as cited in James, et al., 2016, p. 2). It is important to note here that Liska and Yu (1992) and Jacobs' (1998) findings are consistent with additional research and will be discussed in more detail in the community characteristics section.

An interesting and a more recent perspective has framed police deadly use of force research as "threat-perception-failures" (TPF) or "mistake-of-fact" (Fachner & Carter, 2015; as cited in James, et al., 2016, p. 2). Fachner and Carter (2015) operationalized TPF as when an officer mistakes an object as a weapon (e.g., a cell phone, an individual reaching for a wallet located in a pocket) or perceives an action as a furtive movement (James, et al., 2016).[3] While examining Philadelphia, Pennsylvania, Police Department (PPD) officer-involved shootings, Fachner and Carter (2015) found

[3] A furtive movement is an intentional movement conducted in a stealthy and sly mannor. Furtive movements can be perceived as an attempt to grab a gun and is not considered an innocent action (Author's personal knowledge; Farlex, 2016).

that when an officer shot an unarmed African American, the likelihood of a TPF increased when compared to "unarmed individuals of other races" (as cited in James, et al., 2016, p. 2-3). While examining the influence race and racial bias have on police use of deadly force (using a simulator), James, et al., (2016), found that officers were more likely to consider an African American suspect to be armed. Indicating participating officers displayed a "moderate-to strong implicit racial bias" (James, et al., 2016, p. 14) and adhered to racial stereotypes; however, implicit racial bias was not a predictor to racially biased behavior (p. 15). Interestingly, officers displayed a longer pause before shooting an African American suspect when compared to White suspects. However, despite the statistically significant findings between use of force and an officer's racial bias and a suspect's race, some scholars posit that the sex of a suspect has a greater influence on police use of force (Kaminski, et al., 2004).

Suspect sex. The sex of a suspect does have some influence on police use of force. Generally speaking, males are more likely to have force used against them than their female counterparts (Garner, Maxwell, & Heraux, 2002; Kaminski et al., 2004; McCluskey & Terrill, 2005; Sun & Payne, 2004; Terrill & Reisig, 2003). In addition to males having force used against them, the odds of having higher levels of force used against them increases by 217 percent and the use of lower levels of force increases by 46 percent (Kaminski, et al., 2004). When considering female suspects, Schuck and Rabe-Hemp (2007) examined female suspects' use of force against male and female officers. Their study revealed that female suspects used force non-discriminately. In other words, female suspects used force against male and female officers at a relatively equal rate. When Schuck and Rabe-Hemp (2007) isolated the relationship between female suspects

and their use of force against female officers only, their findings showed that "there were no significant differences in women's use of force against women officers" (p. 104).

Suspect mental health. In 1967, Bittner described one of the many responsibilities of a police officer is to perform "psychiatric first aid" and divert persons with mental illness (PMIs) away from the criminal justice system. When officers act as "street psychologists" (Teplin & Pruett, 1992), PMIs are preferably dealt with informally (i.e., peacefully working through the encounter without arrest)(see also Mulvey & White, 2014). One would believe that diverting someone away from the criminal justice system would be construed as a positive outcome; albeit, this may be true in certain circumstances, but being in the criminal justice system via a "mercy booking" may be the only place a PMI will receive psychiatric treatment (Lamb, Weinberger & Decuir, 2002; Teplin, 1983; Wells & Schafer, 2006). Diversion from the criminal justice system keeps PMIs in society with little to no help for their mental illnesses. Moreover, evidence indicates that individuals with a serious mental disorder who do not take medication "are significantly more dangerous than persons in the general population" (Lamb, et al., 2002); thereupon, increasing their likelihood of coming in contact with law enforcement (Abramson, 1972; cf Peterson, Skeem, Kennealy, Bray & Zvonkovic, 2014; cf Engel & Silver, 2001).[4]

Surprisingly, there is scant empirical data about the interaction between PMIs and police officers (see Mulvey & White, 2014). When researchers explore mental illness and its influence on use of force, mental illness is typically lumped in with drug and alcohol

[4] Examples of serious mental illnesses are schizophrenia, major depression, mania, and bipolar (Lamb et al., 2002).

use and categorized as “impairments” (see Kaminski, et al., 2004). As a result, most studies report that there is no correlation between mental illness and increased use of force (Kaminski, et al., 2004). More recently, however, Mulvey and White (2014) disaggregated mental illness from its typical categorization of impairments and examined its effect on police use of force independent of the influences of drugs and alcohol. They found the likelihood of an arrestee with mental illness to have forced used against them was no greater than an arrestee without a mental illness when force was measured as a dichotomous variable (force, no force). When use of force was measured as an ordinal variable (no force, non-weapon force, weapon force), a notable significant correlation was found between PMIs and weapon force. To put it another way, when force was broken down into more specific categories, it was found that PMIs are significantly more likely to experience weapon force than arrestees without mental illness. Furthermore, they reported that mentally ill individuals were more likely to resist arrest by almost three fold and therefore, have a greater chance of having force used against them.

Suspect age. The empirical evidence regarding suspect age reveals conflicting findings. Some studies suggest that an older suspect is less likely to have both verbal and physical force used against them (McCluskey & Terrill, 2005; Terrill, Paoline, & Manning, 2003). In contrast, Crawford & Burns (1998) found that younger suspects (under 30 years old) are more likely to have nonlethal force used against them as opposed to physical restraints. Yet, a suspect’s age was found to be insignificant when it comes to officers issuing verbal commands, using chemical spray, using firearms or during a domestic violence investigation (Crawford & Burns, 1998; Sun & Payne, 2004). Similarly, Kaminski et al. (2004) found that age had no significant bearing on police use

of force while Bolger (2014) reported that age was significant, but only when evidence and arrest where taken into consideration.

Situational factors. The next category is concerned with situational variables present during a police/citizen encounter. Situational variables are taken into consideration to help explain the influence of legal and extra-legal factors have on use of force and suspect resistance. Prior ethnographic research has operationalized situational variables as legal and illegal substance use, resistance, and the seriousness of the charge, to name a few.

Suspect substance use. In 1977 Muir posited that individuals under the influence of an intoxicant are more likely to lack the mental clarity to understand the significance of the consequences of their irrational behavior and will be more likely to defy police authority. This observation is supported by a variety of research studies that indicates substance use has a positive relationship with use of force and resistance (Bolger, 2014; Crawford & Burns, 1998; McCluskey, et al., 2005; Paoline & Terrill, 2005; Terrill & Mastrofski, 2002; Terrill, et al., 2003). A case in point, Engel (2003) found that a suspect under the influence of drugs/alcohol will be 3.2 times more likely to be noncompliant, 2.5 times more likely to display verbal resistance, and 3.6 times more likely to react with physical resistance.

Suspect resistance. Suspect resistance has been, and continues to be, examined in-depth by police scholars (see Crawford & Burns, 1998; Garner, et al., 2002; Mastrofski, Reisig, & McCluskey, 2002; Terrill & Reisig, 2003). It should come as no surprise that the exploration of resistance has revealed conflicting findings (Engle, 2003; Mastrofski, et al., 1996). The inconsistency may be due to the way disrespect and resistance are

operationalized (Engel, 2003; Klahm & Tillyer, 2010) and measured. The various behavioral correlates may reflect the concept of disrespect or resistance but they are not synonymous with one another and are left open to interpretation (see Klahm & Tillyer, 2010).

In 1995, Garner and colleagues brought some clarity to the lack of consistent conceptualization of use of force concerns. They incorporated The National Science Academy's (NSA) definition of violence as a framework to measure force used during police/citizen contacts.[5] Not only does this increase the consistency of physical force measurement but it also incorporates non-physical force-type behaviors such as suspect disrespect and passive resistance. Disrespectful behaviors include such things as cursing, name-calling, personal attacks on an officer's character, and inappropriate and rude behavior (see White, 2013a; Reisig, McCluskey, Mastrofski, & Terrill, 2004; Terrill & Reisig, 2003). Passive resistance includes behaviors such as ignoring or responding negatively to an officer's requests or directions, questioning an officer's authority, and walking away (fleeing) from the officer (see Engel, 2003; Terrill & Reisig, 2003). Consistency across definitions and descriptors of force and force-type behavior employed by police (and suspects) allows for more uniformity and opportunities for study replication (see Bolger, 2014; Klahm & Tillyer, 2010).

Despite operationalization and conceptualization concerns, suspect disrespect and resistance has maintained a statistically significant influence on use of force (see Crawford & Burns, 1998; Engel, et al., 2000; Garner, et al., 2002; Terrill & Reisig, 2003;

[5] The National Academy of Sciences' (NSA) definition of violence is "behaviors by individuals that intentionally threaten, attempt, or inflict harm on others" (Reiss & Roth, 1993, p. 2).

cf. Klinger, 1994, 1996). Scholars posit that suspect disrespect and resistance has a positive relationship with police legitimacy (Tyler, 1990) and socioeconomic stratification (see Engel, 2003; Terrill & Reisig, 2003). At the onset of a police/citizen encounter, the officer and citizen engage in what Binder and Scharf (1980) refer to as a transaction effect. The contact transitions through four phases, anticipation (what to expect based on information received), entry (arrives on scene), information exchange (the dialog between the citizen and officer), and the decision to use force (based on the totality of the of the first 3 phases) (Binder & Scharf, 1980). According to Tyler (1990), if citizens perceive police action as procedurally unjust (e.g., unnecessary or excessive use of force), citizens will question police authority, act out disrespectfully, ignore or will deliberately resist the police. The degree to which a citizen acts out toward the officer (real or perceived), influences the rate of the transactional phases and the degree of force employed by the officer (Binder & Scharf, 1980).[6]

Empirical findings suggest minorities have a more negative attitude toward police and are less likely to trust and view them as legitimate (Albrecht & Green, 1977; Hawdon, Ryan, & Griffin, 2003; Taylor, Turner, Esbensen, & Winfree, 2001; Weitzer, 2000). Lack of trust in the police and the belief that police authority is illegitimate has been used to explain why minorities display less deference and are more likely to be non-compliant during police interactions, especially during contact with White officers (Engel, 2003; Reisig, et al., 2004; cf. Belvedere, et al., 2005). When compared to White

[6] Degrees of force are structured by a department's use of force policy that defines force based on a continuum. The lower end of the continuum begins with officer presence, progresses to open and closed hand tactics, non-lethal weapons, and culminates with deadly force.

suspects, evidence indicates that minority suspects are more likely to display higher levels of disrespect and resistance but are not any more likely to use greater levels of physical force than White suspects (Engel, 2003; see also Reisig, et al., 2004).

Suspects that display an angry or aggressive demeanor are almost six times more likely to be on the receiving end of police tactics and nonlethal weapons (Crawford & Burns, 1998). They are also over nine times more likely to have chemical agents used against them (Crawford & Burns, 1998). When compared with compliant suspects, suspects that displayed an antagonistic demeanor increased the likelihood of having physical force used against them by 163 percent (Garner, et al., 2002). When engaged in physical resistance, a suspect's odds of experiencing police coercive force increases by 1800 percent (Garner, et al., 2002, p. 738). Similarly, Kaminski and colleagues (2004) found when a suspect's demeanor changed from non-threatening (compliant) to being upset and or verbally abusive (non-compliant), the probability of an officer resorting to higher levels of force increased by 23 percent (cf. see McCluskey, et al., 2005; McCluskey & Terrill, 2005; Terrill et al., 2003). Research has consistently reported a statistical significance and a greater likelihood of suspect resistance if the current arrest charge is a felony or violent offence (Bolger, 2014; Mulvey & White, 2014; Worden, 1995; cf. Belvedere et al 2005).

Community Characteristics. The third category is community characteristics. Studies posit that there is a relationship between neighborhood context, resistance, and police use of force (Bayley & Mendelsohn, 1969; Belvedere, et al., 2005; Slovak, 1986; see, Terrill & Reisig, 2003). The contextual characteristics of a neighborhood are often referred to as 'ecological contamination' or 'ecological conditions,' include

socioeconomic factors, racial segregation, high crime rates, as well as being labeled as a dangerous area by police officers. Force and resistance occur more frequently in such settings (cf. Slovak, 1986; Lawton, 2007) Additionally, ecological conditions provide some explanation for police misconduct (Kane, 2002; Skolnick & Fyfe, 1993), While examining neighborhood context and police use of force, Terrill and Reisig (2003) reported officers would exert higher levels of force during police/suspect contact in "neighborhoods with high levels of concentrated disadvantage" (p. 306). An important distinction is to be made here, 'ecological contamination' in and of itself influences higher levels of force "independent of a suspect behavior and other statistical controls" (Terrill & Reisig, 2003, p. 307). Sykes and Clark (1975) found as the degree of socioeconomic status decreases the degree of deference decreases as well, which could explain the higher levels of force found by Terrill and Reisig (2003).

Organizational Characteristics. Organizational characteristics make up the fourth category of force predictors. Although the limited organizational studies have revealed some explanatory information about force, the research has primarily explored the influence of outside factors (e.g., suspect characteristics, situational factors) inward, not the influence of a department's own internal factors (e.g., minority representation of the community and in the rank and file) onto itself. Bordua and Reiss (1967) argued that without an understanding of a police agency's internal workings, organizational research would remain incomplete. In his landmark study, Wilson (1968) hypothesized that the top administrator's policing philosophy and the current political atmosphere shape an organization's culture, which in turn, influences officers' behavior. Wilson outlined three styles of police organizational culture: legalistic, watchman, and service-style. The style

of the department is, in part, determined by which police function (enforcing the law or maintaining order) the agency places the greater emphasis on (Paoline, 2003). For example, an agency that adheres to the watchman-style places a greater emphasis on order maintenance while a service-style organizational culture is grounded in serving the community using informal problem solving techniques. The legalistic-style agency, however, focuses on crime fighting and less on order maintenance and community service; under those circumstances, Wilson (1968) reasoned that police officers in a "crime fighter" type agency would be more prone to using force improperly.

Although the upper echelon of an organization shapes the formal organizational culture, informal culture is shaped and regulated by front-line officers (Van Maanen & Barley, 1984). Conventional research has focused on the shared experiences of police officers and for this reason researchers, such as Crank (1998), argue "…that street cops everywhere tend to share a common culture because they respond to similar audiences…" (p. 26). The "common culture" is believed to begin with the informal socialization of a new recruit by more senior officers (Van Maanen, 1974). It is through informal socialization, a new officer learns how to cope with strains and how to be a police officer within the established police culture (Goldsmith, 1990; as cited in Paoline, 2003). For instance, in an attempt to cope with and minimize the real or perceived dangers of working the streets, more senior officers judge citizens and categorize them as being suspicious, a know-nothing, or an asshole (Van Maanen, 1974). In turn, a new officer learns how to categorize citizens and emulate the prescribed informal attitudes and behaviors of other officers. With regard to the influence of informal socialization on the use of force, the mentality of an officer and their perception of what it means 'to be' a

good police officer is positively related to force (Terrill, et al., 2003). Officers with a more "pro-culture" attitude are more likely to view aggressive patrol tactics (self-initiated active, e.g., traffic stops, stop & talk) as being a good police officer (Terrill, et al., 2003) and street soldier (Sklonick & Fyfe, 1993). It is, then, not surprising that the mentality of being a street soldier contributes to officer use of force (Sklonick & Fyfe, 1993).

Along with formal and informal organizational cultures, scholars have and continue to empirically examine the effects the size of a department and use of force policies have on an officer's force decision (Alpert & MacDonald, 2006; Fyfe, 1988; Hickman & Piquero, 2009; Sherman, 1983; Tittle & Paternoster, 2000; Worden, 1995; Worrall, 2002).

With regard to departmental size, research has revealed that department size has some influence on force. Larger departments tend to operate with a more paramilitary culture where "real" police work, "…rank, efficiency, discipline, and productivity" are emphasized (Brooks & Piquero, 1998, p. 601) fostering cops as street soldiers mentality (Sklonick & Fyfe, 1993). The organizational stress on crime fighting has a tendency to encourage higher levels of law enforcement intervention with minimal focus on service. In contrast, smaller departments tend to be service-style oriented and place greater emphasis on community problem solving and less on law enforcement (Bittner, 1970; Manning, 1977; see Brooks &Piquero, 1998; Klinger, 2004; Lilley & Hinduja, 2006). Given that larger departments stress enforcement, they have a greater number of arrests when compared to their smaller counterparts (Mastrofski, 1981). Studies show that with greater levels of arrest activity the more likely an officer will employ force (Cao, 1999; Cao, Deng, & Barton, 2000). In turn, they are also more likely to incur a greater amount

of force complaints (Hickman & Piquero, 2009). Additionally, larger departments have greater organizational differentiation between supervisor and subordinates, which fosters a limited ability for effective supervision and officer accountability (Mastrofski, 1981).

Typically the size of a department is based on the number of citizens within their jurisdiction. It stands to reason that more populated municipalities will experience higher rates of violent crimes. The effects of officer exposure to violent crimes are two fold in regard to use of force. One, if an officer is exposed to a higher rate of violent crime, the officer learns how to recognize and handle the situation with force found on the lower end of the use of force continuum. The officer likely also knows when a situation requires escalation to the highest level of force (deadly weapons) (Crawford & Burns, 1998). Conversely, smaller agencies, located in areas with smaller populations, will have a limited amount of exposure to violent crimes. An officer with a limited amount of experience handling such crimes may have a harder time recognizing what level of force that is appropriate to gain control of a situation or the apprehension of a suspect. As a result, the likelihood of escalating force beyond what would be acceptable for the situation increases (see Crawford & Burns, 1998, p. 54). Second, the negative side to the exposure to higher violent crime rates is the greater likelihood an officer will employ force. Studies have found that higher rates of force are more likely to incur a greater amount of force complaints (Hickman & Piquero, 2009).

As noted earlier, coercive force is considered to be a distinctive and crucial police function (Bittner, 1970) and with it officers are afforded a degree of discretion as to how they employ that force. To ensure officers are exercising appropriate and consistent discretionary choices, departments have enacted policies and procedures to

exercise control on officers' behavior (see Worden, 1995). Empirical works indicate that policies and procedures of an organization have a significant effect on officer use of force. For example, research has shown that policies directed at use of deadly force have reduced the number of officer-involved shootings (Fyfe, 1988; Meyer, 1980; Sherman, 1983). Departments that require a specific form to be completed by a supervisor, along with additional individuals (i.e., the officer(s) involved and those up the chain of command), report less use of force incidents as compared to departments that only require the officer involved to complete a "use-of-force" form (Alpert & MacDonald, 2006).[7]

The Commission on Accreditation for Law Enforcement Agencies (CALEA) is an organization that accredits law enforcement agencies. Participation in CALEA is not a national or regional requirement; it is completely voluntary. CALEA, for example, standardizes operational requirements and policy, including use of force policies across participating agencies. It is important to note here that there is a financial cost to participate in CALEA and to achieve and maintain accreditation status. It is reasonable to conclude that accreditation may be cost prohibitive for some agencies, especially smaller organizations. As such, their use of force policies may not be as stringent or informative as required by CALEA. As such, this may also help explain the existence of use of force differences between agencies in regards to their size. As an illustration, recruits who have more stringent training policies, greater hours of in-service training, and longer field-training assignments, receive lower rates of use of force complaints

[7] A use of force form documents force and/or force-type behaviors employed by an officer to gain compliance from an unwilling or resisting subject (Alpert & MacDonald, 2006).

(Alpert & MacDonald, 2006), whereas, when a department collects use of force data for specific reasons (e.g., satisfying CALEA requirements), those agencies report higher rates of force (Alpert & MacDonald, 2006).

There are a handful of empirical studies that have explored the interaction between organizational characteristics and use of force. Unfortunately, most of the use of force literature is based on research focused on particular locations (i.e., urban settings) and agencies (i.e., larger departments). Additionally, the literature reveals the lack of comprehensive national examinations of force and has mostly relied on systematic reviews and meta-analysis of existing studies (Braga & Weisburd, 2012; Carriaga & Worall, 2015; as cited in Lee, Ecl & Corsaro, 2016). This fosters a "one-size-fits-all" perspective and can help explain why there are "inconclusive" or "mixed" findings and why organizational characteristics affect on police use of force still remains unclear (Klinger, 2004; see also Worden, 1995). The present study seeks to contribute to the use of force literature by examining the extent to which officer use of force varies across department size. For example, does an officer from a smaller agency use less force while taking a suspect into custody than an officer from a medium or larger agency? More simply, does officer use of force increase (or decrease) in relation to departmental size?

Methods

Data

The Arizona Arrestee Reporting Information Network (AARIN) project was modeled after and locally developed to replace the National Institute of Justice (NIJ) nation-wide Arrestee Drug Abuse Monitoring Program (ADAM) that was discontinued in

2004.[8] In 2007, AARIN began to collect self-reported data from adult and juvenile arrestees in Maricopa County (Arizona) regarding a variety of topics such as substance abuse, crime, prior criminal activity, mental health, victimization, education, treatment needs, and interactions with the police (White, 2013a). Also, a Police-Contact Addendum was added to the AARIN core questionnaire. The Police-Contact Addendum was developed to capture self-reported incidents of resistance and force employed by the police during the encounter (White, 2013a). Data were collected over a span of two-weeks during three separate collection periods in a calendar year.[9] Randomly selected adult and juvenile male and female arrestees voluntarily participated in confidential interviews conducted during intake (the booking process) or within 48 hours of being booked into three separate jail/holding facilities located within Maricopa County. In addition to interviews, participating arrestees would voluntarily provide a urine sample that was screened for alcohol and/or drugs (White, 2013b).

This study uses the AARIN data that were gathered during the collection cycle from September 2010 through June 2013. Participants in this data collection cycle were limited to randomly selected adult male and female arrestees who were being booked into one jail facility (Central Intake of Maricopa County Fourth Avenue Jail) or within 48 hours of being arrested. Trained interviewers asked the arrestees if they would voluntarily

[8] AARIN received funding from the Maricopa County Board of Supervisors from 2007 until the project was suspended in 2013 (White, 2013a).

[9] The National Opinion Research Center at the University of Chicago concluded that periodic collection cycles combined with sampling protocol and daily sampling quotes employed by AARIN would generate a generalizable and representative sample of arrestees in Maricopa County. For more detailed information regarding participant selection, see White (2013a).

participate in the study by answering questions derived from the AARIN questionnaire. The confidential interviews and collection of urine samples were conducted during intake. Of those randomly selected, more than 90 percent participated in the confidential interviews, while 93 percent of the interviewees voluntarily provided a urine sample for alcohol and drug screening.

Participants. The 2010 – 2013 AARIN data consisted of 2,273 adult female and male arrestees who self-reported incidents of resistance and police use of force during their encounter with officers from 16 different arresting agencies. As a means to increase and protect the anonymity of the participating agencies and arrestees, the author created three separate categories of departments based on the number of sworn personnel in the agency: small, medium, and large.

Dependent Variable. The study's dependent variable is officer use of force and is operationalized as non-physical and physical force. In past research, non-physical force (e.g., verbal commands) was not considered force and for the most part was left unmeasured. However, over the past 20 years researchers have recognized the importance of having an all-encompassing force definition and have come to rely on the National Academy of Sciences' (NSA) definition of violence (Garner, et al., 1995). The NSA defines force as, "behaviors by individuals that intentionally threaten, attempt, or inflict harm on others" (Reiss & Roth, 1993, p. 2; see Garner, et al., 1995). Police scholars have interpreted police verbal commands, orders, and threats as behaviors that implicitly (as oppose to explicitly) threaten harm to another (Terrill & Reisig, 2003, p. 300) and are also considered use of force.

The AARIN Police-Contact Addendum measured police use of force through eight separate questions. Each question is designed to capture the type of force, non-physical or physical, used by the officer during the arrestee's police/citizen encounter. Non-physical force is measured with one question; "Did the officer threaten to use force against you for any reason?" Physical force is measured through seven separate questions that are separated into two categories, non-weapon and weapon force. Non-weapon force is operationalized as being open hand (grab, push) and closed hand (hitting, kicking) techniques. Examples of non-weapon force questions are: "Did the police officer push or grab you?" "Did the officer hit or kick you?" It was considered weapon force if an officer used or threatened to use 1) any object to strike the suspect (e.g., baton, flashlight), 2) chemical or pepper spray, 3) TASER, or 4) gun. An example of a weapon force question is: "Did the police officer use or threaten to use a TASER?" A use of force continuum is a scale of the available use of force techniques afforded to an officer by their respective agency. Typically, a use of force continuum begins with what is considered to be the lowest form of force – officer presence. The degree of force increases in severity along the continuum and culminates with deadly force. The dependent variable, officer use of force, includes different types of forced employed by the officer during contact with the arrestee. This author, however, does not seek to determine at which point along the use of force continuum the officer's initial degree of force falls. The study is only concerned with whether an officer did or did not use force during the police/citizen contact and if the officer did use force, does the rate (not the type or degree) of force used vary by the size of the officer's department. To capture the rate (not the variability) of force used, all

responses to the officer use of force questions were collapsed into a bivariate measure: any force used, no = 0 or yes = 1.

Independent and Control Variables

The study includes several factors that have been found in prior research to influence police use of force and suspect resistant-type behaviors during police/citizen encounters. For example, arrestee sociodemographics are captured through the following: sex, race/ethnicity, and age (Garner, et al., 2002; Kaminski et al., 2004; McCluskey & Terrill, 2005; Sun & Payne, 2004; Terrill & Reisig, 2003). Sex is measured as female (0) and male (1). Race/ethnicity is measured as White, African American/Black, Hispanic/Latino, American Indian or Alaskan Native, Asian or Pacific Islander, multiple, and other. For the purpose of this study, Race/ethnicity was aggregated into four subgroups: White (referent), African American/Black (1), Hispanic/Latino (2), and other (3). Crawford & Burns (1998) found that younger suspects (under 30 years old) are more likely to have some degree of force used against then. Staying consistent with this research, age is measured in number of years and was collapsed into two categories: 18-30 (1) and 31-74 (0).

Arrestee mental health is captured by four separate questions. This study, however, includes one question: "Have you ever been told by a counselor, social worker, doctor that you have a mental illness, or emotional problem?" The AARIN data measured the type of substance (legal or illegal) that an arrestee used through multiple questions and urine analysis. The urine analysis checked to see if the arrestee had alcohol, marijuana, methamphetamine/amphetamine, cocaine or opiates in their system at the time of arrest. For this study, a dichotomous substance variable was created to capture

whether or not the results of the urine test was positive (yes=1). Additionally, because alcohol and marijuana use are legally available in Arizona they are included as separate and independent factors[10]. Education is measured by two categories, no high school diploma and high school diploma and above. The type of charge the arrestee was booked under is measured as a misdemeanor (0) or a felony (1). The complete list of independent and control variables descriptive statistics are presented in Table 1. The primary independent variables, however, are agency size and suspect resistance.

Agency size. As a means to increase and protect the anonymity of the participating agencies and arrestees, the author aggregated the arresting agencies into three categorical sizes (small, medium, and large) based on the number of sworn

Table 1. Independent and Control Variables Descriptive Statistics (N = 2273)

Variables	Min	Max	Mean	SD	SE
Sex	0	1	1.241	.428	.008
Race					
White	0	1	.471	.499	.101
Black/AA	0	1	.170	.375	.007
Hispanic	0	1	.282	.450	.009
Other	0	1	.075	.264	.005
Age	0	1	.540	.498	.010
Mental health	0	1	.221	.415	.009
Alcohol	0	1	.120	.325	.007
Marijuana	0	1	.352	.477	.010
Substance (any)	0	1	.667	.467	.010
Level of education	0	1	.671	.469	.009
Suspect resistance	0	1	.160	.367	.007
Agency category					
Small	0	1	.166	.372	.007
Medium	0	1	.231	.422	.008
Large	0	1	.601	.489	.010
Arrest Charge	0	1	.475	.499	.010

[10] In 2010 the Arizona Medical Marijuan Act was passed. This allowed an individual with a specific medical condition(s) to posses and legally consume marijuana with a doctor prescription (Freeman, 2010).

personnel, the number of arrestees contributed, and the availability of the additional relevant data. It is important to note here that the author paid particular attention to the number of arrestees contributed by each agency in an attempt to have a more evenly distributed number of arrestees per category.[11] The "small agency" category consists of departments that have 349 or less sworn personnel. The category "medium agency" includes departments that employ 350 to 799 sworn and departments with 800 to 3000 sworn falls within the "large agency" category. Table 2 displays the descriptive statistics for each agency category. The first column indicates the total number of individuals arrested per categorical size: small agency contributed 379 arrestees, where medium contributed 527 and large contributed 1,367 arrests. Also included is the combined total percentage of arrestees for each agency. For example, the small agency category is responsible for 16.7 percent of the total number of arrestees. The second column indicates the percentage of arrestees that resisted arrest per categorical size. The last column describes the percentage of encounters where some form of force was used.

Table 2. Agency Descriptive Statistics (N = 2273)

	Arrests		Resistance		Force	
Agency	n	(%)	n	(%)	n	(%)
Small	379	(16.7)	64	(16.9)	82	(21.7)
Medium	527	(23.2)	74	(14.1)	111	(21.1)
Large	1367	(60.1)	226	(16.6)	373	(27.4)
Total	2273	(100)	364	(16.1)	566	(25)

[11] The author's categoration of the participatng departments does not adhere to the International Association of Chiefs of Police defininition of agency size. IACP defines agency size by the number of sworn personnel: small (less than 50), medium (100 to 400), and large (over 500).

The percentage of arrestees reporting resistance and force are relatively consistent across each agency category, ranging from 14.1 to 16.9 percent and 21.1 to 27.4 percent respectively.

Suspect resistance. Use of force literature demonstrates that suspect resistance is strongly correlated to officers' use of force (Crawford & Burns, 1998; Engel, et al., 2000; Garner, et al., 2002). Moreover, suspect resistance can be presented as non-physical (disrespect) and or physical (hands-on resistance). As with officer use of force, suspect resistance is captured through eight questions. Each question is designed to capture the type of resistance used by the arrestee during their encounter with the police (non-physical, physical). Remaining consistent with previous research (see Reisig, et al., 2004; Terrill & Reisig, 2003; White, 2013a), this study measures non-physical suspect resistance as, arguing with or disobeying the officer, cursing at, insulting or calling the officer an offensive name, and verbally threatening the officer. For example, non-physical force questions on the survey consisted of: "Did you argue with or disobey the officer for any reason?" "Say something threatening to the officer?" and "Curse at, insult or call the officer an offensive name?"

Physical suspect resistance includes, grabbing, pushing, hitting or physically fighting with the officer; as well as, resisting being handcuffed or arrested, fleeing (foot/vehicle) or hiding, and using a weapon to assault an officer. Samples of physical resistance questions are: "Try to escape by hiding, running, or engage in a vehicle chase?". "Resist being handcuffed or arrested?" "Grab, push, hit or physically fight with the officer?" The study is concerned with whether an arrestee did or did not resist arrest and if the suspect did resist, does the rate (not the type or degree) of resistance vary by

the size of the arresting officer's agency. All responses to the questions regarding arrestee resistance were collapsed into a bivariate measure where if a respondent answered yes to any of the above questions, they received a 1 on the suspect resistance question.

Analysis Plan

Logistic regression was used to predict use of force with the independent and control variables. A model was designed to assess if the predictors of police use of force remain consistent or differ across department size. This method is more statistically robust and reveals predictors' odds ratio and probabilities for the use of force across each agency size category. It is important to note all predictors are dichotomous measurements.

A collinearity and model diagnostic test was conducted to examine the bivariate correlations for police use of force and the independent variables found in Table 2. Correlations did not exceed |.50| and the Variation Inflation Factor (VIF) ranged from 1.02 to1.55, with a mean VIF of 1.16; therefore, collinearity is not a problem in the model.

Results

Table 3 displays the descriptive statistics of the participating arrestees. As shown, 75.8 percent (1724) of the arrestees were male with an average age of 32 years. Females made up 24.2 percent (549) of the arrestees with an average age of 31 years. Nearly 50 percent of the arrestees were White. African American arrestees totaled 17 percent; while 28 percent were Hispanic and 7 percent were American Indian or Alaskan Native. Over 47 percent of the participants were arrested on felony charges and 87 percent arrestees had prior arrests. Also shown in Table 3 is that 35 percent of arrestees' urine samples

testedpositive for marijuana and 27 percent (606) tested positive for methamphetamine. With regard to force, 16 percent arrestees indicated that they presented some form of resistant behavior during their arrest while 25 percent of the arrestees reported that officers used some form of force during the encounter.

Table 3. Arrestee Descriptive Statistics (N = 2273)

Variables	Total	Percentage
Sex		
Female	549	24.2
Male	1724	75.8
Race | ethnicity		
White	1070	47.1
African-American	386	17.0
Hispanic	642	28.2
Am. Indian or Alaskan Native	154	6.8
Asian - Pacific Islander	17	.7
Age (mean)	31.96 years	
Level of education		
Some college - 4 yr. degree	749	33.1
High school graduate	770	34.0
No high school diploma	744	32.9
Employment		
Legal income	1881	82.8
Illegal income	327	14.4
Substance use (Urine test results)		
Alcohol	254	11.9
Marijuana	747	35.3
Methamphetamine	606	26.7
Cocaine	202	9.5
Opiates	203	8.9
Mental health		
Illness | emotional problem	452	19.9
Arrest charge		
Felony	1078	47.6
Misdemeanor	1189	52.4
Prior arrests		
Yes	1149	86.6
Resisted arrest		
Yes	364	16.1
Use of force		
Yes	566	25.1

Correlations

Table 4 (see Appendix A) presents the correlations between the dependent and independent variables. Several significant associations are noted. As expected and consistent with prior research, police use of force is significantly and positively associated with mental health (Mulvey & White, 2014), substance use (Engel, 2003), and suspect resistance (Crawford & Burns, 1998). Additional significant and positive correlations between several independent variables are present, such as, mental health and substance use, suspect resistance and mental health, and education and substance use. More importantly, the findings suggest that medium size departments are negatively associated with police use of force; where as large departments are positively associated with force. The correlation relationship between force and small departments, however, was not significant.

Logistic Regression Analyses

As previously discussed, the study is particularly interested in the relationship between police use of force and department size. The logistic regression model is displayed in Table 5. The model regressed police use of force onto the departmental sizes and the relevant control variables. The results showed a negative and statistically significant relationship between police use of force and small agency. When compared to large agencies, individuals who were arrested by officers from small agencies are less likely ($b = -0.444$) to report experiencing use of force. More specifically, individuals who were arrested by officers from small agencies are 44.4% less likely to report experiencing use of force. The results also indicate a negative and significant relationship between force and medium sized agencies. When compared to large agencies, individuals who

were arrested by officers from medium sized agencies are less likely (b = -.323) to report experiencing use of force. More specifically, individuals who were arrested by officers from medium sized agencies are 32.3% less likely to report experiencing use of force.

Table 5. Binary Logistic Regression Police Use of Force (n = 2273)

	Police Use of Force[a]			
Variable	*b*		S.E.	Odds Ratio
Small Agency	-.444	**	.169	.642
Medium Agency	-.323	*	.146	.724
Sex	-.385	**	.147	.680
African American | Black	.248		.245	1.282
Hispanic | Latino	.461		.265	1.586
Other	.272		.250	1.312
Age (18-30)	.016		.123	1.017
Mental Health Illness	.557	***	.133	1.746
Alcohol	.073		.190	1.076
Marijuana	.131		.144	1.140
Drug Use (any other)	.440	**	.160	1.553
Education HS | College	-.104		.126	.901
Suspect Resistance	1.621	***	.138	5.057
Felony	.589	***	.118	1.802
Constant	-1.932		.330	.156

Note. Entries are unstandardized coefficients (b), and robust standard errors (SE).
[a]Binary regression model
*p < 0.05, **p < 0.01, ***p < 0.001

Additionally, several other predictors were found to a statistically significant relationship with force. If an arrestee resists arrest to any degree, they are 5.1 times more likely to experience force than an arrestee who does not resist being taken into custody. When compared to males, females are 38.5% less likely (b = -0.385) to report experiencing use of force. Consistent with previous research, the seriousness of the charge (i.e., felony) was found to be a strong predictor of an arrestee reporting incidents of force (Bolger, 2014). The study revealed that an arrestee who is charged with a felony is 1.8 times more likely to report having force used against them. Furthermore, a positive

and significant relationship between use of force and mental health was revealed. When compared to subjects without a mental health issue, individuals with mental health illnesses are more likely (b = 0.557) to report experiencing use of force. More simply, individuals with mental health illnesses are 1.7 times more likely to report having experienced some degree of force while being taken into custody. This finding is supports prior research conducted by Johnson (2011), Kaminski and colleagues (2004), and Mulvey and White (2014). There is also a positive and significant relationship between use of force and substance use. Interestingly, when substance use (any) was regressed it showed that if an arrestee reported using any substance (legal and/or illegal), they were 1.5 times more likely to report having force used against them. However, when alcohol and marijuana were regressed independently, neither showed a significant relationship with force. Lastly, in my study, I do not find any significant differences in use of force by race, which is similar to research conducted by Fyfe (1982) and MacDonald and colleagues (2001) but conflicts with Durose, Schmitt, and Langan (2005), Friedrich (1980), Leinfelt (2005), and Terrill and Mastrofski's (2002) findings.

Discussion

The present study sought to contribute to use of force literature by examining the relationships between departments' size and whether or not an officer used force during an incident. Prior research has dedicated significant effort to identify the causes and correlates of use of force (see Garner, et al., 2002; McCluskey & Terrill, 2005). Given the amount of support for internal organizational influence (e.g., culture, polices & procedures) on force decisions, exploring the association and effect department size in

and of itself has on force displayed during a police/citizen encounter adds a supplemental perspective within the organizational framework.

The current study questioned if officer use of force increases (or decreases) with departmental size. The analysis suggests that department size is associated with police use of force when controlling for relevant predictors. The study revealed that individuals arrested by an officer from a smaller department are 44% less likely to report use of force and arrestees from a medium size department are 32% less likely to report use of force when compared to individuals arrested by an officer from a larger size department. These findings warrant further discussion.

The Federal Bureau of Investigation's (FBI) Uniform Crime Reporting (UCR) Program considers an offense to be a violent crime if force or the threat of force is used during the commission of the offence. There are four offenses, each a felony, which falls within the violent crime category: murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault (FBI, 2010). Using reported violent crime data from the 2012 UCR statistics, Table 6 (see Appendix B) displays the participating departments' size and violent crime rate per 100,000 residents. As shown, small departments average 235 reported violent crimes, medium sized departments average 319, and large departments average 517 reported violent crimes per 100,000 residents. As mentioned earlier, the study revealed that the charge at the time of the arrest has a significant relationship with officer use of force; an arrestee charged with a felony is 1.8 times more likely to report having force used against them. Coupled with this finding being consistent with prior research (see Alport & McDonald, 2006; Bolger, 2014; Mastrofski, 1981; Mulvey & White, 2014; Worden, 1995) and the large department's higher violent

crime rate it is unsurprising that individuals arrested by officers from the small and medium sized departments reported less officer use of force.

Additionally, the current study revealed that there are significant relationships with several predictors of force and independent and control variables: suspect resistance, mental health, substance use, and sex (see, Crawford & Burns, 1998; Garner, et al., 2002; Mulvey & White, 2014; Paoline & Terrill, 2005). Similar to Crawford and Burns (1998), suspect resistance was the strongest predictor for police using force. If a suspect resisted arrest they were 5 times more likely to experience force regardless of department size. Table 3 displays the percent of arrestees resisting arrest per departmental size. As noted, the percentage of arrestees exhibiting some form of resistance remained rather consistent across departmental size (small = 16.9%, medium = 14.1% and large = 16.6%). Unlike the relationship between department size and force, it appears that departmental size has little to no affect on an individual's decision to exhibit some form of resistance. It is important to note however, this study did not find any significant relationship between extra-legal factors such as race, age, and education and the use of force. Given the historical and relative importance of a suspect's race, the finding of a non-significant relationship between race and force suggests arrestees were more likely taken into custody due to legal factors, not due to their ethnicity or race (see cf., Crank, 1993; Durose, et al., 2005; Friedrich, 1980; Leinfelt, 2005; Sherman, 1980;Terrill & Mastrofski, 2002).

Limitations

Reliability and Validity

Concerns regarding reliability, internal and external validity must be discussed. This study relies on information gathered from interviews (self-reported delinquent/criminal behavior) that were conducted while the participant was actively being booked into or within 48 hours of being booked into a jail facility. This data collection method has been criticized in part because self-reported delinquent or criminal behavior often produced estimates that are not congruent with official records data regarding type of crimes and crime rates (Huizinga & Elliott, 1986). More recently, however, additional research has shown that interviews and self-reported surveys completed while the participant is incarcerated tend to be truthful (see Katz, Webb, Gartin, & Marshall, 1997). Consequently, self-reported instrument's reliability and validity has been accepted as being comparable to other methods routinely used by researchers (Huizinga & Elliott, 1986).

External validity, or the generalizability of the findings beyond the participants and study location, is limited. As previously mentioned, AARIN data were collected over a span of two-weeks during three separate collection periods in a calendar year. The AARIN data used for this study originated from one jail facility, Maricopa County Fourth Avenue Jail. The periodic collection cycles combined with sampling protocol and daily quotes employed by AARIN generated a generalizable and representative sample of arrestees in Maricopa County and caution should be used when referring to the findings of this study beyond Maricopa County.[12]

[12] The National Opinion Research Center at the University of Chicago.

Although research has shown that interviews and self-reported surveys completed while the participant is incarcerated tend to be truthful (see Katz et al., 1997) there remains concern of over-reporting (Klinger, 2004). Also, the study only captures the side of the citizen in a police/citizen encounter. Including the perspectives of police officers during an encounter can reveal how an officer interprets force compared to a citizen's interpretation. Conversely, this study did not determine at which point along the use of force continuum the officer's initial degree of force falls. As noted by Engel (2003), "establishing temporal ordering for research-examining police/citizen encounters is critical" (p. 488). Additionally, prior research reveals that officer characteristics (Crawford & Burns, 1998) and their attitude "toward the traditional view of police culture" (Terrill et al., 2003, p. 1029) have an influence on use of force decisions. It would, therefore, be very beneficial to include those exploratory variables in future research. Lastly, the study only examined the bivariate associations between departmental sizes, use of force and relevant control variables. It is, therefore, unknown if multivariate associations, as well as theoretical interaction terms, would reveal more subtle influence departmental size has on officer use of force. A more astringent statistical analysis could provide more detailed information and nuances to help inform use of force policy.

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APPENDIX A

INDEPENDENT AND DEPENDENT VARIABLES CORRELATION TABLE

Table 4. Dependent and Independent Variable Correlations (N = 2273)

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Force	1													
2	Small Agency	-.034	1												
3	Medium Agency	-.049***	-.246***	1											
4	Large Agency	.068**	-.549***	-.675***	1										
5	Sex	-.054**	-.032	-.008	.031	1									
6	Age	-.057**	-.032	.044*	-.014	-.005	1								
7	Race	-.028	-.032	-.013	.036	-.013	-.071**	1							
8	Mental Health	.126***	-.035	-.034	.056*	.115***	.011	-.143***	1						
9	Substance Use	.122***	-.033	-.059**	.076***	-.032	-.065**	-.020	.101***	1					
10	Alcohol	.014	.023	-.051*	.026	.018	-.003	.194***	-.053*	.255***	1				
11	Marijuana	.110***	-.018	-.032	.041	-.120***	-.241***	-.008	.070**	.509***	-.038	1			
12	Education	.002	-.067**	-.011	.061**	-.043*	-.111***	.187***	-.037	.058**	-.012	.067**	1		
13	Resistance	.297***	.010	-.030	.018	-.014	-.115***	-.016	.107***	.055*	-.004	.098***	.033	1	
14	Charge	-.140***	.055**	-.095***	.040	.057**	.009	.055**	-.014	-.074**	.073**	-.065**	-.031	-.015	1

*p < 0.05, **p < 0.01, ***p < .001 (2-tailed test)

APPENDIX B

PARTICIPATING AGENCY SIZE AND VIOLENT CRIME RATE

Table 6. Participating Agency Size and Violent Crime Rate

Department	Size	Violent Crime Rate[1]
1	Small	134
2	Small	186
3	Small	153
4	Small	95
5	Small	258
6	Small	297
7	Small	528
8	Small	*
9	Small	*
Small	*Average*	*235*
10	Medium	491
11	Medium	147
12	Medium	*
13	Medium	*
Medium	*Average*	*319*
14	Large	636
15	Large	399
16	Large	*
Large	*Average*	*517*

[1]Per 100,000 residence

*Overlapping jurisdictions