



The Force Continuum: Prevalence and Characteristics of Police Use of Coercive Force

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Abstract

This study is among the first to investigate police use of coercive force in Norway; its purpose is to provide a general overview of the prevalence and particularly the characteristics of Norwegian police emergency response officers' use of force. Self-reported data from police emergency response officers show a prevalence of use of force equivalent to approximately once per month in a variety of situations. In the vast majority of these situations, use of force is concentrated at the lower end of the force continuum, and use of firearms is very rare. Subjects are predominantly male, and the vast majority of them are intoxicated and/or mentally ill. In addition, current law and instructions may include inadequate formal definitions of what constitutes a use of force by the police, at the lower end of the force continuum. Thus, there is a need for a more precise and agreed upon definition as a baseline for reporting.

Keywords

Police use of force, coercive force, force continuum, use-of-force models, police–public encounters

1. Introduction

In order to safeguard security in society, police are given both the right and the occasional duty to use coercive force against citizens. The Norwegian police have a tradition of restrained use of force, reflecting a basic principle regarding the type of policing that Norwegian society wants (NOU, 1981:35; Norwegian Parliamentary White Paper No. 42 [2004–2005]). Policing in Norwegian society also differs from that in most countries in at least two important ways. First, the Norwegian police organization is a national force organized and employed by the state, in which all services follow the same laws, instructions, and guidelines. This means that the Norwegian Police University College (PHS) is responsible for all police undergraduate and postgraduate education; this joint national undergraduate education provides the same basic training for all Norwegian police officers, including training in the use of force and firearms (Henriksen et al., 2018). Second, Norway is usually considered to be a peaceful country with low crime rates and is one of few countries in which the police are unarmed during daily duty.

The Norwegian police have not collected structured data regarding their use of force, beyond registration of armed assignments and incidents involving the threat or use of firearms. However, the Firearms Commission (appointed by the Norwegian government) suggested in their Norwegian Official Report that all police use of force should be systematically reported (NOU, 2017:9, p. 14). An established reporting system on police use of force may be a good base for both the organization and researchers, and New Zealand's police reporting system may serve as a good example for Norway. Because of the lack of sufficient reporting systems and limited research on police use of force in Norway, current knowledge regarding the prevalence and characteristics of police use of coercive force is incomplete.

1.1 Previous research

The purpose of this review is to form an overview of international research on police use of force, perceived as relevant for the focus of this study. The overview forms a base for positioning this study among similar research conducted internationally, and in Norway; and provides a comparative basis for the findings in this study, potentially strengthening reliability of findings if consistent with previous research.

An extensive body of international research has addressed various perspectives on police use of force, including police–public encounters and use of force (Alpert & Dunham, 1997; Alpert et al., 2004; Bayley & Garofalo, 1989; Garner et al., 1996; Garner et al., 2002; Manzoni & Eisner, 2006; McKenzie, 1996; Nickel, 2015); characteristics and prevalence of force (Garner et al., 2002; Klahm & Tillyer, 2010; Terrill, 2001); moral beliefs and use of force (Noppe, 2016); suspect mental disorder and use of force (Donner, 2012; Johnson, 2011; Rossler & Terrill, 2017); excessive force (Alpert & Smith, 1994; Alpert et al., 2004; Atherley & Hickman, 2014); the force continuum (Garner et al., 1995; Terrill, 2001; Terrill & Paoline, 2013); police use of force and subject resistance (Boivin & Lagacé, 2016); police officer gender and use of force (Alpert & Dunham, 2004; Paoline & Terrill, 2005; Schuck & Rabe-Hemp, 2007); police officer experience and use of force (Croft 1985; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002); prevalence of use of force at the agency level (Terrill et al., 2008; Worden, 2015); deadly force (Geller & Scott, 1992; McElvain & Kposowa, 2008); police use of firearms (Belur, 2010, 2014; Burrows, 2007; Boulton & Cole, 2016; Petersson et al., 2017; Punch, 2010), and the impact of realistic use of force training (Andersen et al., 2016; Oudejans, 2008). This diverse literature has also established several factors affecting police use of force (Klahm & Tillyer, 2010; Riksheim & Chermak, 1993; Sherman, 1980) and the fact that police use of force is related to officer, suspect, and situational characteristics.

Meanwhile, exercise of coercive force by the Norwegian police, and how experiences from such use of force specifically affect operational training, have received limited attention in scholarly literature. Studies to date include assessment of police training and use of apprehension techniques (Lagestad, 2008; Lie, 2010), training in decision-making for police emergency response personnel (Johnsen et al., 2016), use of pepper spray (Holmberg, 2013), police use of firearms in Norway and the Scandinavian countries (Knutsson, 2005; Kuhns & Knutsson, 2010; Strype & Knutsson, 2002), and police officers' attitudes toward the use of force (Burke & Mikkelsen, 2005). Given the widespread international research on police use of force, it is fair to say that similar research is limited in Norway, and more research is needed. However, a limitation of this study must be acknowledged. The study only focused on ordinary police emergency response officers (IP4), full- or part-time engaged in operational service, including officers in the police special response unit (IP3, similar to UK armed response vehicle). Thus, the study did not include police officers

whose specific duties may require the use of force (e.g., those working in police arrests), special units (e.g., the counterterrorism unit), or the five national specialized agencies¹.

1.2 Purpose of the study

The purpose of this study is to provide a general overview of the prevalence and particularly the characteristics of Norwegian police emergency response officers' use of force.

This includes framing all police use of force (including firearms) in line with the Norwegian police use of force model (the force continuum). A main hypothesis forms the basis of the study: Norwegian police emergency response officers frequently use coercive force in their service, the officers relate to the framework in the use of force model and the exercise of force is concentrated in the lower end of the model. Against the background of a non-existent reporting system for police use of force, the hypothesis's point of departure is information provided by informal conversations with police emergency response personnel.

The article is structured in six chapters: Following the introductions, in Chapter 2, we describe the police use-of-force framework, to endorse an understanding of the legal framework underlying the Norwegian police's exercise of force, including the use of force model. The research methods are reported in Chapter 3. Chapter 4 presents findings in two subsections: descriptive statistics and regression analysis. In Chapter 5, we discuss the main findings of the study in relation to previous research. In addition, a suggestion for a new definition of the use of force is offered. Finally, we present our main conclusions and provide some suggestions for future research.

2. Police use-of-force framework

A key factor for research within this area is determining which police actions are formally regarded as use of force. There is presumed to be a common understanding that police exercise force when using any type of weapons or relatively strong physical interventions (e.g., forcing a subject to the ground). However, the demarcation for the lower end of the force continuum may be less clear. For example, should relatively limited physical contact (e.g. a push or a grip on a subject's arm), and/or verbal commands or threats be considered use of force? The answer to this question has marked impacts on study outcomes. Research on police use of force has used a variety of operational definitions of the concept (Garner et al., 2002; Terrill, 2001; Terrill & Mastrofski, 2002; Alpert & Dunham, 2004). Thus, the reported frequency of police use of force depends on both the organization's reporting system and the individual police officer's understanding of the term. Clearly, the stricter the definition, the fewer the incidents that will be recorded (Alpert & Dunham, 2004).

2.1 The force continuum

Police organizations regularly use models to visualize legitimate and proportionate use of force, and police policies and training in the use of force commonly refer to a continuum of force (e.g. Lohne Lie & Lagestad, 2011; National Institute of Justice, 2018; New Zealand Police, 2019). The dominant use-of-force model has been the force continuum (Terrill & Paoline, 2013). This model indicates that police should attempt to use as little force as possible in any police–public encounter and that they should adapt the severity of the force that

1. Norwegian Police University College (PHS), Central Mobile Police Service (CMPS), National Criminal Investigation Service (NCIS), Police Joint Services (PJS), and Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (NNAIPEE).

they use to escalate and de-escalate the situation, especially depending on the level of the subject's resistance (Garner et al., 1995; Terrill, 2001). Thus, the force continuum provides descriptions of proportionate use of force and a ranking of coercive measures according to law and policy. Determining the characteristics of reasonable use of force in any given situation is challenging, because the behaviors of all parties in a police–public encounter, including their comments and actions, create situations ranging from courteous to explosive (Alpert et al., 2004). Various terms are used to describe force that is deemed to be unreasonable. Generally, police use of force that is necessary and not excessive is considered reasonable, while force used prior to resistance, or after resistance has ended, is unnecessary (Boivin & Lagacé, 2016). Although situations may arise in which it is considered legitimate to use force before physical resistance, excessive use of force is considered to be the use of more force than is reasonably necessary to gain compliance (Worden, 2015).

2.2 The Norwegian police definition of use of force

The Norwegian police formally define use of force as, "... a forced physical action against a person and against a permanent or movable property in the event of damage to this property" (author translation) (Lovdata.no, 2018a). This narrow definition has two implications. First, the phrase "forced physical action" excludes verbal commands and threats. Second, the phrase is not operationalized, leaving interpretation of "forced physical action" to the police officers' professional judgement and discretion. Interestingly, the term is not discussed in greater detail in either the Norwegian Police Act or the Police Instructions (Lovdata.no, 2018b). The only guidance for interpreting use of force is in the preparations for general service instructions for police officers, "In relation to persons, however, any forced action must be classified as force, including shoving, pushing and other intrusions and direct physical impact of the body of more 'trivial' types" (Auglend, 1988, p. 128). However, this text is not included in police instructions, creating potential uncertainty regarding use of lower-force-continuum physical interventions. Such uncertainties regarding what should be formally regarded as use of force will likely affect police officers' reporting of their use of force, and thus the data on which future studies are based.

2.3 The Norwegian police use-of-force model

Norwegian police use the Force Pyramid model (Figure 1) to describe the force continuum and to operationalize the guidelines in both law and police instructions (Lohne Lie & Lagestad, 2011, p. 10). This model, which is included in mandatory training for all police students and officers, shows the categories of forcible means at the disposal of police emergency response personnel, with ranked levels of severity of physical and mental injury that may occur as a result of their uses. In addition, the model refers to escalating and de-escalating of use of force in connection with each coercive measure. However, the model does not include descriptions of subject resistance, which is deemed to be proportionate to the level of force used by the police. Thus, the model is neither a complete nor a generally valid description of use of force, but rather a ranking of different coercive measures (Lohne Lie & Lagestad, 2011). Unlike the force pyramid model, an alternative model, the Police Use of Force Model, also includes electronic control devices (ECD, for example TASER) and the use of dogs, in addition to situational assessment (Henriksen, 2016).

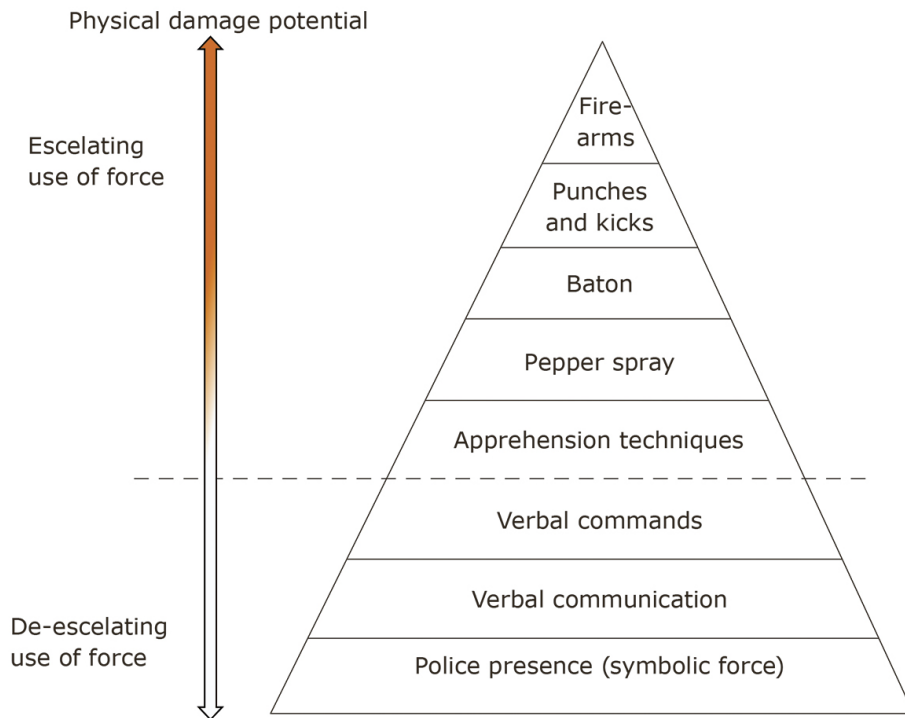


Figure 1 The Force Pyramid (Lie & Lagestad, 2011, p. 10)

Herein, the concept of force is understood to be limited to *physical* force, in accord with the Norwegian police definition (Lovdata.no, 2018a), although not all respondents in the current study necessarily used the same definition. Nevertheless, only the levels above the dotted horizontal line on the model are considered use of force. These include: (1) apprehension techniques and any physical intervention that is deemed to be force; (2) pepper spray; (3) baton; (4) punches and kicks; and, as a last resort, (5) use of firearms. From January 1, 2019, the Norwegian police introduced a two-year trial use of electronic control devices (ECD) as a new means of force (Nrk.no, 2018). There is currently no information available regarding where on the Force Pyramid ECD will be placed. Use-of-force models have additional limitations, including their inability to depict appropriate officer responses to every police–public encounter, because these are dynamic and complicated situations (Arsenault & Hinton, 2014, p. 138).

3. Methods

The purpose of this study is to provide a general overview of the prevalence and particularly the characteristics of Norwegian police emergency response officer's use of coercive force. Thus, a national survey was conducted amongst all police emergency response officers performing full- or part-time operational service.

3.1 Questionnaire

Due to the lack of an adequate reporting system for police use of force in Norway at the time of the survey, no national reporting form existed on which to base this survey. Thus, a questionnaire was developed, based on established police use-of-force reporting systems in six other countries.² The questionnaire focused on common core data and questions used by other police organizations, adapted to Norwegian policies, including the defini-

tion of use of force and the use-of-force model (Figure 1). Four categories divided the questions thematically: The police officers, their use of force, the subject (against whom force was used) and experiential learning. Only single-choice questions were used, and respondents were not required to answer every question to complete the survey. Four experts, representing each of the disciplines within police training in the use of coercive force and firearms at PHS, validated the professional content and questions. In January 2018, respondents received the electronic questionnaire, in which they were asked: “About how many times in service did you use force against a person (s) throughout the year 2017?”, and specifically “How many times in service did you use force against a person (s) in the month of December 2017?” In the main section of the questionnaire, the participants were encouraged to respond to “The last time you used force in the service, can you describe the specific incident...”, followed by questions on characteristics of this specific incident. Finally, a few questions related to experiential learning from such incidents were also included, but not reported herein.

3.2 Sampling

The Norwegian police employs approximately 10 000 sworn officers (Politiet.no, 2018). This survey focused only on the police emergency response personnel in the operational service. These officers are the police emergency response personnel who handle the vast majority of police–public encounters and are most likely to use force in service. The survey was distributed via their workplace e-mail to 3772 potential respondents, of which 1637 police officers completed the survey anonymously. The survey only addressed police emergency response officers, although a very limited number of other employees, such as civilian employees, also received the questionnaire (but did not respond). Although a few other employees received the survey, it is not likely that this influenced the results to a considerable degree, since they did not respond. However, it may have influenced the response rate of 43% negatively, by making it appear to be somewhat lower than it actually is.

3.3 Data

To the best of our knowledge, this survey was the first time that Norwegian police emergency response officers were asked to comprehensively report on their use of force, using a specific reporting form. The data analyzed herein are uses of force self-reported by police emergency response personnel in all 12 police districts in Norway. A possible limitation is therefore that only the police versions of these incidents were included; however, police-reported data are the most readily available regarding police–public encounters, despite their potential biases (Garner et al., 2002). In addition, these data were obtained retrospectively, and several officers expressed difficulty remembering how many times they had used force in the past year. Thus, reporting may have been affected by police officers’ reporting the more severe, if not the most recent, incidents, because these were recalled in greater detail. Although the survey findings were supported by focus group interviews, the use of force reported herein may be more severe than that which was actually used.

Police emergency response personnel are expected to be familiar with the definition of use of force based on their cumulative education and instructions. Despite this, feedback on the survey indicates that a more precise demarcation is needed for the definition of use of force, particularly when reporting use of physical interventions at the lower levels of the

2. Denmark, England and Wales, Finland, Netherlands, New Zealand, and USA (USA Federal Bureau of Investigation data).

continuum. Thus, uncertainty regarding what respondents considered to be use of force may also have affected these data, at least to a minor degree.

One challenge to researching police use of force is capturing the various aspects of the assignments and development of the situations in question. Alpert and Dunham (2004) have pointed out that police interventions are dynamic interactions between police officers and subjects, and thus “researchers and analysts know that police interventions cannot be understood as phenomena that unfold consistently and inevitably to a particular end” (Boivin & Lagacé, 2016, p. 192). Reports of their use of force may only capture the moment of confrontation, without the contextual nuances of perceived threat or the turning point in the situation. Nor does this study take into account the police officers’ intentions when using force. For example, one respondent described a situation in which a girl was physically forced away from the edge of a building, from which she intended to jump in order to take her own life. This incident was recorded as use of physical force, consistent with a typical arrest, illustrating the diversity of situations in which police officers may resort to use of force.

3.4 Analysis

Two methods were used for data analysis. First, frequency analysis was used to provide descriptive statistics, to present an overview of response options and the corresponding percentage of respondents (Ringdal, 2018). Second, linear regression analysis describes the relationship between the dependent variable (prevalence of use of force in December 2017) and the independent variables (e.g. gender and age) (Johannessen et al., 2016). This analysis contributes to causal explanations for the prevalence of the use of force, by measuring the effect that variables such as age and gender (independent variables) could potentially have on the prevalence of respondents' use of force in December (dependent variable).

3.5 Validation of results

To strengthen the internal validity of the findings, two focus group interviews were conducted with police emergency response personnel from four medium-sized police districts. The interviews included both male and female officers, in both competency categories (see full details in Section 4.1.1), employed by both police stations and smaller police offices, and having professional experience ranging from 1 to 25 years of service. When asked how the survey findings corresponded to their own operational service experiences, they generally endorsed the results presented herein. For example, a majority of informants generally agreed that the prevalence of use of force seemed recognizable, although it was commented that the regularity seemed somewhat low. Regarding police officer characteristics, differences between gender and prevalence of use of force were not remarked on, except by one informant who stated that female police officers use less force than male officers do. Several informants agreed with the findings that younger police officers seem to use force more frequently than their older colleagues do. The informants largely agreed with the characteristics of the use of force or did not make any specific comments. Regarding the distribution of different forms of use of force, according to the levels of the Norwegian use-of force-model (Figure 1), the informants made no comments except for one who specifically stated it seemed to be correct. Regarding findings on subject characteristics, the informants agreed that they most commonly use force against men and that subjects are usually somehow affected/intoxicated; one informant elaborated on this, stating that the number of subjects with mental disorders exposed to police use of force was less than expected. However,

the officers emphasized major differences within and between police districts regarding use of force, particularly due to the location of specific institutions or individuals having an extensive impact on the prevalence of their use of force. These findings have not been broken down based on police district. However, because the respondents were from all the national police districts – and with an overall response rate of 43% – the results are likely to have external validity and thus are generalizable to all districts.

4. Results

We will present descriptive statistics on prevalence and particularly the characteristics of police officers' use of force, along with regression analyses based on a selection of independent variables perceived to be particularly relevant for the Norwegian policing context.

4.1 Descriptive statistics

4.1.1 Prevalence of use of force

Based on the Norwegian definition of police use of force, police emergency response personnel were asked to report on the prevalence of their use of force in both the year 2017 and the month of December 2017 (the month prior to the survey). Notably, during December, organizations and employers in Norway traditionally host Christmas parties, which often include alcohol consumption and nightlife. This may have affected these data (i.e., these parties caused a higher frequency of public disturbances), but without official statistics on month-to-month incidents, this is impossible to determine. Table 1 shows findings of prevalence of use of force, related to police officer characteristics.

Table 1: Prevalence of use of force

Police officer characteristics	Approximately, how many times did you use force against a person in 2017?	How many times did you use force against a person in December 2017?
	n Median	n Mean SD
Gender, age and experience		
Total	1598 4.00 (11–15)	1592 3.94 3.69
Male	1240 4.00 (11–15)	1240 4.07 3.83
Female	351 3.00 (6–10)	352 3.47 3.05
Age (both genders)		1604 35.16 8.54
Years of experience (both genders)		1629 9.71 8.84
Competence category		
IP3 (special response unit)	419 5.00 (16–20)	415 5.07 4.28
IP4 (ordinary officers)	1117 3.00 (6–10)	1126 3.61 3.39
Place of employment		
Police station	1004 4.00 (11–15)	1008 4.65 4.14
Police office (rural area)	548 3.00 (6–10)	550 2.68 2.20

Table 1 shows that Norwegian police emergency response officers (both genders) use force equivalent to approximately once a month: 1598 respondents (*n*) of both genders reported on how many times they used force in 2017, and the midst interval category (4,00) represents about once a month during the year (11–15 times). Male officers report slightly more frequent use of force than their female colleagues do. An important indicator of prevalence of use of force is the category of competence, with officers in the IP3 police special response unit (similar to the UK armed response vehicle) reporting more frequent use of force than

IP4 ordinary emergency response officers. Finally, police officers employed by police stations report somewhat more frequent use of force than their colleagues employed by police offices. These findings show that gender (male officers), higher competence category, and employment in a larger organization are factors influencing the prevalence of use of force.

4.1.2 Police officer characteristics

The police emergency response personnel ($n = 1628$) consisted of 78% male and 22% female officers, which is likely to represent the gender distribution among police emergency response personnel, although official statistics are unavailable. Officers' mean age ($n = 1604$) was 35.16 ($SD = 8.54$) years, and their mean experience ($n = 1629$) was 9.71 years ($SD = 8.84$). Officers ($n = 1615$) were divided into two competence categories, IP4 (71%) and IP3 (26%), while 3% served in category IP5 (police officers not allowed to perform armed service because of lack of mandatory operational training). The officers ($n = 1590$) were employed at either a police station (64%) or a smaller rural police office (36%).

4.1.3 Subject characteristics

Subjects exposed to police use of force ($n = 1547$) were 85% male and 13% female. In 2% of the reported incidents, force was used against both men and women. The officers ($n = 1571$) reported the subjects' ages within 5-year ranges, with 49% aged 21–30 years and 94% presumed to be aged 50 years or younger. The subjects ($n = 1572$) were unarmed in 82% of incidents and in the remainder were armed with weapons/objects including knives (9%), objects used to strike (1%), firearm replicas (1%), firearms (1%), and other dangerous objects (6%). The subjects ($n = 1571$) were reported to be intoxicated and/or to have a mental illness in 92% of the police–public encounters in which coercive force was used (Figure 2).

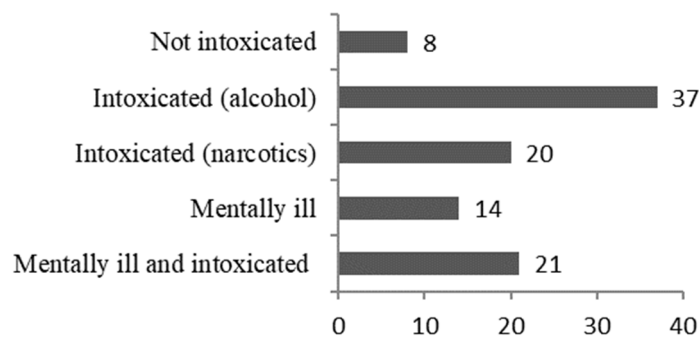


Figure 2 In what condition did the subject(s) appear? Percentage reported ($n = 1571$)

4.1.4 Situational characteristics

The police officers reported on characteristics of the incidents in which they used force. Table 2 shows selected situational characteristics.

Table 2: Selected situational characteristics (percentage reported)

What day did the incident take place? (n = 1462)	What time of day did the incident occur? (n = 1510)	Where did the incident take place? (n = 1571)	What kind of assignment started the incident? (n = 1570)
Monday, 5% Tuesday, 8% Wednesday, 9% Thursday, 13% Friday, 13% Saturday, 35% Sunday, 17%	0001–0800, 52% 0801–1600, 18% 1601–0000, 30%	Public place outside, 51% Private place inside, 20% Private place outside, 8% Hospital, 7% Public place inside, 4% In police custody, 3% Psychiatric hospital, 2% In a police vehicle, 2% Other, 2% In other police premises, 1%	Public disturbance, 42% Assisting health care, 17% Violence, 11% Threats, 10% Traffic, 6% Narcotics, 5% Burglary and theft, 3% Prosecution decision, 3% Other, 3% Child welfare, 1%

Table 2 shows that the incidents in which the police emergency response officers used force occurred on all days of the week, with a peak at weekends (Friday, Saturday and Sunday). The majority of the instances occurred during nighttime, outside in public places, and the type of assignment that stands out is public disturbances.

4.1.5 Use-of-force characteristics

Police emergency response personnel reported various reasons for their use of force (Figure 3).

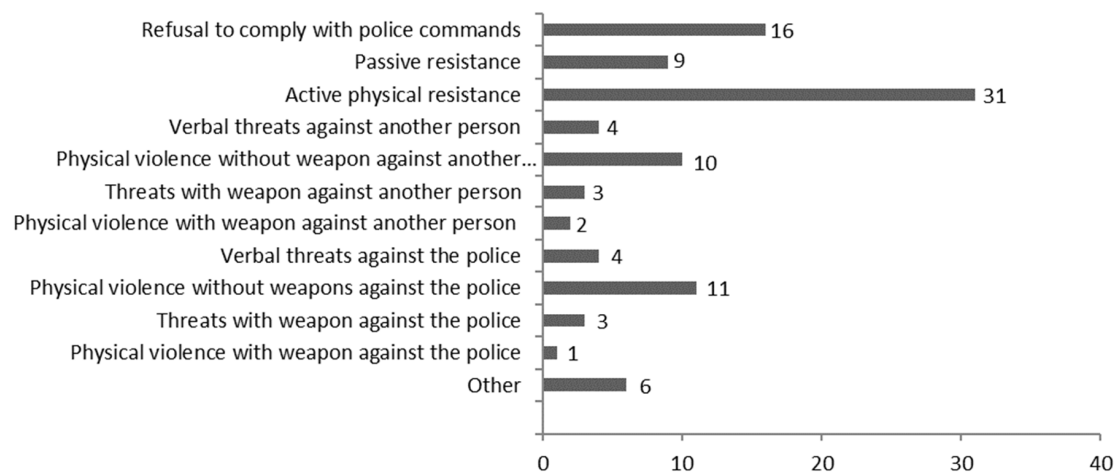


Figure 3 What kind of actions specifically triggered the use of force? Distribution by percentage (n = 1569).

The police officers ($n = 1571$) used less forcible means (e.g., verbal commands, warnings) in 82% of the incidents before any physical force was used. In 14% of incidents, no warnings were given, and in 4%, the police threatened use of weapons (all categories) before coercive force was used. It is common practice in the Norwegian police for two officers to patrol together; these respondents ($n = 1549$) reported that, in 66% of the incidents, there were two officers who used force against the subject(s); in 10%, only one officer used force; and, in the remaining 24%, three or more officers were involved. For the question regarding who led the assignment, it was reported ($n = 1551$) that 18% were led by an on-scene commander, 69% were led by another police officer (e.g., one of the officers themselves), and in the remaining 13%, there was no defined commander.

In 87% of the incidents ($n = 1562$), physical force (e.g., “come-along holds,” apprehension techniques) were reported as the first type of force used. In 6%, pepper spray was used first, 1% involved telescopic baton, 1% involved kicks and punches, 5% involved threats with the use of a firearm, 0.1% involved firing a warning shot, and 0.1% involved using a firearm against a person as their first coercive measure. On the question of how much force was necessary to gain control of the situation, only minor escalations were reported ($n = 1574$) from the initial use of force: using physical force was sufficient in 83%, pepper spray in 8%; telescopic baton in 2%; kicks and punches in 2%; threats with a firearm in 5%; firing a warning shot in 0.2%; and use of a firearm in 0.1%.

Injuries to the parties involved and to bystanders were also recorded. Among the situations reported ($n = 1577$), no injury, or injury without any need for treatment (e.g., minor bruises) for the subject(s), occurred in 98% of cases. In 2%, injuries to the subject(s) required treatment. The same frequency was reported ($n = 1574$) for injuries to the police officers themselves. Bystanders ($n = 1574$) were reported to be injured and in need of treatment in 1% of the situations in which force was used. These findings show that in the majority of situations, two officers use force against the subject(s) and that the officers predominantly took the lead on these assignments. In the vast majority of situations, the police officers tried less coercive measures (e.g., verbal warnings) before they escalated to the use of physical force. When used, force was concentrated at the lower end of the force continuum, a level that generally did not escalate the situation and seldom caused injury.

4.2 Regression analysis

The questionnaire data followed a similar structure to several existing reporting forms for police use of force. However, some variables were recoded for analysis. Linear regression was used for analyses of a selection of independent variables, and data were analyzed using IBM SPSS 24.

4.2.1 Dependent variable

Police emergency response personnel were asked to estimate retrospectively how many times they had used force during 2017 and during December 2017. December was the month prior to survey distribution, thus chosen as a dependent variable. Notably, use of force incidents reported by the officers (i.e., the *last time* that they used force) did not necessarily take place in December; therefore, it may be inaccurate to conclude that all specific incidents occurred during this month. However, this did not influence the results of the study. The main hypotheses were that Norwegian police emergency response officers frequently use coercive force in their service, the officers relate to the framework in the use-of-force model and the exercise of force is concentrated at the lower end of the model. The hypothesis was also that several factors could affect the prevalence of use of force and were therefore tested as independent variables.

4.2.2 Independent variables

In the first analysis, four independent variables were used: officer gender, place of employment (police station or smaller police office), officer age, and officer age squared (the last variable is detailed in Table 2). Years of experience in the police service was considered but omitted because of its strong correlation with officer age ($r = .942$). These variables have been investigated in previous research and considered particularly interesting within the Norwegian context. The hypothesis for the independent variables in Table 3 was that officer gender would not affect the prevalence of use of force, due to mixed findings in previous

studies (e.g. Garner et al., 2002; Klahm & Tillyer, 2010). Based on demographic conditions in Norway, with large variations in population density, it was anticipated that employment by a larger organization (a police station) in more populous areas would increase the frequency of use of force. Previous research has suggested that experienced officers are more able to manage situations without resorting to the use of force (e.g. Paoline & Terrill, 2007). Thus, it was expected that increasing officer age would decrease the prevalence of use of force.

In the second analysis, three additional independent variables were included: whether the assignment was led by an on-scene commander, whether the subject was armed, and whether the subject appeared to be affected/intoxicated. These characteristics were included based on preliminary analyses, previous research, and police guidelines. The hypothesis of the independent variables in Table 3 was that the presence of a higher ranked on-scene commander responsible for on-scene management (Politiet.no, 2019, p. 147) would decrease the use of force. Preliminary analysis showed that the vast majority of the subjects were unarmed (see section 4.1.2), but it was anticipated that the presence of a weapon could increase the perceived threat and increase the severity of police force. Both conventional weapons (e.g., firearm, knife) and improvised weapons (e.g., hammer, bottle) were included. Initial analysis also showed that the vast majority of the subjects were somehow affected/intoxicated (see Figure 2), and previous research has suggested that subjects with mental illness are exposed to higher levels of police use of force (e.g. Rossler & Terrill, 2017). Thus, it was expected that subject affection/ intoxication could increase the prevalence of use of force. All independent variables were recoded to dichotomous variables before analyses, and the findings from the two analysis are presented in Tables 3 and 4 below.

Table 3: Independent variables

Variable	Range	Mean	SD	Distribution (%)
Model 1				
Officer gender (0 = female; 1 = male)	0–1			0 = 22, 1 = 78
Officer age (both genders)	22–60	35,16	8,54	
Place of employment (0 = police office; 1 = police station)	0–1			0 = 36, 1 = 64
Age squared				
Model 2				
Who led the assignment? (0 = other; 1 = on-scene commander)	0–1			0 = 82, 1 = 18
Was the subject armed? (0 = no; 1 = yes)	0–1			0 = 82, 1 = 18
Was the subject affected/intoxicated? (0 = no; 1 = yes)	0–1			0 = 8, 1 = 92

4.2.3 Regression analyses

Linear regression models provide the variance accounted for by the characteristics (independent variables) on reported use of force in December (dependent variable). Table 4 shows the probabilities that the selected characteristics impacted the prevalence of police use of force. Model 1 considered only officer characteristics; Model 2 also took into account management of the assignment and selected subject characteristics.

Table 4: Linear regression models of predictors of use of force

	Model 1				Model 2			
	b	SE B	b	p	b	SE B	b	p
Constant	14.191	13.561		.296	16.129	13.815		.243
Officer gender	5.521	1.708	.082	.001	5.460	1.711	.081	.001
Place of employment	15.199	1.474	.259	.000	15.060	1.483	.257	.000
Officer age (both genders)	1.946	.740	.575	.009	1.923	.742	.568	.010
Age squared (both genders)	-.035	.010	-.802	.000	-0.035	.010	-.798	.000
Who led the assignment?					1.578	1.859	.022	.396
Was the subject armed?					-.429	1.843	-.006	.816
Was the subject affected/ intoxicated?					1.554	2.511	-.015	.536

Table 4 shows that, during December 2017, police officer gender impacted the prevalence of use of force, which remained statistically significant in both models ($p = .001$). This corresponds to the findings reported in Section 4.1.1, in which male officers reported using force more often (median 11–15 times) during 2017 than did female officers (median 6–10 times). As previously mentioned, police officers' age was correlated ($r = .942$) with their years of experience. The independent variable age squared was included in both models to test for a curvilinear effect; use of force initially increased after graduation from the PHS to an apex officer age of 27.8 years, then decreased ($p = .000$). These findings indicate that police officers with increasing age and experience, use less force than their more recently educated and less experienced colleagues.

Another predictor of the prevalence of use of force was officers' place of employment. Table 4 shows a significant effect of employment at a police station vs. a smaller police office, in both models ($p = .000$). The extent of use of force increases when police emergency response personnel are employed at a police station (i.e., a larger agency). However, Norwegian police have a decentralized organizational structure, in which the number of employees at police stations and police offices varies significantly. The number of assignments may also vary considerably between both stations and offices, depending on the size of the population that they serve, as well as on whether there are city centers and nightlife within their districts. The additional characteristics included in Model 2 were inconsistent with the hypotheses (see Section 4.2.2). Neither assignment management ($p = .396$) nor presence of a weapon ($p = .816$) nor subject being affected/intoxicated ($p = .536$) were statistically significant ($p = < .05$). Thus, the likelihood that the data are due to coincidence is offset, measuring level 0.05 (5%).

5. Discussion

The purpose of this study is to provide a general overview of the prevalence and particularly the characteristics of police public encounters in which police emergency response officers have used coercive force, including a framing of police use of firearms in the force continuum. The insufficient reporting systems in Norway provide limited opportunities for national-level comparisons or estimates of the frequency of police use of force in relation to

the number of registered police assignments (e.g., there were 809, 893 police assignments registered in Norway during 2016; Politiforum.no, 2018). For example, Garner et al. (2018) estimated that there was a total of 337,590 uses of physical force in police–public encounters by state- and local-level law enforcement agencies in the USA during 2012, which allows for a better estimation of the prevalence of police use of force. However, limited previous national research also suggests that the use of force occurs frequently. Lagestad (2008) found that police officers estimate having used physical force approximately once monthly, consistent with the findings in the present study. Lie (2010) found that 90% of police officers had physically forced a subject to the ground once or more often during the past two years. However, the extensive international literature on police use of force shows inconsistent results. In their review of this literature, Garner et al. (2002) found that the prevalence of police use of force in police–public encounters ranged from 0.8% to 58.1%, depending on whether there was subject resistance and how use of force was measured.

Previous results have also been mixed regarding the associations between prevalence of use of force and police officer characteristics such as gender, experience, and place of employment. The current findings suggest that female officers tend to use force less frequently than their male colleagues, consistent with others' findings (e.g., Garner et al., 2002; Schuck & Rabe-Hemp, 2007). However, in their extensive review of different use of force studies published during 1995–2008, Klahm and Tillyer (2010) found that in most studies, gender in itself is not a relevant independent variable. For example, McCluskey & Terrill (2005) did not find that officer gender was related to use of force, and Paoline and Terrill (2005) only found one significant gender difference: that male officers were more likely to resort to higher levels of force against male suspects.

In the present study, years of police service experience was omitted because of its strong correlation with officer age ($r = .942$). These data also show that police officer age has a curvilinear effect on prevalence of use of force, with use of force initially increasing to, and then decreasing from, officer age of 27.8 years. The Norwegian Police University College has reported that the average age for applicants (of both genders) during spring 2014 was 22.4 years; the average age during autumn 2017 (after three-year bachelor studies) will be approximately 25.4 years. However, studies on police officers' experience and use of force are inconsistent. Some studies suggest that more experienced officers are better able to manage situations without resorting to the use of force (Paoline & Terrill, 2007; Terrill & Mastrofski, 2002), and Alpert and Dunham (2004) suggested that more experienced officers are better able to make finer distinctions than their younger colleagues regarding the level of force required. In contrast, Garner et al. (1996) found that officer experience was an inconsistent predictor of force, while Boivin and Lagacé (2016) found that experienced officers were more likely to use more force than expected, in relation to subject resistance.

Another significant predictor of the prevalence of use of force in this study was place of employment, with officers at police stations using force more frequently than their colleagues at smaller police offices. Worden (2015) discussed various causes for use of force by officers employed at smaller organizations, including closer oversight by the public than at larger stations, which may impact the prevalence of use of force. Other explanations might be population density, city centers, and nightlife, all of which are likely to cause a higher frequency of use of force by officers employed at police stations. However, Terrill et al. (2008) found mixed results in their studies comparing the extent of use of force between smaller and larger agencies.

Another interesting finding from the present study is the apparent uncertainty regarding the demarcation for what is formally regarded to be use of force at the lower end of the force

continuum. A number of police officers expressed uncertainty about this demarcation and about the lack of additional information in the Norwegian definition of use of force (see Auglend, 1988). Do such uncertainties affect police emergency response officers' reports about situations in which they have used force, possibly leading to their reporting more forceful use of physical force? Unfortunately, this study could not answer this question. However, the findings indicate a need for more precise guidelines to supplement the Norwegian definition of use of force (Lovdata.no, 2018a). Thus, a new definition of use of force is proposed herein for the Norwegian police: Police use of force means any physical contact with a person in which the purpose is to overcome passive or active resistance, or where police actions cause material damage to any object. Another key question is whether verbal commands, threats, or any form of restraint (e.g., handcuffing) should be included.

6. Conclusion

Coercive force is reported by police emergency response personnel in Norway at a frequency equivalent to approximately once per month, but findings suggest that there may be greater variations. There are differences between rural offices and stations in more populous areas, with officers employed by police stations using force somewhat more often in their service. The vast majority of uses of force are concentrated at the lower end of the force continuum and restricted to physical interventions that do not include any use of weapons. With few exceptions, injuries to parties because of use of force are rare. Predominantly male subjects are exposed to police use of coercive force, the vast majority of whom are intoxicated and/or mentally ill. The study also indicates a possible uncertainty among police officers concerning what they should formally consider to be use of force, at the lower end of the force continuum. This study may contribute to a better understanding of police use of force in Norway, with possible implications for both for day-to-day street level assignments, and the education and training of police officers. The study also reveals a need for more research on police use of force, for example, the regularity of use of force and the contexts in which police use force against subjects with mental disorders.

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