

Primed for Force: Police Officer Stress and Near-Term Use of Force

Submitted by

Miriam VonAschen-Cook

A Capstone project presented in partial fulfillment of the requirements

For the Degree of Master of Arts in Policy Studies

School of Interdisciplinary Arts and Sciences

University of Washington

Bothell, Washington

Advisor: Charlie Collins, Ph.D.

Summer 2020

Chapter 1

Purpose of the Study

The names of a growing number of Americans have entered the public discourse because their lives have been ended directly by the actions of law enforcement officers in the course of their assigned duties. In the United States, police violence, disproportionately affecting communities of color and other marginalized individuals, has become an increasing concern. These concerns have led to nationwide protests against police violence. The study of police use of force is a timely and important topic of academic research, particularly when the research has the potential for immediate impact in public policy. The current political situation of 2020 and civil unrest provides an especially relevant policy window through which real and lasting change in American policing can occur. The American law enforcement and justice system are plagued by a long and engrained history of systemic racism and brutality which disproportionately affects marginalized communities. Though efforts are being made to fundamentally change the structure of policing in America through defunding and reorganization efforts by city councils, mayors, and municipality managers at the demand of the people, police agencies themselves are beginning to take a look inward and examine how internal policies can be effective means in combating the forces of systemic racism.

Police officers are employed in one of the most stressful jobs in the world. Officers are expected to routinely engage in dangerous and life-threatening activities while also interacting with community members in times of instability and emotionally taxing events all while maintaining a professional and unemotional demeanor (Hyde, Chungkham, & Ladusingh, 2018). Operational stressors, such as being in a physical struggle with an assailant, encountering a traffic fatality, or interacting with a vulnerable victim of crime and organizational stressors like

promotional expectations or scheduling both contribute to the total stress policing puts on officers. In addition to the effects of stress on officer physical and mental health, these stressors become components of the cognitive decision-making process through which an officer makes the decision to use force.

In recent years, the comprehensive and scientific study of police use of force has begun to search for ways to mitigate against unnecessary harm to both innocent members of the population and crime offenders including the effectiveness of crisis intervention training, de-escalation techniques, and early intervention systems. This study turns toward the officers themselves and analyzes the effect a police officer's near-term fatigue, both physical and emotional, has on use of force outcomes by determining if that officer's dispatch to certain types of calls for police service can predict a force outcome of a subsequent response. Examining how specific types of public interactions within the course of an officer's day may result in a greater chance that officer will be involved in a use of force incident can be a useful addition to officer early warning indicator systems or could influence other department policies like the way officers are scheduled or dispatched to calls for police service in an effort to decrease police use of force.

Chapter 2

Review of Literature

There is no universal definition of Use of Force; however the International Association of the Chiefs of Police defines it as the “amount of effort required by police to compel compliance by an unwilling subject” (International Association of the Chiefs of Police, 2001). The City of Seattle further breaks down this definition into four categories of force. De minimis force is physical contact not intended to cause nor causing any pain or injury. Type I force causes transitory pain or the complaint of transitory pain. The act of an officer pointing a firearm at a subject is also considered Type I use of force. Type II force causes or is reasonably expected to cause physical injury, greater than transitory pain, but less than great or substantial bodily harm. Taser deployment, pepper spray use, and the use of a baton to the body of a subject are all considered Type II force. Type III use of force is reasonably expected to cause great bodily harm, substantial bodily harm, loss of consciousness, or even the death of the subject. Any intentional firearm discharge, carotid artery or neck restraint, and baton strikes to the head are included in this most extreme level of force definition (Seattle Police Department, 2019).

Beginning with President Johnson’s 1964 “War on Poverty” and continuing through Reagan’s “War on Drugs,” federal so-called “anti-crime” funding resulted in further professionalizing, and militarizing, of local police forces (Hinton, 2016). Along with increased technological and firepower resources, considerable funding was spent on training officers. Much of this training involved military tactics provided by a flood of new para-military training contractors. Police were becoming better trained, but also more lethal. Eliav Lieblich and Adam Shinar argue that the “war on crime” mentality along with the supplying of police departments with military-grade equipment has led to a normalization of attitudes about the policed

community being “the enemy” of officers (2018). Over the last twenty years most police departments have required extensive and ongoing training in tactics related to the mitigation of unnecessary use of force (Lyle & Esmail, 2016). Training in de-escalation techniques may help to avoid use of force, but an officer must decide, often under extreme pressure, whether or not the use of force is warranted.

The 1982 Supreme Court case *Harlow v. Fitzgerald* established the legal doctrine of “qualified immunity,” or the protections of certain government officials, including police, from criminal prosecutions and lawsuits (*Harlow v. FitzGerald*, 1982). Qualified immunity pulls away much of the threat of legal consequence any decision by an officer to use force may carry with it, thus making the decision to use force a path of less resistance for the officer. Prior to the 2009 Supreme Court case, *Pearson v. Callahan*, qualified immunity required that a valid defense claim passed two prescribed tests: first, that the facts of the case show a violation of a constitutional right, and then if so, if the right was clearly established at that time. *Pearson v. Callahan* significantly broadened the lower courts’ discretion in considering how these tests were met, thereby making it easier for an officer’s defense to claim qualified immunity (Rolfs, 2011). This decision created a judicial environment in which nonviolent, nonthreatening, non-fleeing, and non-resisting subjects could still illicit a legal forceful action from a police officer by exhibiting noncompliant behavior, such as in *Kelsay v. Ernst* in 2019, a case which involved an officer breaking the collar bone of a nonviolent, female subject who was not attempting to flee the scene (Harvard Law Review, 2020). The 2017 case *White v. Pauly* expands the defense even further stating that qualified immunity protects officers in all situations except those in which the officer is either plainly incompetent or intentionally violates the law (*White v. Pauly*, 2017). Given this

level of protection from the threat of legal culpability, using force is an alluring alternative to a prolonged, stressful interaction of de-escalation.

While a multitude of studies have examined the disparate impact of police force on communities of color, few studies have focused on the behavior of the officers themselves and the factors which lead them to make the decision to use force. A long-held belief, reinforced by early studies of police behavior such as Robert Friedrich's 1980 study, "Police Use of Force: Individuals, Situations, and Organizations," attributed only offender behavior and the number of officers responding to a scene to having a significant impact on the likelihood of excessive use of force by officers (Fredrich, 1980). By the early 2000s, academic focus shifted, and studies began to show the complex factors and officer characteristics associated with use of force beyond the actions of the subject of the use of force. This shift occurred in conjunction with court rulings such as *Graham v. Connor* in 1989 which dictated that police use of force must be reasonably proportionate to the need for force measured by the severity of the crime, danger to the police officer, and the risk of perpetrator flight (*Graham v. Connor*, 1989).

Implicit biases are unconscious and semiconscious attitudes which influence a person's behavior and decisions. The 2014 death of Michael Brown in Ferguson, MO, at the hands of a white officer underscored the issue of implicit racial bias to the attention of many researchers and law enforcement agencies (James, 2018). In response to the concerns of implicit bias, considerable effort has been made in police departments throughout the U.S. to incorporate implicit bias training. Along with issues of implicit bias and other aspects of systemic racism, research contends that the major factors contributing to force outcomes are officer training, equipment, and officer decision making (Andersen & Gustafsberg, 2016). It is within this framework of implicit bias that Mears, et al. argue police officers employ cognitive shortcuts

when making decisions in high-risk or stressful situations (Mears, Stewart & Warren, 2017). When an officer becomes stressed and must rapidly process a lot of situational information they rely upon unconscious attitudes as quick decision aids. These decisions, “compounded when individuals have considerable discretion, as the police do when deciding whether to use force” have direct implications in the propensity for officers to use force (Mears, et al, 2017).

In 1982, Herbert Simon introduced the theory of *bounded rationality* which states that humans have a finite ability to process information and that ability is defined by elements such as aptitude, disease, and fatigue (Reyna, 2004). These are the contributors through which all humans modulate behavior and cognate through decisions. Simon’s theory was based, in part, on Tversky and Kahneman’s 1974 research which showed that when people are asked to assess the plausibility of an event happening, most employ heuristic cognitive strategies because they provide a fast response though they are prone to error (Tversky & Kahneman, 1974). In one of their study experiments, one group of participants were provided the math problem, $8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$, while the other group was given the problem, $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8$. Both study groups were asked to estimate the answer quickly without tools or preparation. Though the median estimate for both groups was incorrect (the correct answer is 40,320), the second group’s estimates were significantly lower (512) than the estimates of the first group (2,250). Members of the second group had employed a biased cognitive approach based on the low initial numbers sequence because they were forced to make a fast decision under sub-optimal conditions. Many first responders, particularly police officers, encounter traumatic events throughout their careers which require them to quickly assess their environments and make rapid decisions based on limited information. Also, many studies exist linking traumatic event exposure and associated

stressors to long-term debilitating cumulative physical and emotional fatigue further heightening the effects and the reliance on heuristics in the decision-making process (Vincent, 1990).

Meredith Krause introduces the theory of “vigilance fatigue” or the inability to accurately identify real or perceived threats “due to 1) prolonged exposure to ambiguous, unspecified, and ubiquitous threat information; 2) information overload; 3) overwhelming pressure to maintain exceptional, error-free performance; and 4) faulty strategies for structuring informed decision making under conditions of uncertainty and stress” (2012). An officer’s response to environmental stress, particularly when they have little situational control, also provides a disruption of cognitive performance (Hockey, 2013). In the hyper militarized environment of today’s police departments, stress is increased because the militarization itself “...reflects the anticipation of extreme violence of the type that could require a forcible response” (Lieblich & Shinar, 2018). Officers frequently cite a roller-coaster-like cycle of activity in which relatively long stretches of calm are punctuated with the sudden and immediate need for action and quick decisions (Finn & Tomz, 1996). In addition, many first responders including police can suffer from a secondary traumatic stress called compassion fatigue. Compassion fatigue, often referred to as the “cost of caring,” is the process through which a person is exposed repeatedly to traumatized victims or violence and can become either unable to emotionally disengage from the victim’s trauma or become jaded and unable to emotionally connect with others (Figley, 2002)(Papazoglou, Keesee & Chopko, 2020). When an officer is exposed to these multiple elements of fatigue, their ability to make rapid decisions in call for police service dispatches becomes impaired and they become reliant on heuristics and take the cognitive shortcuts of implicit bias. These factors, combined with the absence of accountability provided by qualified

immunity, create an environment in which the path of least cognitive resistance for officers under stress is to use force.

Since the 1970's there has been a general consensus that approximately 5% of a police department's officers are responsible for a disproportionate number of excessive force incidents and public complaints (Walker, 2005). As a result, several metropolitan departments attempted to create a process by which these "problem" officers might be identified, but at the time technological limitations made these systems cumbersome and ineffective. It was the 1981 report by the U.S. Commission of Civil Rights, *Who Is Guarding the Guardians? A Report on Police Practices* which recommended police departments should devise a system to assist in the early identification of officers who were prone to use violence, though it took several high-profile police use of force incidents, such as the 1991 beating of Rodney King in Los Angeles, before EISs became an accepted "best practice" in law enforcement (Mathews & Izumi, 1981). In 2001, the Commission on Accreditation for Law Enforcement Agencies (CLEA) took it a step further and required that all large agencies have a comprehensive personnel early warning system in place (Walker, 2005).

Today's EIS are complex, data-driven systems which proactively identify a wide range of concerns in addition to identifying officers who may be at risk of participating in a disproportionate number of force incidents or citizen complaints. Each agency's EIS focus and goals may differ, however many focus on identifying officers with performance problems, enhancing officer performance, strengthening supervision, identifying systemic issues, improving officer morale, and improving community relations (Walker, 2005). EIS use complex sets of performance indicators which notify command staff when established thresholds are exceeded. Once a supervisor is notified that an officer in their chain of command has exceeded a

threshold, a set of management processes may be set in motion. It should be noted that EIS are generally not associated with agencies' formal disciplinary actions, but rather provide avenues for command supervisors to intervene and assist officers in getting connected to the resources they need. For EIS to function, departments must first have robust and accurate electronic reporting on all of the criteria on which the performance indicators are based. In the U.S. many police departments do not have data systems which completely and accurately maintain electronic records of the types of data elements used to create comprehensive and effective EIS, and some have been slow to recognize the need for investment in these systems. As seen in the findings of the 2012 Consent Decree between the Justice Department and the City of Seattle, even modern police departments in tech-savvy cities can suffer from a lack of adequate data management technology (United States v. City of Seattle, 2012). However, in Seattle and around the nation, an effort is now being made to identify these deficits and implement technology solutions to fill these data gaps.

Current Study

What are the effects of near-term stress on officer decision making? This study combines the theoretical frameworks of stress-based decision making, qualified immunity defense, and police use of force and applies them to a test of decision-making in real-world policing. Stress is measured by determining if a relationship exists between the types of calls to which an officer is dispatched and their likelihood to be involved in a use of force incident within the subsequent 24-hour period. Calendar year 2018 call for service dispatch and use of force data from the Seattle Police Department is utilized in a binary logistic regression model to determine the odds that some call for service types are more likely to be precursory events to use of force than others. The data are granulated to the individual officer and dispatch level.

Chapter 3

Methodology

During the 2018 calendar year 468,338 individual computer aided dispatch (CAD) events were created by the Seattle Police Department 911 Center. CAD events are initiated by calls and texts to 911, calls to police non-emergency numbers, and officer-initiated dispatches (called “onviews”). In direct response to these calls for service and officer-initiated incidents, 760,800 distinct officer dispatches occurred. An officer dispatch is defined as a single officer responding to a CAD event. Officers may be dispatched as the primary or first responding officer or may be dispatched as a backing officer during the course of the event. As such, a single CAD event may create several dispatches. This study examines these officer dispatches to determine if any significant relationship exists between the type of call an officer responds to and that officer’s propensity to use force in the near-term future.

Data Set

A data set of all 2018 SPD officer dispatches has been drawn from the Seattle Police Department’s Data Analytics Platform (DAP) data warehouse. Implemented in January 2017, the DAP was developed by SPD in response to breakdowns in use of force reporting and data retention identified during the 2012 Department of Justice Consent Decree. The data warehouse functions within DAP allow for the different systems used by SPD to record police information to be related across systems and then combined into a single data extract. The Seattle Police Department’s Professional Analytics and Research Unit is responsible for the development, growth, and maintenance of the DAP. This unit, under the auspice of the SPD’s Chief of Police, partners with researchers and research institutions around the world to provide robust data

sources for academic study. The data extracted and used in this study include information from SPD's Computer Aided Dispatch (CAD) system, use of force reporting system, and human resources data system. The specific data elements included in the data set extracted from the DAP are seen in *Table 1*.

Table 1: Initial Data Set Elements

Data Element	Definition
CAD Event ID	Unique event identifier. There can be multiple dispatches to an individual event
Event First Dispatched Date/Time	Time first officer dispatched to call for service
Case Type - Initial	How the call was classified initially by the Communication Center.
Call Priority	Priority of the call as assigned by the CAD system
Call Type Description	How the call was received by the Communications Center
Clear by Description	How the call was resolved as reported by the primary officer
Officer Functional Assignment	The type of day-to-day unit an officer is assigned to
Officer Gender	Officer self-identified gender
Officer Race	Officer self-identified race
Officer Serial Number	Unique officer identifier- does not change throughout an officer's tenure
Officer Title	Officer title at time of dispatch
Officer Years Exp	Officer years employed by SPD at time of dispatch
Use of Force Indicator	Indicator flag representing the presence of any reportable use of force during the CAD Event

The information included in this data set was then profiled to create the precursor to use of force event indicator flag data element. This data element became the study's dependent variable. Once the precursor event flag was established the study analysis was conducted to test for a relationship between initial call for service type and likelihood that an officer who was dispatched to that call was involved in a use of force event within the twenty-four hours following.

Dependent Variable

A total of 760,800 individual event dispatches are included in this analysis. The dependent variable in this study, “Within24Hours”, is a true/false binary which indicates if the dispatched officer was involved in a reported use of force event within the subsequent 24 hours. To create the precursor indicator flag data element, I first imported the initial full data set of 2018 CAD dispatches into Microsoft Excel. This data set included three key elements to determine if an event was a precursor to a use of force event: a unique officer identifier (Officer Serial Number), the Use of Force indicator flag, and the time and date. I then created a second sheet in the workbook which included all dispatches that indicated that they involved documented use of force. This new sheet included the three key elements in addition to the CAD identifier and I added a fifth data element- a calculated date field equal to the dispatch date minus 24 hours. This became my reference data set from which to compare the 2018 CAD events against to determine which 2018 dispatches were within 24 hours of a use of force.

Table 2: Use of Force Reference Data

CAD Event ID	Use of Force Indicator	Officer Serial Number	Event First Dispatch Date/Time	(Event First Dispatch Date/Time) – (24 hours)
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An indexed match array formula calculation compared the date, time, and unique officer serial number of each of the study dispatches in the initial data set with the date and time, date and time minus 24 hours, and unique officer serial numbers of each use of force event in the reference data set. The array identified the dispatches in the study data set where two criteria were met:

- The Event First Dispatch Date/Time of the study CAD Event fell between the use of force reference Event First Dispatch Date/Time and the calculated date field

- The Officer Serial Number of the study dispatch matched the Officer Serial Number in the use of force reference

I then added a yes/no data element to the initial data set indicating the results of the array calculation for each of the 760,800 dispatches. The vast majority of SPD dispatches in 2018 were not precursor to use of force events. The “Within24Hours” variable was “yes” for 2.6% (n=19,632) of all dispatches included in the study and “no” for 97.4% (n=741,168) of the dispatches.

Independent Variables

This study utilizes three independent variables: 1) Case Type – Initial, 2) Priority, and 3) the Use of Force Indicator. Each CAD dispatch is assigned an Initial Call Type by the 911 dispatcher as soon as they discern what precipitated the call for service. In the initial data set, there were 328 distinct case types assigned in the CAD system. These initial case types range from mundane incidents such as graffiti or animals at large to more urgent and severe such as shots fired or assault in progress. I categorized these types into 50 initial case type groups as many of the more granular types were related. For example, “Commercial Burglary” and “Residential Burglary” were combined into a single group called “Burglary.” Because entering too many variables into a logistic regression increases the chances of error, a dummy binary variable was created for each of these 50 initial case type groups. For example, a variable was created for “Assaults” in which there were two possible responses, “Yes”- the Initial Case Type is “Assaults” or “No”- the Initial Case Type was all other responses.

Call Priority is a numerical value assigned to each CAD call which designates the level of urgency for each event. Priority is assigned to each CAD event by the CAD computer system based on event input from the 911 dispatcher. Though there is no requirement for law

enforcement agencies in the United States to follow a prescribed priority ranking system, the Department of Justice recommends a framework of priority designations from level one as the most urgent to the less immediate level five (McEwen, 2003). Most police departments, including the Seattle Police Department, utilize this system but also add additional agency-specific designations. According to the SPD Manual, Priority 1 are calls in which there is a possible threat to a person's life. They include but are not limited to medical emergencies, in-progress calls with a threat to life, all responses to aid Seattle Fire, caller abandoned emergency calls, and serious assaults. Priority 2 calls are urgent and involve situations that could escalate if an immediate response is delayed. Priority 3 calls are events that required prompt but not emergency response. Non-emergency calls for service such as noise complaints, found property, and secondary call back reports are designated priority 4, 5, or 6 depending on the severity of the report. All traffic stops are designated as priority 7 and administrative busy codes are priority 9 (Seattle Police Department, 2020). At this time priority 8 is a designation not used by SPD. Though a priority 1 call is more urgent than a priority 2, priority itself is not an ordinal measure and is considered a categorical variable for the purposes of this study.

The final study independent variable is the Use of Force (Current Dispatch) Indicator. This data element indicates that the event to which an officer has been dispatched involved the use of force at any time during the course of the incident by any officer present. It does not indicate whether or not the individual officer was involved in the force usage. The perception of danger, as much as the actual danger involved in a use of force, increases stress levels for officers. Therefore, it is possible for the officer in question to have increased levels of stress even if they themselves did not directly administer force on a subject (Vincent, 1990). It should be noted that this data element is not a count or measure of how many times SPD used force in

2018, nor is it a count or measure of the number of CAD calls which involved force, but rather a count of the number of CAD dispatches to events in which force was used.

Table 3: Study Variables

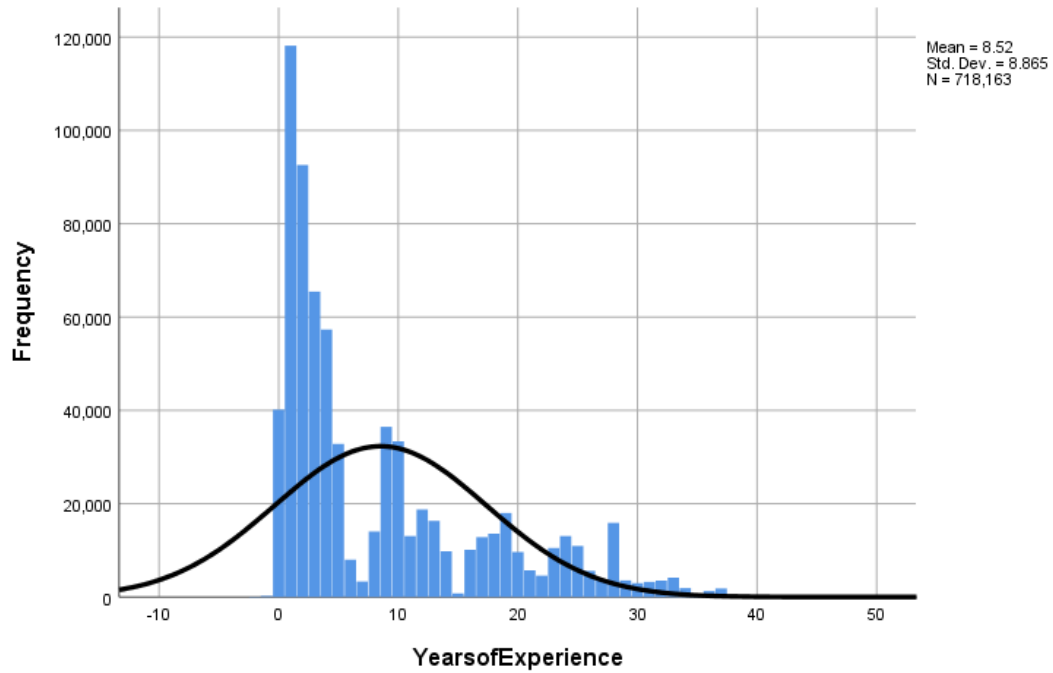
Study Variables		n	Valid %
Within 24 Hour Indicator (DV)	TRUE	19,632	2.6%
	FALSE	741,168	97.4%
Initial Case Type Group (IV)	Traffic / Parking	75,662	9.9%
	Suspicious - Package, Person, Vehicle, Circumstance	67,111	8.8%
	Premise Check	50,901	6.7%
	Assigned Duty	48,267	6.3%
	Disturbance	48,157	6.3%
	Theft	35,444	4.7%
	Domestic Violence	33,420	4.4%
	Mischief/Nuisance/Pedestrian	30,418	4.0%
	Alarm	29,155	3.8%
	Trespass / Exclusion	26,634	3.5%
	Assaults	26,591	3.5%
	Assist Public	23,132	3.0%
	Burglary	22,640	3.0%
	Assist Other Agency	19,933	2.6%
	Person - Missing, Found, Injury, Runaway	18,620	2.4%
	Fight	18,543	2.4%
	Auto - Theft, Recovery, Abandoned	17,277	2.3%
	Unknown - Open Line, No Answer, Unknown Complaint	15,899	2.1%
	Suicide - Attempt, Person	13,761	1.8%
	Harassment / Threats	12,520	1.6%
	Property - Lost, Found, Damage	11,814	1.6%
	Hazards / Debris	11,326	1.5%
	Narcotics	11,158	1.5%
	Warrant / Order Violation	10,942	1.4%
	Follow up	10,402	1.4%
	Person in Behavioral Crisis	9,332	1.2%
	Robbery	8,321	1.1%
	Weapon - no Assault	7,565	1.0%
	DOA - Casualty	6,736	0.9%
	Shots Fired	6,435	0.8%
	Sex Offense - Non-Rape	5,931	0.8%
	Fraud	3,834	0.5%
	Demonstration	3,821	0.5%
	Intox / Detox	3,163	0.4%

	Child - Luring, Abandon, Abuse, Neglect	3,151	0.4%
	Prowler	2,824	0.4%
	Animal	1,813	0.2%
	Arson	1,660	0.2%
	Rape	1,484	0.2%
	Aggressive Panhandle	1,010	0.1%
	Harbor - Water Debris, Water Emergency	847	0.1%
	Bias Crime	593	0.1%
	Pursuit - Foot, Vehicle	551	0.1%
	Carjacking	539	0.1%
	Vice / Gambling	502	0.1%
	Explosion	454	0.1%
	Bomb Threats	247	0.0%
	Bulletin / Info Broadcast	190	0.0%
	Escaped Prisoner	42	0.0%
	Kidnapping/Abduction	28	0.0%
Call Priority (IV)	1	167,703	22.0%
	2	222,711	29.3%
	3	198,031	26.0%
	4	14,930	2.0%
	5	7,555	1.0%
	6	30	0.0%
	7	122,425	16.1%
	9	27,415	3.6%
Use of Force (Current Dispatch) Indicator (IV)	TRUE	10,586	1.4%
	FALSE	750,214	98.6%

Controls

To account for officers' individual factors, I controlled for years of experience, officer functional assignment, officer race and officer gender in the analysis. The mean number of years of officer experience across all officers responding to calls for service in 2018 is 8.52 years with a standard deviation of 8.87 years and a positively skewed distribution.

Figure 1: Officer Years of Experience



Though all sworn officers of a department may be dispatched to respond to a call for service, day-to-day unit assignment impacts which officers are dispatched and under what circumstances. At SPD, officers are assigned to five functional assignment categories: 1) 911 Response officers are assigned SPD vehicles and primarily respond to 911 calls for service; 2) Anti-Crime Team (ACT)-SWAT officers target specific criminal activity and respond to calls such as in-progress and violent crimes; 3) officers assigned to Beats are comprised of bicycle and foot patrols; 4) Traffic officers are primarily responsible for responding to collisions and other vehicle related activity, while 5) Other units include Operations, Investigations, Homeland Security, Professional Standards, Office of Police Accountability, and a variety of other organizational assignments (Seattle Police Department, 2018).

Table 4: Officer Functional Assignment

Officer Functional Assignment	911 Response	522,887	68.7%
	Other	103,578	13.6%

ACT-SWAT	61,785	8.1%
Beats	60,164	7.9%
Traffic	12,386	1.6%

The racial demographics of the Seattle Police Department mirror those of Seattle’s population, in a parity not often seen in larger American police departments. Like the city’s population, the majority of SPD officers are White and as such the majority of officers who responded to calls for service were White. Additionally, consistent with policing around the world, most SPD officers identify as male.

Table 5: Officer Race

Race	% of Seattle Population	% SPD Sworn Officers	Count of Dispatches by Officer Race	% of Dispatches by Officer Race
White	66.7%	74.0%	534,093	70.2%
Asian	14.0%	6.9%	45,553	6.0%
Black or African American	7.2%	8.0%	54,932	7.2%
Hispanic or Latino	6.4%	4.7%	50,514	6.6%
Two or more Races	4.5%	2.0%	41,349	5.4%
American Indian or Alaska Native	0.5%	2.0%	6,838	0.9%
Native Hawaiian and Other Pacific Islander	0.4%	0.9%	8,940	1.2%
Unknown	0.3%		243	0.0%

Table 6: Officer Gender

Gender	Count of Dispatches by Officer Gender	% of Dispatches by Officer Gender
Male	667,904	87.8%
Female	92,653	12.2%
Other/Unknown	243	0.0%

Analysis

IBM's SPSS Statistics version 25 platform was used to test the study research questions. To determine if a significant relationship existed between the independent variables of initial case type, call for service type, priority and the 24-hour precursor dependent variable, a Chi square significance test was conducted to determine model fit. Call types which have a significant correlation will be included in the regression testing to further analyze the relationship.

A binary logistic regression analysis was utilized to determine if the independent variables of initial call type, call priority, use of force (current) indicator, or call type description are associated with an increased likelihood of also being involved in a use of force event in the subsequent 24 hours. Two models were conducted: Model 1 included all control variables and Model 2 included the independent variable.

Chapter 4 Results and Discussion

Regression Results

The Chi square test for association between the independent variables and the precursor event dependent variable showed significant association between several of the initial call types and the precursor variable.

Table 7: Chi Square Test for Association- Initial Call Type

IV	Value	df	Significance
Kidnapping	15.26	1	.000
Fights	21.77	1	.000
Assaults	11.96	1	.001
Narcotics cases	17.77	1	.000
Demonstrations	2.82	1	.000
Premise checks	138.38	1	.000

Call priority was significantly associated according to the Chi square test as well. Interestingly, an officer dispatch that results in a use of force was not significantly correlated to also being a precursory event.

Table 8: Chi Square Test for Association- Call Priority, Use of Force (Current)

IV	Value	df	Significance
Call Priority	638.08	7	.000
Use of Force (Current)	2.41	1	.120

The binomial logistical regression (Model 1), controlling for officer functional assignment, years of experience, officer race and officer gender found that kidnapping cases (OR= 6.04, b=1.80, p<.001) were significantly associated with being precursor events and officers who responded to those calls have an odds ratio over six times more likely to be

involved in a use of force event within 24 hours than officers who had not responded to a kidnapping related call for service. Though it is important to note that the count of dispatches to kidnapping events by SPD officers in 2018 was only 28 individual officer dispatches, the level of significance warrants further investigation of this relationship. Officers who responded to a fight were 14% more likely to be involved in a use of force within 24 hours (OR=1.14, b=.13, $p<.003$). Officers who responded to a narcotics violation call were 22% more likely to be involved in use of force within 24 hours than those officers who did not respond to these types of dispatched calls (OR=1.22, b=.20, $p<.000$). Though calls for service classified initially as an assault showed a relationship to the dependent variable in the chi square test for correlation, the logistic regression model which included controls for officer assignment, race, and gender resulted in less than a significant relationship (OR=1.07, b=.07, $p<.062$).

There are initial call for service case types which are significantly related with an officer being less likely to be involved in a use of force event in the near future. The case types include demonstration dispatches and premise check dispatches. An officer dispatched to a demonstration is 30% less likely to be involved in a near-term use of force (OR=.70, b=-.36, $p<.01$) and an officer who responds to a premise check call is 31% less likely than those not dispatched to this type of call (OR=.69, b=-.37, $p<.000$).

Call for service priority level is significantly related to officer near-future force use. Officers who responded to emergency dispatches were more likely to have been involved in a use of force event within 24 hours than those officers who responded to Priority 9 administrative busy dispatches. Priority 2 calls report the highest odds ratio, OR=1.87, b=.62, $p<.000$, though Priority 1 (OR=1.78, b=.57, $p<.000$), Priority 3 (OR=1.66, b=.51, $p<.000$), and Priority 4

(OR=1.43, b=.36, p<.000) were all significantly more likely to be associated with a higher risk of near-term use of force.

Table 9: Regression Results

IV Predictor	B	S.E.	Wald's X²	df	p	Exp(B)- Odds Ratio
Constant	-20.481	2627.697	0.000	1	0.994	0.000
Kidnapping	1.783	0.546	10.660	1	0.001	5.946
Constant	-20.476	2546.051	0.000	1	0.994	0.000
Fight	0.135	0.044	9.500	1	0.002	1.145
Constant	-20.439	2411.565	0.000	1	0.993	0.000
Narcotics	0.208	0.055	14.156	1	0.000	1.231
Constant	-20.332	2134.513	0.000	1	0.992	0.000
Assault	0.079	0.038	4.238	1	0.039	1.082
Constant	-20.379	2299.935	0.000	1	0.993	0.000
Demonstration	-0.366	0.149	6.797	1	0.009	0.694
Constant	-20.411	2325.768	0.000	1	0.993	0.000
Premise Check	-0.392	0.036	120.279	1	0.000	0.676
Constant	-21.003	2454.817	0.000	1	0.993	0.000
Priority 1	0.584	0.061	91.003	1	0.000	1.794
Priority 2	0.623	0.061	105.319	1	0.000	1.865
Priority 3	0.509	0.061	69.578	1	0.000	1.664
Priority 4	0.36	0.084	18.445	1	0.000	1.433
Priority 5	-1.56	0.308	25.682	1	0.000	0.210
Priority 6	-16.382	7179.592	0.000	1	0.998	0.000
Priority 7	0.38	0.062	36.958	1	0.000	1.462

Discussion

When controlling for officer functional assignment, years of experience, and officer gender, this study supports the hypothesis that initial call for service type, as a measure of officer stress, is related to an officer's decision to use force in the near-term future. Several initial case types have a significant relationship to the dependent variable and officers who were dispatched to calls for police service including kidnapping and those which were related to narcotics violations were significantly more likely to have been involved in a use of force event within 24 hours of this dispatch than officers who dispatched to other types of calls. Officers who were

dispatched to calls for demonstrations or premise checks were significantly less likely to be involved in a use of force event within 24 hours compared to other types of calls. The urgency of the call for service is also significantly related with the likelihood that the event was a near-term precursor to a use of force event, as call priority code, particularly those most urgent are also significantly related to the dependent variable.

These results seem to support the hypothesis that physically and emotionally taxing dispatches add to officer levels of stress. Calls for service, such as Priority 2 urgent dispatches where situations have the potential become life-threatening, or kidnapping cases with intense emotionally charged situations are significantly correlated to an officer's likelihood to use force in the near future.

Chapter 5

Conclusions

Policy Recommendation

The results of this study indicate there is a relationship between a call for service initial call type and an officer's propensity to be involved in a use of force in the near-term future. As mentioned in the previous section, further research into what elements of stress officer's experience during dispatches to calls for service should be examined. It is imperative that police departments engage in this type of study or partner with researchers to expand on this type of research. The Seattle Police Department is currently facing calls by the community and Seattle City Council to cut its annual budget in half due in large part to the perception of excessive use of force by the department. Working with civilian academic researchers to develop studies into how stress becomes a factor in an officer's decision to use force can help the department to mitigate force use to only the circumstances in which there is no other option but warranted, legal, and appropriate force. By learning what types of stressors, like specific types of initial case type, increase an officer's likelihood to use force in the near-, mid-, and long-term, these measures can be incorporated into existing officer early intervention alert systems (EIS). Early intervention systems are used by departments, including SPD, to alert an officer's supervisors to the potential they may be involved in an adverse interaction with other officers or the public, but they are only as good as the data which drives them (Helsby et al., 2018). Police departments must work to build robust, transparent, and accurate data systems with architecture designed to accept new developments in research such as this study and others that advance the science. By incorporating these types of academic advances, the mitigation of unnecessary and excessive

force decisions by stressed officers in challenged cognitive situations can make profound improvements in the relationship between officers and community members they serve.

Limitations and Future Directions

Significant limitations exist in this research including the isolation of the factors that affect officer decision making, including officer training, equipment, aptitude, disease, and trauma other than measured in this experiment. This study also does not account for suspect demographics, including race, which is known to be a significant factor in decisions by officers to use force.

There are significant limitations to measuring stress in an environment like policing, particularly with this type of publicly available data. Future studies should consider randomly selecting officers to participate in assessments of stress after responding to calls for service to have a clearer understanding of which initial call types are related to higher levels of stress.

Additionally, it should be noted that for a city of its size, Seattle has a fairly low overall crime rate (59 crimes per 100,000 residents in 2018) and a relatively low use of force rate with less than .2% of all dispatches resulting in a use of force event. Future studies of this research topic should include a broader set of data containing officer dispatches from a longer time period. Additionally, measures of officer predisposition to use force as well as 48- and 96-hour precursor time measures could produce a better understanding of the relationship between type of dispatch and the decision to use force in the near-term. Because this study shows kidnapping dispatches to be so highly correlated with an increased likelihood of use of force, a deeper investigation of these specific types of dispatches is highly recommended.

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