Studying the Use of Force by Police in Tulsa and Cincinnati

A Multi-Method Investigation of Officer Decision-Making and Force Used or Avoided in Arrest Situations

Presentation to Tulsa City Council
Tulsa, Oklahoma
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IACP / UC Center for Police Research and Policy
University of Texas at San Antonio

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**Our Mission: Bring Science to the Streets**

- Provide police agencies with access to cutting-edge research, translated into actionable recommendations
- Conduct and facilitate police research; foster collaborative relationships between researchers and police agencies
  - Answer urgent policing issues
  - Drive sound policy
- Direct access to the field: *Research driven by law enforcement, for law enforcement*
IACP/ UC Center for Police Research and Policy

Translate existing research on topics that impact policy & practice

- Use of Force
- De-escalation Training
- Implicit Bias Training
- Arrest Decision Making / Alternatives to Arrest
- Violence against Law Enforcement
- Domestic Violence
- First-line Supervision

Conduct large-scale research studies targeting critical issues

- Implicit Bias Training (NYPD)
- Gang Violence Reduction Strategies (Las Vegas Metro PD)
- Use of Force (Tulsa PD and Cincinnati PD)
- De-escalation Training (UCPD and Louisville Metro PD)
- Case Clearance Rates (Knoxville PD)
- Reducing Domestic Violence (Tulsa PD)
Research Team

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• Nicholas Corsaro, Ph.D., University of Cincinnati
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Background

- We know little systematically about police decisions to use force
  - **Purpose of research:** Develop framework for understanding how police-civilian interactions can escalate into use of force
  - **Goal:** To better understand these interactions to ultimately reduce the need for use of force in police-civilian encounters
- Findings used to identify changes in policy, training, and practice to reduce officer and civilian injuries
- **Voluntary** research completed in partnership with Tulsa and Cincinnati Police Departments
- Funded by *Arnold Ventures* (formerly, Laura and John Arnold Foundation)
Presentation Outline

I. Evidence Regarding Use of Force
II. Current Study
III. Recommendations
Prevalence and Types of Force

- Police Use of Force (UoF) is an action taken by police that threatens, attempts, or inflicts physical force to compel compliance by an unwilling subject
- Most studies find police use of force is relatively rare
  - Approximately 1 to 5% of police-citizen encounters
  - Upwards of 20% of all arrests
  - Prevalence varies based on how force is measured
- Wide variation in how force is defined & reported
  - UoF continuums also differ across agencies
- Majority of force used by police involves hands-on attempts to control resistant subjects
  - Studies find between 50 to 75% of UoF incidents involved physical force only (push, grab, kick, hit)
Benchmark Analyses

- Rates of force have to be compared to expected probability of force (in an unbiased world) to determine whether disparity exists.
- Comparison data—the “benchmark”—is supposed to represent “similarly situated people” AT RISK of experiencing force by police.
- Risk of police action is influenced by a number of legal and extra-legal characteristics including *civilians’ legally relevant behaviors*.
  - Strongest predictors of UoF are civilian resistance, presence of a weapon, criminal behavior.
- Census data do not measure these “at risk” characteristics.
- **CONCLUSION:** Multivariate regression modeling offers the best statistical option for understanding the many factors that impact use of force decisions by the police.
Summary: Predictors of Use of Force

- **Civilian resistance** is the strongest factor explaining the use and severity of force across various studies and measures
  - Measuring civilian resistance is complex
  - Often unaccounted for in use of force studies

- Other factors that significantly increase officer UoF:
  - Presence or use of a weapon
  - Evidence of criminal behavior (esp. violent crime)
  - Male civilians
  - Incidents involving arrest/pursuit
  - Disrespectful civilians
  - Young adults

- The impact of all other situational, individual, organizational, and community factors is much weaker and varied
  - Reason for inconsistency may be methodological variations across studies
  - Demonstrates that comparisons to population figures are inappropriate

- Importance of Policy, Supervision, and Training
Summary: Predictors Injuries (Civilian & Officer)

- Civilians have higher injury rates than officers during use of force encounters
  - About half of UoF incidents result in civilian injury; civilians about twice as likely as officer to be injured
  - Most civilian injuries are relatively minor
- Type of force and civilian resistance also predicts civilian and officer injuries
  - Conductive Energy Devices (e.g., Tasers)
    - civilian injury (-)
    - officer injury (-)
  - Physical force
    - civilian injury (+)
    - officer injury (+)
  - Civilian physical resistance
    - civilian injury (+)
    - officer injury (+)
Presentation Outline

I. Evidence Regarding Use of Force
II. Current Study
III. Recommendations
Research Questions

1. How and why do some arrests turn violent while most do not?

2. What factors or combination of factors contribute to injuries to civilians and victimization of police officers during arrests?

3. How can law enforcement agencies minimize conflict to reduce force, lower injuries and victimizations, and improve outcomes during arrests and similar encounters with civilians?
Tulsa & Cincinnati Police Department

**Tulsa**
- ~750 sworn officers
- Serve 400,669 residents
- 1,041 violent crimes per 100,000 (top 5% of US cities)

  - TPD Average annual activity:
    - 15,000 arrests
    - 275 use of force cases
    - 8 officer-involved shootings

  - TPD Officers equipped with:
    - Body-worn Cameras
    - Pepper spray
    - Firearms
    - TASERS
    - Collapsible batons
    - Patrol canines

**Cincinnati**
- ~1,000 sworn officers
- Serve 302,605 residents
- 947 violent crimes per 100,000 (top 5% of US cities)

  - CPD Average annual activity:
    - 28,000 arrests
    - 415 use of force cases
    - 4 officer-involved shootings

  - CPD Officers equipped with:
    - Body-worn Cameras
    - Firearms
    - TASERS
    - Auto-lock batons
    - Patrol canines
# TPD Use of Force Continuum

<table>
<thead>
<tr>
<th>DEATHLY FORCE</th>
<th>ADVANCED FORCE</th>
<th>INTERMEDIATE FORCE</th>
<th>LOW FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Deadly Force Applications</strong></td>
<td><strong>Police Canine Bite, Launched Chemical Munitions, 37/40mm Launcher, 12-Gauge Flexible Baton, Carotid Restraint Control Hold, Personal Impact Strikes to Head, Conducted Electrical Weapon, Impact Weapons, Flash Sound Diversionary Devices, Direct Impact Pepperball</strong></td>
<td><strong>Personal Impact Strikes, Physical Control Holds</strong></td>
<td><strong>Firm Grip or Gesture, Verbal Commands, Uniform Presence</strong></td>
</tr>
<tr>
<td>Likely to produce great bodily injury or death</td>
<td>Low expectation of great bodily injury or death; some possibility of injury, involves some pain compliance techniques</td>
<td>Less possibility of injury than Advanced Force, involves some pain compliance techniques</td>
<td>Little to no expectation of injury, low visual impact</td>
</tr>
<tr>
<td>Calculated to Incapacitate (STOP)</td>
<td>Calculated to Control and/or Overcome</td>
<td>Calculated to Control and/or Overcome</td>
<td>Calculated to Gain Compliant Behavior</td>
</tr>
</tbody>
</table>
Data Sources

- Arrest and Use of Force administrative data gathered for 30-month period:
  - Jan 1, 2016 – Jun 30, 2018

- Police Agencies:
  - Tulsa Police Department
  - Cincinnati Police Department

- Data Types:
  1. Arrest data
  2. Use of Force data
  3. Narrative Use of Force data
     - Use of force narratives coded based on a pre-defined coding structure created by research team
1. TPD Arrest Data

- Merged *CitiSource* and *TRACIS* data to create combined Arrest database
  - Approx. 10% could not be matched to individual officer characteristics
  - Total of 31,950 arrest incidents analyzed

- **Variables measured:**
  - Use of Force
  - Arrest offense seriousness
  - Civilian characteristics (e.g., age, race, sex)
  - Officer Characteristics (e.g., age, race, sex)
  - Officer assignment (e.g., K-9, rank, squad, etc.)
  - Community characteristics (crime rate, population, SES, etc.)

- **Variables NOT measured:**
  - Civilian resistance
  - Mental health
  - Alcohol/drug
  - Demeanor

- **Arrest seriousness:**
  - Level 1: 7.7%
  - Level 2: 5.9%
  - Level 3: 86.4%

- 1.7% of arrests result in UoF
2. TPD Use of Force Data

- Use of Force data from *Blue Team* database
  1) 713 UoF incidents reported – 170 (24%) could not be matched with arrest data
     • Arrest and force analysis includes remaining 543 UoF incidents
  2) 713 UoF incidents reported – 71 (10%) missing information
     • Injury analyses based on remaining 642 UoF incidents

**Use of Force Incident Characteristics (n=642)**

- **Civilian Characteristics:**
  - Age: 32.8 years
  - 88.6% male
  - 52.3% White; 35.2% Black; 8.6% Hispanic; 3.9% Other
  - 54% involving injury

- **Officer Characteristics:**
  - Age: 28.9 years
  - 91.4% male
  - 71.5% White; 2.6% Black; 4.8% Hispanic; 21.1% Other
  - Avg. of 11.9 years of service
  - 12% involving injury
TPD Use of Force Incidents, by Type of Force (n=642)

- Physical Control: 5.0%
- Hard Hands: 11.4%
- Pepper Spray: 16.8%
- Taser: 32.1%
- Baton: 1.1%
- Canine: 28.3%
- Firearm: 4.4%
- Other: 1.0%

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3. Narrative Use of Force Data

- For every written narrative available, the research team reviewed and coded the information based on a pre-defined coding structure
  - Key contribution: information provides a series of ordered actions to understand how each incident unfolded
  - To better understand the action-reaction processes in UoF incidents
- Analyses of the 713 coded narratives are in process; findings from these analyses will be reported in a final report, scheduled for delivery in Jan. 2020
Methods

- **Multivariate modeling** used to identify effects for the independent (predictor) variables for:

  1. Arrests resulting in use of force (n=31,950)
  2. Use of force incidents resulting in civilian injury (n=642)
  3. Use of force incidents resulting in officer injury (n=642)
  4. Force factor analysis (n=634)

- **Results reported:**
  1. Statistical significance
  2. Odds Ratios
  3. Predictive Probabilities
Arrest Model 1 – Predicting Use of Force

- Statistical model of arrests with and without force (N = 31,950)
- Models include:
  - Characteristics of arrest (nighttime, weekend, seriousness)
  - Civilian Characteristics (age, sex, race)
  - Officer Characteristics (age, sex, race, years of service, rank, K-9 assignment)
  - Priority of the call
  - Crime rate (squad level)
  - Neighborhood disadvantage and youth population (squad level)
- Models do NOT include:
  - Civilian resistance, drug/alcohol use, mental health, or demeanor
Arrest Model 1 – Predicting Use of Force

- Significant correlates, net of other measures:
  - **Seriousness of offense** (less serious offense, less likely force used)
  - **Suspect gender** (males 3x more likely to have force used under same conditions as females)
  - **Patrol officers** (more likely to use force than supervising officers)
  - **Officers with more experience** (slightly more likely to use force than officers with less experience)
  - **K-9 unit** (more likely to use force than other assignments)

- **Race of suspect was NOT a statistically significant predictor of use of force after controlling for other factors**
  - Blacks, Hispanics, Native Americans, and Asian civilians were no more/less likely to have force used during arrest relative to White under the same circumstances
Arrest Model 1 – Predicting Use of Force

**Significant**
- Seriousness of crime (+)
- Male civilian (+)
- Officer experience (+)
- Black officer (-)
- Patrol rank (+)
- Canine officer (+)

**Not Significant**
- Incident Characteristics (day, time)
- Civilian Characteristics (age, race)
- Officer sex
- Contextual Characteristics (priority calls for service, concentrated disadvantage, % of population 18-24 years, crime rate)
Predictive Probabilities of Use of Force during Arrests

- Predicted Probability of Use of Force All Measures Set to Average: 0.3%
- Predicted Probability Use of Force Knowing K-9 Unit Involvement: 14.0%

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Arrest Model 1 – Predicting Use of Force: Interpretation

• Models predicting use of force are substantively weak, in part because suspect resistance and other key predictors cannot be measured with data available

• Possible predictors of UoF included in the model – with exception of officer K-9 assignment – are either non-significant, or significant but substantively weak

• Circumstances that lead to the use of K-9 Unit may correspond with the nature of calls to which K-9 responds

• Regardless of K-9 involvement, the only civilian demographic distinguishing when force is used is males relative to females – but not age, race, or context of police district
UoF Models 2 & 3 – Predicting Injury

- Statistical models of use of force incidents with and without civilian and officer injuries (N = 642 UoF incidents)
- Models include:
  - Characteristics of incident (nighttime, weekend, type of crime committed),
  - Civilian characteristics (age, sex, race)
  - Civilian resistance
  - Officer Characteristics (age, sex, race, years of service, rank, K-9 assignment)
  - Priority of the call
  - Type of force used (physical control, pepper spray, tasers, K-9, and firearm)
  - Crime rate (squad level)
  - Neighborhood disadvantage and youth population (squad level)
UoF Model 2 – Predicting Civilian Injury

**Significant**
- Civilian average age (+)
- Male civilian (+)
- Native American civilian (+)
- Officer patrol rank (+)
- Native American officer (-)
- Type of Force
  - Physical Control (+)
  - Pepper Spray (-)
  - Canine (+)
  - Firearm (+)
- Contextual Characteristics
  - Concentrated Disadvantage (-)
  - % of population 18-24 years (+)

**Not Significant**
- Incident Characteristics (day, time)
- Civilian Race (except Native American)
- Civilian Criminal History
- Resistance Level
- Officer Characteristics (experience, sex, race except Native American)
- Contextual Characteristics (priority calls for service)
UoF Model 2 – Predicting Civilian Injury: Interpretation

- Models predicting civilian injury are **substantively strong**; factors combine to predict the likelihood of injury 66% of the time
- Only one civilian racial group (Native American) was a statistically significant predictor of injury (+) during use of force incidents after controlling for other factors
- When officer uses firearm, civilian injuries are 90% predictable
- When canine is type of force used, civilian injuries are 97% predictable
Predictive Probability of Civilian Injury during UoF Incidents

- Predicting Civilian Injury in Use of Force Cases Set to Average: 66.4%
- Predicting Civilian Injury in Use of Force Cases Native American Suspects: 86.0%
- Predicting Civilian Injury in Use of Force Cases Type of Force K-9: 97.0%
- Predicting Civilian Injury in Use of Force Cases Type of Force Firearm Used: 90.0%

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UoF Model 3 – Predicting Officer Injury

**Significant**
- Civilian Average Age (-)
- Civilian Resistance level (+)
- Patrol Officer Rank (-)
- Type of Force
  - Pepper Spray (-)
  - Taser (-)
  - Canine (-)
  - Firearm (-)
- % population 18-24 years (-)

**Not Significant**
- Incident Characteristics (time, day)
- Civilian Characteristics (race, sex, criminal history)
- Officer Characteristics (experience, sex, race)
- Contextual Characteristics (calls for service, concentrated Disadvantage)
UoF Model 3—Predicting Officer Injury: Interpretation

- Officers’ injuries are predictable 50% of the time during use of force incidents with statistical model
- Certain types of force (pepper spray, tasers, K-9, firearm) clearly reduce officers’ risk of injury
  - When officers use tasers, likelihood of officer injury reduces to 35%
  - When officers use pepper spray, likelihood of officer injury reduces to 18%
  - When officers use canines, likelihood of officer injury reduces to 9%
  - When officers use firearms, likelihood of officer injury reduces to 6%
## Predictive Probability of Officer Injury during UoF Incidents

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicting Officer Injury in Use of Force Cases Set to Average</td>
<td>50.6%</td>
</tr>
<tr>
<td>Predicting Officer Injury in Use of Force Cases Where Taser Force is Used</td>
<td>35.7%</td>
</tr>
<tr>
<td>Predicting Officer Injury in Use of Force Cases Where Pepper Spray is Used</td>
<td>18.4%</td>
</tr>
<tr>
<td>Predicting Officer Injury in Use of Force Cases Where K-9 Force is Used</td>
<td>9.6%</td>
</tr>
<tr>
<td>Predicting Officer Injury in Use of Force Cases Where Firearm Force is Used</td>
<td>6.0%</td>
</tr>
</tbody>
</table>
Presentation Outline

I. Evidence Regarding Use of Force
II. Current Study
III. Recommendations
1. Expand Use of Force Data Collection

• TPD should change use of force reporting policy
  • Officers should report force any time they use *more than a firm grip* to control a civilian
  • Best practice in use of force reporting; will provide better understanding on overall use of force

• Current high threshold for reporting leaves the majority of lower level force used unreported
  • Studies find most police use of force involves hands-on attempts to control resistant subjects, which disproportionately result in injury to civilians and officers
  • Lower levels of force cannot be measured with current TPD data
2. Improve Documentation of Force, Injuries, and Civilian Demeanor

- Every instance of reportable force should be fully documented on a TRACIS report and details fully captured in Blue Team
  - Ensure ID numbers match across systems
- Ensure injury severity categories are systematic
- Document suspected alcohol/drug use, mental health status, and demeanor of all arrested subjects
3. Capture Instances When Deadly Force Could Have Been Used But Was Not

- Modify data collection protocols to capture instances where deadly force was authorized by law/policy but was not used
  - Enhances validity of data by providing a counterfactual dataset against which TPD deadly force cases can be compared
- Risk for deadly force is best estimated by knowing the characteristics of those who could have had force used against them
4. Review the Training and Force Practices of the Police Canine Unit

- Canine Unit responsible for 28% of force incidents
- Dramatically higher likelihood of subject injury associated with a canine bite compared to other “advanced force” options (e.g. CEWs or batons)
  - Inherent nature of canine bite increases the odds of civilian injury by more than 60 times compared to “hard-hand” striking tactics
  - Is such an “advanced force” reasonable to apprehend all fleeing subjects?
- Research best practices in the use of canines nationally and benchmark their policies and practices against those standards
- Develop canine policy and train to that policy
- Best practice: Primary use of canine should be as finding tool, not apprehension or extraction tool
5. Review UoF Policy and Training

- Conduct thorough review of current UoF policy and training to compare to known best practices
- Make necessary adjustments and updates to policies and training
- Set procedure for annual review of UoF policy and training to institutionalize continual improvement
Questions?

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UoF Model 4 – Calculating Force Factor

- Measure of citizen resistance relative to police use of force
  - Use both citizen resistance and use of force hierarchy measures
  - Single measure with possible range from -5 to +5
  - Created by subtracting level of civilian resistance from the level of officer use of force

- **Negative force factor** = higher level civilian resistance compared to officer force

- **Positive force factor** = higher level officer force compared to citizen resistance

- **Zero force factor** = citizen resistance matched by officer force
  - Example: force factor of -2, civilian used two levels of resistance higher than officer force; force factor of +2, officer used force at two levels higher than civilian resistance

- TPD data
  - Force factor range from -4 to +3, with average of 0.36
## Civilian Resistance and Officer Force Coding

<table>
<thead>
<tr>
<th>Civilian Resistance</th>
<th>Officer Use of Force</th>
<th>Force Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>No resistance; subject is compliant</td>
<td>No actions taken; consensual conversation</td>
<td>1</td>
</tr>
<tr>
<td>Non-compliance: verbal resistance without threats; subject ignores officer or refuses to comply</td>
<td>Issuance of lawful announcements, warnings, orders, or commands</td>
<td>2</td>
</tr>
<tr>
<td>Passive physical resistance (e.g. &quot;dead weight&quot;)</td>
<td>Physical touch not exceeding a firm grip</td>
<td>2</td>
</tr>
<tr>
<td>Moved away from officer; fleeing or attempting to flee</td>
<td>Handcuffing</td>
<td>3</td>
</tr>
<tr>
<td>Verbal or physical threats (e.g. fighting stance, reaching for possible weapon, other furtive movements)</td>
<td>Physical control tactics; pain compliance techniques; hair pulling; joint locks and come-alongs; open-handed strikes; take-downs</td>
<td>3</td>
</tr>
<tr>
<td>Defensive resistance to include pushing/pulling/tensing to avoid physical control or handcuffing</td>
<td>Hard hand control, including punches, kicks, elbow or knee strikes</td>
<td>3</td>
</tr>
<tr>
<td>Unarmed assaultive physical resistance; subject strikes or attempts to strike with hands, feet, elbows, knees or other body parts; includes kicking at officer to avoid control or handcuffing; no apparent attempt to kill or seriously injure officers</td>
<td>Use of lateral vascular neck restraint</td>
<td>4</td>
</tr>
<tr>
<td>Use of hands, fists, feet, etc. with apparent attempt to cause death or serious bodily injury to officer</td>
<td>Draw or display of weapon; Identify weapon (e.g., firearm, TASE, pepper spray, pepper ball, tear gas, or other chemical irritant, baton, knife, other)</td>
<td>5</td>
</tr>
<tr>
<td>Display of weapon: Defensive posturing with instrument/weapon (rock/brick/bottle, stick/club/blunt instrument, knife or edged weapon, TASE, chemical irritant, firearm, explosive device, other)</td>
<td>Pointing of a weapon or other threatened use of a weapon; Identify weapon</td>
<td>6</td>
</tr>
<tr>
<td>Pointing of a weapon; other imminent threat with weapon; aggressive movement with weapon</td>
<td>Use of weapon</td>
<td>6</td>
</tr>
<tr>
<td>Use of weapon; subject strikes or attempts to strike officer with weapon; subject fires or discharges weapon</td>
<td>N/A</td>
<td>6</td>
</tr>
</tbody>
</table>
UoF Model 4 – Predicting Force Factor

- Statistical model predicting force factor (i.e., comparison between citizen resistance and officer use of force)
- Model includes:
  - Characteristics of arrest (nighttime, weekend, seriousness)
  - Civilian Characteristics (age, sex, race, criminal history)
  - Officer Characteristics (sex, race, years of service, rank)
  - Contextual Characteristics at squad level (priority level of calls for service, concentrated disadvantage and youth population)
Average Force Factor by Civilian Characteristics (N=642)
UoF Model 4 – Predicting Force Factor

**Significant**
- Civilian Age (-)
- Native American civilian (-)
- Civilian criminal history (+)

**Not Significant**
- Incident Characteristics (day, time)
- Civilian Characteristics (sex, race except Native American)
- Officer Characteristics (experience, sex, race, rank)
- Contextual Characteristics (priority calls for service, concentrated disadvantage, % population 18-24 years, crime rate)
UoF Model 4 – Predicting Force Factor: Interpretation

• Civilian age – younger civilians more likely to have negative force factor (i.e., citizen resistance is higher than officer force level)
• Civilian criminal history – civilians with previous criminal history more likely to have positive force factor

• Weak statistical model
• No differences in force factors across any civilian or officer demographics
• No differences in force factors by contextual characteristics