

Tuula Leino

Work-related violence and its associations with psychological health:

A study of Finnish police patrol officers and security guards



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*A study of Finnish police patrol officers and
security guards*

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Finnish Institute of Occupational Health
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ABSTRACT

The aim of this thesis was to examine the prevalence of encounters of work-related violence among police patrol officers and security guards in Finland and the association between these and psychological health. Based on pilot interviews, a questionnaire was sent between 2002-2009 to police officers and security guards. A total of 992 to 1734 responded to the cross-sectional surveys. In both occupations, the most frequent form of violence was psychological violence (63% of police officers and 39% of security guards had encountered insults at least once a month during the past year). Physical violence was also common in both occupations (unarmed physical attacks at least once a month; 44% and 15 % respectively). Among police officers, both psychological and physical violence were more common experiences among those of a younger age, those working in the metropolitan area and those who reported time pressure at work. Among security guards, the corresponding risk factors were male gender, younger age, shorter tenure, working in the metropolitan area, working morning and evening shifts, and time pressure at work. The studies showed that physical violence was associated with psychological ill health (psychological distress symptoms). Instead psychological violence had not this association. Five per cent of police officers reported that their alcohol consumption had increased due to violent encounters or threats of encounters and this increase was associated with a lack of debriefing, a lack of personnel to handle violent situations, and insufficient training in how to handle violent situations. In addition to these, among those who had a physical injury due to work-related violence during the past year (843 of all police officers; 49%), a high frequency of injuries and their severity, as expressed by need for medical treatment, was associated with an increased risk of psychological distress, fear of future violence, and increased alcohol consumption.

ABSTRACT

In conclusion, this study showed that physical violence at work, as well as injuries caused by violence in police work, are associated with the psychological ill health of police officers and security personnel. Lack of psychological support after violent encounters may increase alcohol consumption, which was found in the study of police officers. However, longitudinal studies are needed in order to prove whether the associations are causal. Because violence seems to be a threat to mental well-being in security work, the prevention of violence and the way in which violent situations are handled are of great importance. Special attention should also be paid to the risk groups recognized in this study.

YHTEENVETO

Tässä väitöskirjassa tutkittiin poliisipartiotyötä tekevien poliisien ja yksityisten vartiointiliikkeiden vartijoiden työssä kokemaa väkivaltaa ja sen yhteyksiä psyykkiseen hyvinvointiin. Tutkimus perustuu vuosina 2002–2009 tehtyihin poikkileikkaustutkimuksiin. Vastaajien määrä vaihteli 992:n ja 1 734:n välillä.

Molemmat ammattilaiset kohtasivat työssään psyykkisen väkivallan muodoista eniten erilaista solvaamista kuten kiroilua, huutelua ja halveksivaa nimittelyä (poliiseista 63 % ja vartijoista 39 % ilmoitti kohdanneensa niitä vähintään kerran kuukaudessa viimeisen vuoden aikana). Useat vastaajista olivat kokeneet myös fyysistä väkivaltaa työssään (eniten lyömistä tai potkimista; poliiseista 44 % ja vartijoista 15 % vähintään kerran kuukaudessa viimeisen vuoden aikana). Poliisin työssä erityisesti nuori ikä, työskentely pääkaupunkiseudulla ja kiire työssä olivat yhteydessä sekä psyykkiseen että fyysiseen väkivaltaan. Vartijan työssä useammin näitä molempia väkivallan muotoja olivat kokeneet miehet, nuoremmat työntekijät, vähemmän aikaa vartijan työssä olleet, pääkaupunkiseudulla työskentelevät, aamu- ja iltavuoroissa työskentelevät ja ne, jotka kokivat aikapainetta työssään. Molemmissa ammattiryhmissä fyysinen väkivalta oli yhteydessä psyykkiseen oireiluun, kun taas psyykkisellä väkivallalla ei ollut yhteyttä oireiluun.

Poliiseista viisi prosenttia raportoi oman alkoholinkäyttönsä lisääntyneen työssä koetun väkivallan vuoksi. Lisääntyneeseen alkoholinkäyttöön olivat yhteydessä myös psyykkisen tuen puuttuminen väkivaltakokemusten jälkeen, vähäinen poliisien määrä tilanteiden hoidossa sekä kokemus omien taitojen puutteellisuudesta toimia tilanteessa.

Väkivallan vuoksi vähintään yhden vamman viimeisen vuoden aikana saaneita poliiseja oli kaikkiaan 843 (49 % tutkituista poliiseista). Heistä

YHTEENVETO

useamman kerran vammautuneilla ja lääkärinhoitoa tarvinneilla poliiseilla oli kasvanut riski oman alkoholinkäyttönsä lisääntymiseen, psyykkiseen oireiluun sekä pelkoon tulevaisuudessa tapahtuvasta väkivallasta työssä.

Johtopäätöksenä todetaan, että fyysinen väkivalta on uhka psyykkiselle hyvinvoinnille poliisin ja vartijan työssä. Poliiseihin kohdistunut tutkimus myös osoitti, että työssä koetusta väkivallasta johtuva vammautuminen on yhteydessä psyykkiseen oireiluun. Henkisen tuen saamisella väkivaltakokemusten jälkeen voi olla myös merkitystä, koska vähäinen tuki oli poliisin tutkimuksessa yhteydessä lisääntyneeseen alkoholinkäyttöön. Tämä väitöskirja oli poikkileikkaustutkimus ja sen vuoksi on syytä tulevaisuudessa tehdä seurantatutkimus, jotta saadaan selville, ovatko yhteydet väkivallan ja psyykkisen oireilun välillä kausaalisia. Koska työssä koettu väkivalta voi olla uhka psyykkiselle hyvinvoinnille turvallisuusammateissa, väkivallan ehkäisy ja oikea toiminta uhkaavissa tilanteissa ovat erityisen tärkeitä. Tukitoimien suunnittelussa tulisi myös ottaa huomioon tässä tutkimuksessa esiin tulleet riskiryhmät ja riskitilanteet.

LIST OF ORIGINAL PUBLICATIONS

This thesis is based on the following original publications, which are referred to with Roman numerals I–IV. The original articles have been re-published in this report with the permission of Industrial Health (I), Oxford University Press (II), Vathek Publishing (III), and John Wiley & Sons (IV).

1. Leino, T., Selin, R., Summala, H. & Virtanen, M. (2011) Work-related violence against security guards – Who is most at risk, *Industrial Health*, 49, 143–150.
2. Leino, T., Selin, R., Summala, H. & Virtanen, M. (2011). Violence and psychological distress among police officers and security guards, *Occupational Medicine*, 61: 400–406.
3. Leino, T., Eskola, K., Summala, H. & Virtanen, M. (2011) Work-related violence, debriefing, and increased alcohol consumption among police officers, *International Journal of Police Science and Management*, 13, 149–157.
4. Leino, T., Eskelinen K., Summala, H. & Virtanen, M. (2012). Injuries caused by work-related violence against Finnish police officers: frequency, need for medical treatment and their associations with adverse mental health, *American Journal of Industrial Medicine*, 55: 691–697.

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Tuula Leino

ABBREVIATIONS

GHQ-12	General Health Questionnaire (12 items)
OR	Odds ratio
SPSS	Statistical Package for the Social Sciences
AUDIT	Alcohol Use Disorders Identification Test
EU	European Union
UK	United Kingdom
USA	United States of America
PTSD	Post-Traumatic Stress Disorder
PCL	PTSD Checklist=a self-report instrument to screen for possible presence of PTSD (=Post-Traumatic Stress Disorder)
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders

1 INTRODUCTION

Policing has long been considered one of the most stressful occupations (Violanti & Aron, 1995; Kop, Euwema, & Schaufeli, 1999; Anshel, 2000; Gershon, Lin, & Li, 2002; He, Zhao, & Ren, 2005; Ireland, Malouff, & Byrne, 2006; Clair, 2006; Waters & Usserly, 2007). Some of the stressors experienced by police officers during the course of their duties are the use of force, the use of discretion, making critical decisions, continual exposure to citizens in pain or distress, exposure to danger, violence and possible death, and also sometimes boredom and inactivity (Dowler, 2005; Agolla, 2009; Shane, 2010).

Some of the recent empirical researches, however, has found that police work is not particularly stressful and that police officers do not suffer from extreme stress or frustration (Berg, Hem, Lau, Håsel, & Ekeberg, 2005; Shane, 2010). Further, Shane (2010) suggests that stress that police officers suffer from is not characteristically different to stress in other occupations, and that police work is not beyond officers' emotional capacity. A Finnish study has shown that stress and burnout levels among Finnish police officers are not very high (Vuorensyrjä & Mälkiä, 2011). In addition, research has recently confirmed that of all stressors it seems to be police organizations and the behaviour of the people in these organizations that causes the most stress (Violanti & Aaron, 1995; Lennings, 1997, Kop et al., 1999; Liberman et al., 2002; Collins & Gibbs, 2003; Stephens & Pugmire, 2007; Buker & Wiecko, 2007; Gershon, Barokas, Canton, Li, & Vlahov, 2009; Shane, 2010).

However, exact studies concerning the prevalence or associations of some of the features that are quite unique and specific to policing are scarce. Although these features are low in prevalence, their intensity may be very high and cause great stress. Some of the greatest stressors in police work

are: 'killing someone in the line of duty', 'exposure to danger', 'facing the unknown or unpredictable situation', 'dealing domestic disputes', 'facing a situation with the possibility of injury', 'physical threats and violence' (Violanti & Aaron, 1995; Anshel, Robertson, & Caputi, 1997; Kop et al., 1999; Liberman et al., 2002; Buker & Wiecko, 2007; Gershon et al., 2009).

Studies of work-related violence in police work have focused mostly on traumatic events and their connection with serious stress symptoms such as post-traumatic stress disorder (PTSD). However, studies on the different forms of daily encountered work-related violence and their prevalence or on the risk groups of violence are needed, if we are to identify specific risk factors and to prevent distress symptoms at an early stage, before they later develop into more serious mental health problems.

1.1 The concept of violence

Violence normally means any aggressive behaviour that is intended to harm another human being (Baumeister & Bushman, 2007; Fountoulakis, Leucht, & Kaprinis, 2008). It can take several forms in respect of the relationship between an aggressor and a victim, and in respect of the setting and the type of aggressive act (Beck & Pretzer, 2005; Fountoulakis et al., 2008). In fact, a host of factors exists that frame and contextualize different violent acts. Thus it can be argued that violence is more than a simple matter of individual pathology (Beech & Leather, 2006). Violence as a construct is also value-laden and its meaning varies from culture to culture: sometimes also within the same culture (Krauss, 2006). Different emotions of the human mind such as anger and frustration may increase aggression. However, angry feelings do not always lead to aggressive and violent acts. (Baumeister & Bushman, 2007).

The European Commission and the Health and Safety Executive defines violence as: "The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation". Figure 1 illustrates this definition and encompasses all types of violence, dividing it into three broad categories: self-inflicted, interpersonal, and collective. Each of the three categories is subdivided to reflect specific

1 INTRODUCTION

types of violence, settings of violence, and the nature of violent acts (physical, sexual, psychological, and deprivation or neglect). The importance of understanding the links between specific types of violence is emphasized. (Krug, Mercy, Dahlberg, & Zwi, 2002).

It is also important to understand that when people encounter violence, their health is always in danger. This can also be seen in statistical data that show how over 1.6 million lives are lost each year due to violence. This means that every day about 4400 people in the world die as a result of violence. (Krug et al., 2002).

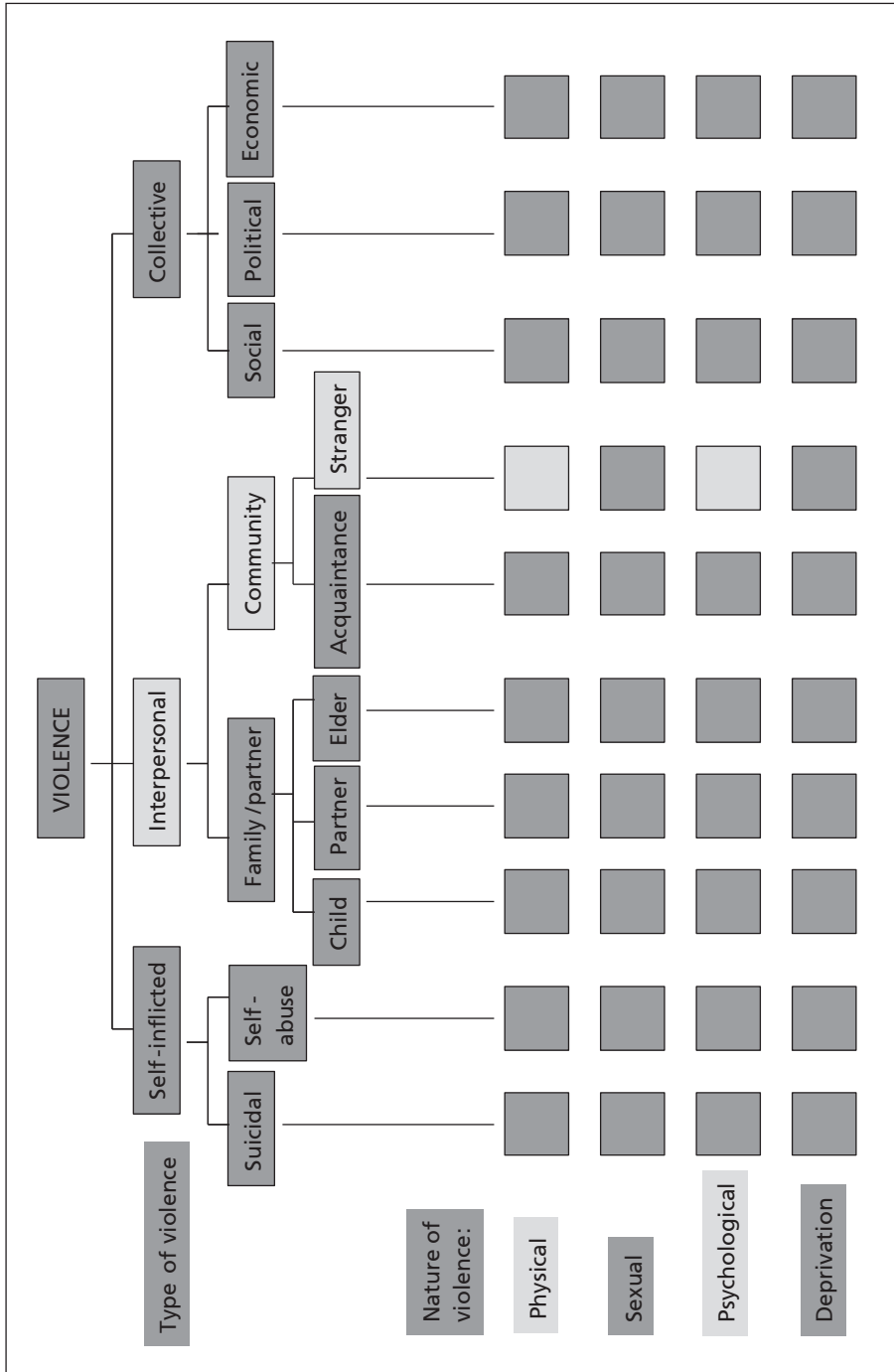


Figure 1. Typology of violence (Krug et al., 2002, reproduced with the permission of the copyright holder, World Health Organization, Geneva 2002). Grey is used in this figure to show the type and nature of violence that was hypothesized police officers and security guards meet in their work duties.

1.2 The concept of work-related violence

In trying to define work-related violence, some researchers have focused only on physical assaults, whereas others have also included threats of violence and even vicarious violence in their definitions (Schat & Kelloway, 2003). Work-related violence has sometimes been only divided into physical acts and non-physical (e.g. verbal) forms of violence. Non-physical violence can be further separated into three different forms, which are threat, sexual harassment and verbal abuse (Gerberich et al., 2004; Beech & Leather, 2006). The difficulty in agreeing on operational definitions of work-related violence may be one of the reasons why it has been difficult to estimate and compare the prevalence of work-related violence across studies, different occupations and countries (Harvey, Fleming, & Mooney, 2002).

The most comprehensive definition of work-related violence is that of European Commission: “Work-related violence refers to incidents where persons are abused, threatened or assaulted in circumstances related to their work, involving an explicit or implicit challenge to their safety, well-being and health.” (Wynne, Clarkin, Cox, & Griffiths, 1997; DiMartino, Hoel, & Cooper, 2003).

This dissertation focuses solely on ‘client-induced’ work-related violence in security occupations. In Figure 1, this type of work-related violence falls within the interpersonal violence category in which the perpetrator is a client or a citizen in the community (=grey areas). Thus, work-related violence within the working community (e.g. bullying) is not the focus of this thesis.

1.2.1 Occupations at risk of work-related violence

No worker or occupation can be totally safe from work-related violence. However, studies have shown that the risk of encountering violence is higher in certain occupations than in others. These risk occupations include interacting with the public, exchanging money, delivering services or goods, working late at night or during early morning hours, working alone, guarding valuable goods or property, and dealing with violent people or volatile situations (LeBlanck & Kelloway, 2002; LeBlanck, Dupre, & Barling, 2006; Spector, Coulter, Stockwell, & Matz, 2007).

The risk is highest among occupations such as ‘security and protective services’ that are often engaged in volatile situations. In second place are health care professions (Waddington, Badger, & Bull, 2005). More specifically, employees in risk occupations include police officers (Perrot & Kelloway, 2006; Heiskanen, 2007), security guards or other security staff (Heiskanen, 2007; LeBlanc & Kelloway, 2002; LeBlanck et al., 2006; Beech & Leather, 2006; Clair, 2006; Webster, Patterson, Hoare, & O’Loughlin, 2008), taxicab drivers (Perrot & Kelloway, 2006; Beech & Leather, 2006), social workers (Heiskanen, 2007), those working in jail settings (Heiskanen, 2007), different professionals in the health sector (Harvey et al., 2002; Viitasara, 2004; Beech & Leather, 2006; Heiskanen, 2007; Peek-Asa, Howard, Vargas, & Kraus, 1997), teachers (Mayhew & Chappell, 2007), special education teachers (Ervasti et al., 2012), service workers (e.g. restaurants), and workers in transportation industries (LeBlanc & Kelloway, 2002; LeBlanck et al., 2006).

Statistics from the USA show that a total of 5.3% of employees in all industries had encountered at least one incident of workplace violence during the preceding year (Bureau of Labour statistics, Washington D.C., 2006). European figures show that of all workers in the European Union countries, 5% reported having been personally subjected to violence from either fellow workers or others at the workplace. A higher than average reported incidence of exposure to violence and threats of violence has been reported in the Netherlands (10%), France (9%), the United Kingdom (9%), and Ireland (8%). In Denmark 8% of all wage earners in 2004 had been exposed to violence on the job during the last year. In Belgium in 2004 5.5% had faced physical violence in the last 12 months. In Finland, 5% of all workers in 2006 reported that they had been subjected to violence or threatening behaviour at work or on the way to or from work during the past 12 months. (European Agency for Safety and Health at Work (EU-OSHA), 2010). Thus, the general prevalence of exposure to work-related violence varies between 5 and 10%.

1.2.2 Risk factors for work-related violence

Several risk factors for becoming a victim of work-related physical violence have been identified. These are male gender, young age (Harvey et al., 2002; Gerberich et al., 2004), time pressure (Camerino, Estryn-Behar,

Conway, van Der Heijden, & Hasselhorn, 2008), lack of experience at work (Beech & Leather, 2006; Landau & Bendalak, 2008), late working hours (Beech & Leather, 2006), working alone or in small numbers (LeBlanck et al., 2006) and handling cash or drugs (Beech & Leather, 2006). Risk factors for victimization to psychological violence are in the individual level low self-esteem and in organisational level poor social climate and poor managerial climate (Vartia, 2003).

1.3 Psychological consequences of work-related violence

Even awareness of the possibility of becoming exposed to violence during work duties may increase a worker's risk of a variety of stress-related disorders and have an impact on psychological and physical well-being (Wieclaw et al., 2006; Perrot & Kelloway, 2006; Santos, Leather, Dunn, & Zarola, 2009; Mueller & Tschan, 2011). Exposure to violence has been associated with reduced work satisfaction and psychological morbidity, which have ranged from distress to more serious psychological disorders (Findorff, McGovern, Wall, Gerberich, & Alexander, 2004; Carmi Iluz, Peleg, Freud, & Shwartzman, 2005; Perrot & Kelloway, 2006; Beech & Leather, 2006; Maguire & Ryan, 2007; Kessler, Spector, Chang, & Parr, 2008; Camerino et al., 2008). In this thesis, three forms of psychological ill health are on the focus: psychological distress, fear of violence and alcohol use. These have been chosen because they are likely consequences of work-related violence and may be prevalent among security employees.

1.3.1 Psychological distress

The concept of psychological distress is widely used in occupational health research (Marchand, Demers, Durand, & Simrad, 2003) and initially it has been defined as damaging or unpleasant stress (Selye, 1974). Psychological distress is not a disease per se but is typified by psycho-physiological and behavioural symptoms that are not specific to a given mental pathology. These symptoms are e.g. anxious and depressive reactions, irritability, declining intellectual capacity, tiredness, and sleepiness. (Marchand et al., 2003). Psychological distress manifests in

problems associated with both personal and relationship issues. It is defined as an unpleasant emotional state of psychological or social nature that affects the individual's ability to cope with a particular set of circumstances (Sellic & Edwardson, 2007). Measures of distress have been used to monitor mental well-being and psychopathology at the general population level (Talala, Huurre, Aro, Martelin, & Prattala, 2008). If a person suffers from several psychological distress symptoms, he/she most likely has lowered psychological health (Goldberg et al., 1997; Renck, Weisaeth, & Skarbo, 2002). Totally healthy people can occasionally also experience strain or anxiety without having any form of psychological ill health (Haworth, 1996).

The symptoms of distress can include feeling disturbed, emotionally agitated, or different to one's normal self (Renck et al., 2002), or feeling that one's social functioning is impaired (Webster et al., 2008). Prolonged distress symptoms can even lead to more serious psychiatric disorders or sleep disorders (Mayhew, 2001; Perrot & Kelloway, 2006), psychosomatic diseases, and even suicide (Marchand et al., 2003).

1.3.2 Fear and anxiety

The term 'fear' is mostly used when there is an obvious external cause for fear, and the word 'anxiety' is used when there is no necessarily obvious external cause for fear (The Macmillan Dictionary, 1995). Fear and anxiety also involve physiological arousal and are considered a state of distress (Lang, Davis, & Öhman, 2002). Work-related violence leads to feelings of fear (Barling, 1996; LeBlanc & Kelloway, 2002). Furthermore, if the fear of future violence increases, people may become increasingly depressed and anxious about the recurrence of violence (Hershcovis & Barling, 2010). Repeated violence may further enhance feelings of fear (Kleber & van der Velden, 1996).

Post-traumatic stress disorder (PTSD) is a clinical state of anxiety characterized as a syndrome occurring after a major psychological trauma, characterized by anxiety, sleeplessness, vivid and frequent images of the event, incessant thinking about it, numbness, a lack of interest in the world, and a tendency to be readily startled. PTSD symptoms typically develop within the first three months after a traumatic incident, but may be delayed, surfacing after months or years (Clair, 2006). Because

anxiety is the major sign of PTSD, it is classified as an anxiety disorder (Frances, Pincus, & First, 1997, pp. 424–425).

1.3.3 Alcohol use

Another potential consequence of exposure to violence is increased alcohol consumption (Adams, Boscarino, & Galea, 2006; Boscarino, Kirchner, Hoffman, & Sartorius, 2011). Both the exposure of violence and increased alcohol use may relate to a lack of control over one's own work after a violent incident at work. This in turn increases distress, which has proven to be a determinant of increased alcohol use (Violanti, Marshall, & Howe, 1983; Cooper, Russell, & George, 1988). From this point of view, the consumption of alcohol can be seen as a form of avoidant emotion-focused coping for managing stress (Grunberg, Moore, Anderson-Conolly, & Greenberg, 1999; Boscarino et al., 2011, Ahola et al. , 2007; Swatt, Gibson, & Piquero, 2007).

1.4 Work of police officers and security guards

The primary goals of the work of police officers and security guards are to protect law and order and to prevent crime. The work also involves arresting those who break the law and dealing with disturbance situations. Both police officers and security guards patrol in public streets, shopping centres and airports, leisure facilities and parks, and provide help and protection to the citizens if needed. (Button, 1999; Monaghan, 2002; Ferguson, Prenzler, Sarre, & de Caires, 2011).

Police officers have a unique occupational reality compared to other occupations, because violence, or its potentiality, is expected to be involved in their work (Brandl & Stroshine, 2003). However, although violence can be expected, the vast majority of contacts and interactions with police officers and citizens are non-violent, civil and professional (Brandl & Stroshine, 2003). Patrol tasks are mainly mundane in nature and exposure to public-initiated violence is low (Santos et al., 2009). In the USA, the prevalence of violent attacks against police officers in one year has varied between 12.0 and 13.8 (per 100 officers), and in

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Australia 10% of police officers are physically assaulted each year (Rabe-Hemp & Schuck, 2007). The corresponding figure for the UK is 14% (Mayhew, 2001) and Finland violence that includes also threats is 33% (Heiskanen, 2007). Officers are also granted the legitimate use of coercion if needed and are legally compelled to act in crises (Paoline III, 2003). Thus, depending on the situation at hand, they may have to be able to immediately shift their role from community service to public order (Santos et al., 2009).

Physical violence can occur on a daily basis without warning (Perrot & Kelloway, 2006). The prevalence of physical violence is low, but their intensity may be very high (Violanti & Aaron, 1995; Kop et al., 1999; Liberman et al., 2002; Buker & Wiecko 2007; Gershon et al., 2009). A physical conflict may arise when the suspect does not comply peacefully with the instructions of the police officer. The police officer may also feel compelled to use physical force for controlling, or creating or maintaining his/her authority in front of citizens. (Obst, Davey, & Sheehan, 2001). Research has shown that unco-operative or resisting citizens are most often those under the influence of alcohol or drugs (Renck et al, 2002; Brandl & Stroshine, 2003; Alpert, Dunham, & MacDonald, 2004; Violanti et al, 2006). Injuries may follow from the resistances against arrest, but they are often relatively minor and most commonly inflicted via the hands or feet (i.e., via 'personal weapons'). Striking or hitting, pulling, grabbing, and holding on to the police officer are the most common types of force used by citizens. The most common injuries are bruises, abrasions and lacerations, broken bones or being bitten by the suspect. Injuries by gunshot are rare. Serious injuries and deaths in police work are most often the result of automobile accidents or slips or falls (Brandl & Stroshine, 2003; Shane, 2010). However, in the USA, many police officers are killed with firearms in the line of duty (Kaminski & Sorensen, 1995; Perrot & Kelloway, 2006; Violanti et al. 2006; Federal Bureau of Investigation, 2009). Officers often leave the force after killings and shootings because they are unable to deal with post-traumatic experiences (Violanti & Aaron, 1995).

Until the 1980's, in the USA, the police played the primary role in responding to crime and disorders. Later, however, private security agencies began to take on a greater role in crime prevention and control, and this role has become more police-like. Already in 2001 in the USA

there were almost 1.1 million security guards, which was much greater than the 833,600 sworn police officers. (Ruddell, Thomas, & Pattern, 2011). In Finland security sector has also grown. In 2001 there were altogether 5 783 employers in different security organisations, and in 2007 already 7 472 employers. However their role has not become as much police-like in Finland as in the USA (Kandolin, Vartia, Leino, & Tilev, 2010). Compared with police organizations, it has been claimed that private security organizations are interested in creating a climate that is favourable for their clients' business goals. Most security guards receive comparatively little training on handling difficult circumstances, and this may be the reason why many tense situations escalate into violence against security guards (Ruddell et al., 2011).

1.5 Literature review of studies on work-related violence in police officers' work

A summary of previous studies on exposure stressors including violence or traumatic incidents on police work and their consequences are presented in Tables 1 and 2. These studies show that critical and traumatic events were often felt as high stressors. Among police officers these stressors are associated with multiple physical symptoms and serious stress symptoms such as post-traumatic stress disorder (PTSD). Some of these critical events included also violent encounters. Police may experience PTSD as a result of traumatic events in which they for example confronted actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others (Liberman et al., 2002; Plant, 2001). These events may cause first a heightened risk of stress symptoms and among some officers further develop into PTSD (Carlier, Lamberts, & Gersons, 1997). The vulnerability of police officers to the development of PTSD symptoms may also be explained by their habit of suppressing their normal human emotions (Clair, 2006). Research has shown that police culture teaches officers that they should not discuss emotions and that they should react unemotionally in the unpleasant situations that they confront (Violanti et al., 1983; Dick, 2000; Clair, 2006). Organizational culture also emphasizes the importance of physical and mental strength (Waddington, 1999). This explains how police officers may perceive their

1 INTRODUCTION

own emotions as some sort of occupational weakness or hazard (Clair, 2006; Pogrebin & Poole, 1991) and how they also learn to suppress the admission of emotional problems (Kop et al., 1999). Although many police organizations provide the opportunity to take part in debriefing, officers are often reluctant to do so, and prefer support from colleagues (Clair, 2006; Pogrebin & Poole, 1991; Zukauskas, Ruksenas, Burba, Grigaliuniene, & Mitchell, 2009). Despite really trying to debrief their traumatic experiences with colleagues, some officers may consume alcohol to ease their distress symptoms (Swatt et al., 2007, Zukauskas et al., 2009), or just isolate themselves from peer colleagues (Zukauskas et al., 2009).

Table 1. Overview of previous studies on exposure to violence or traumatic incidents on police work and their consequences, in chronological order.

Authors	Country	Sample	Design	N(%)	Measure	Main results
Violanti and Aaron, 1994	USA	Police officers were randomly selected from a population in a prescribed geographical area	Cross-sectional study	103 (93%)	Police Stress Survey with 60 items (Spielberger, Westberry, Grier, and Greenfield 1981).	Three highest stressors: 1. killing someone 2. fellow officer killed 3. physical attack
Anshel, et al., 1997	Australia	Study I: municipal police officers 100	Cross sectional study	39 (39%)	From previous studies a list of 17 stressful events commonly experienced by police officers.	Four highest acute stressors were: <ul style="list-style-type: none"> • "facing an unpredictable situation", - "dealing with domestic disputes" • "facing a situation with the possibility of injury", • "confronting person with a weapon"
		Study II: a random sample of 300 police officers		95 (32%)	Stress Appraisal Measure (SAM) (Peacock & Wong, 1990).	Threat and challenge were significant predictors of overall stressfulness.

Table 1 . continues

1 INTRODUCTION

Authors	Country	Sample	Design	N(%)	Measure	Main results
Brown, Fielding, and Grover, 1999	UK	1000 Police officers	Cross-sectional study	601 (60%)	General Health Questionnaire; GHQ-12, as a measure of psychological distress (Goldberg and Williams, 1988).	Exposure to operational stressors was associated with impaired well-being. The likelihood of psychological distress was different for different police roles. Highest stressors were: exposure death and disaster, violence and injury and sexual crime.
Liberman et al. 2002	USA	1200	Cross-sectional study	733 (61%)	The Work Environment Inventory (WEI) was developed in the study. Psychological distress was assessed using SLC-90-R (Derogatis and Lazarus, 1994).	Routine occupational stress exposure predicted general psychological distress.
Gershon et al 2002	USA	1106 Police officers	Cross-sectional study	Selected data of 105 "aging workers" =aged 50 years or over	Self designed questionnaire with four major study constructs: stressors, perceived stress, coping mechanisms, stress related outcomes.	Older police officers may be at an increased risk of work stress-related problems, especially if they rely on risky health behaviours to cope with stress.

Table 1. continues

1 INTRODUCTION

Authors and Country	Sample	Design	N(%)	Measure	Main results
Renck, et al., 2002	Sweden 41 police officers	Cross-sectional study	32 (76%)	Questionnaire and a battery of self-reported reactions, PTSS-10 (Holen et al., 1983), IES-R (Weiss, 1996), GHQ-28 (Goldberg & Williams, 1988).	Still 18 months later, after a rescue operation during a fire at a discotheque, 5% of the police officers in the rescue team, showed a high level of psychological distress when measured by PTSS-10, and 7% when measured by GHQ-28. A few police officers were still under stress.
McCaslin et al. 2006	USA 662 Police officers	Narratives of the most distressing critical incidents (CI) experienced during police service with measures of related peri-traumatic responses and post-traumatic stress disorder symptoms	662 cases	10-item Peritraumatic Dissociative Experiences Questionnaire (PDEQ) (Marmar et al., 1994, 1997, 2004b). The Mississippi Scale for Post-traumatic Stress Disorder (Keane et al., 1988).	Those police officers, whose narratives contained high personal threat reported more peritraumatic dissociation, peritraumatic emotional distress, and current hyperarousal symptoms.

Table 1. continues

1 INTRODUCTION

Authors	Country	Sample	Design	N (%)	Measure	Main results
Zukauskas, Ruksenas, Barba, Grigaliuniene and Mitchell, 2009	Lithuania	314 police officers,	Cross-sectional study	171 (55%)	Stressors associated with police work, mechanisms for coping with stress, physical symptoms, and use of alcohol were asked.	Dealing with stressful situations was associated with more frequent physical illness in female police officers and higher alcohol consumption in male police officers.
Gershon, Barocas, Canton, Li and Vlahov, 2009	USA	1150 police officers	Cross-sectional study	1072 (93%)	Police Stress Scale (Beehr et al., 1995) A Work Stress Scale (Revicki et al., 1993). Police Coping Scale (Beehr et al., 1995).	Exposure to critical incidents correlated significantly with perceived work stress. Officers who relied on negative coping mechanisms reported higher levels of perceived stress and adverse health outcomes.
Vuorensyrjä and Malkiä, 2011	Finland	6871 (67.2%)	Cross-sectional study	Sub-sample (constable rank) 2821	Measures: Stressors =Electronic Police Personnel Barometer (PPB) survey; Burnout=Bergen Burnout Indicator 15 (BBI-15).	The effects of different stressors such as the threat of violence on burnout were all statistically significant. The effects of the stressors on burnout were also robust and non-linear.

Table 2. Overview of previous studies on traumatic events that have caused PTSD or are a risk factor for PTSD in police work, in chronological order.

Authors	Country	Sample	Design	N (%)	Measure	Main results
Robinson, Sigman, and Wilson, 1997		125 suburban police officers currently assigned to street patrol			The standardized scale for PTSD, the Impact of Events Scale-revised (Weiss et al., 1995), only the somatization scale was used from SCL-90-R (self-reported symptom inventory) (Derogatis, 1992).	Police officers experience substantial amounts of stress, somatization, and PTSD symptoms because of the nature of police work. The result that PTSD scores and somatization were related suggests that one possible form of coping is to somatise tension and duty-related stress. Death Encounter was the strongest predictor for total PTSD symptomatology.
Stephens, Long, and Miller, 1997	USA New Zealand	Police officers 1000	Cross-sectional study	105 (84%) 527 (52%)	The Civilian Mississippi, a version of the Mississippi-PTSD.	Lower social support was related to higher PTSD scores for social support from peers, supervisors, and outside work.

Table 2. continues

1 INTRODUCTION

Authors	Country	Sample	Design	N (%)	Measure	Main results
Neylan, et al., 2002	USA	747 police officers	Cross-sectional study	747	The Pittsburgh Sleep Quality Index (PSQI) (Buysse et al., 1989), PTSD measurement with the revised 90-item Symptom Checklist (SCL-90-R) (Derogatis, 1994).	Cumulative critical incident exposure was associated with nightmares. Sleep disturbances were strongly associated with post-traumatic stress symptoms.
Bär, Pahlke, Dahm, Weiss, and Heuft, 2004	Germany	649 Police officers	Cross-sectional case study	649 received psychological support (secondary prevention)	Post-traumatic disorder (PTSD) (Rose et al., 2001).	Police officers who experienced events comprising situations with considerable traumatic potential had the highest incidence of PTSD or other mental illness.
Chopko, 2010	USA	183 Police	Cross-sectional case study	183 police officers	Impact of Events Scale-Revised (IES-R) (Morris et al., 2005), Post-traumatic Growth Inventory (Tedeschi & Calhoun, 1996).	Post-traumatic distress was significantly and positively related to Post-traumatic Growth Inventory full-scale. Being involved in a duty-related shooting was associated with growth of traumatic symptoms.

1.6 Literature review of studies on work-related violence in security guards' work

Only three studies exist on violence in security guards' work. Two of these found an association between burnout symptoms and traumatic events (Declercq, Vanheule, Markey, & Willemsen, 2007; Vanheule, Declercq, Megank, & Desmet, 2008). The third study (Valdehida, Garcia, & Diaz, 2007) reported on relationships between job performance and subjective mental workload caused by threatening and violent encounters. However, another publication, which is not a scientific publication, can also be found in Finland. It deals with occupational safety and health in security guards' work and includes interviews carried out in 2006. The study focused on clarifying some specific issues, one of which was violence. Sixty security guards were asked to describe violent encounters and to say whether they considered violence a threat. The results showed that 17% considered violence a serious threat and 64% saw it as a minor threat. The publication was supported by the Finnish Work Environment Fund (Tammi, 2006).

1.7 Summary and limitations of previous research

Earlier research on police officers' and security guards' work, that has concerned only work-related violence, is scarce. Research has usually focused on either different critical incidents or traumatic events on police work. These events can however also include work-related violence. (Stephens & Miller, 1998). Plant (2001) writes that defining what constitutes a traumatic event is difficult, but characteristic to them is that the nature of events can be indicative of the likelihood of adverse reactions. Traumatic events are most often characterized by actual or threatened death or serious injury or a threat to the physical integrity of self or others and they are associated with high risk of subsequent post-traumatic disorder (PTSD) (Lieberman et al., 2002).

Because it is known that work-related violence can cause a variety of stress-related disorders and can have a damaging impact on psychological and physical well-being (Wieclaw et al., 2006; Perrot & Kelloway,

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2006; Santos et al., 2009; Mueller & Tschan, 2011), it is important to find out the exact prevalence and risk factors and different forms of work-related violence that happen on a day-to-day basis during the work duties of police officers and security guards, and to analyse the associations of violent experiences with psychological well-being.

2 THE PRESENT STUDY

2.1 Theoretical framework

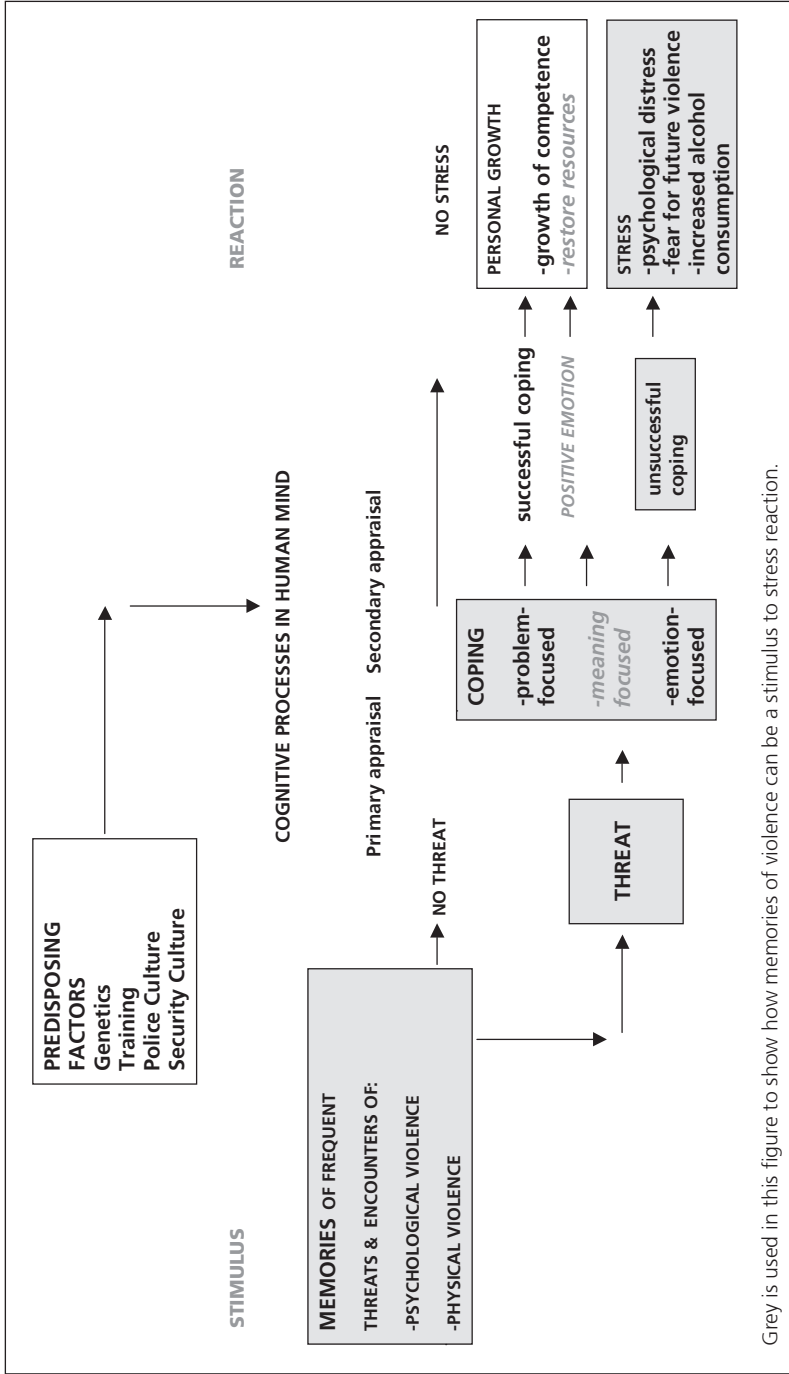
The hypothetical (theoretical) framework of this study arises from the original theory of Lazarus and Folkman (1984), and from their further revised theories (Folkman, Moskowitz, Ozer, & Park, 1997; Folkman 2008). These theories propose that a stressful event is always followed by cognitive appraisal processes in the human mind. First comes the primary appraisal and the stimulus is appraised as irrelevant, a harm or a loss, or a threat or challenge to the person (= "personal significance"). The secondary appraisal means appraisal of 'what can be done' (= "evaluation of options for coping"). Problem-focused- or emotion- focused -coping were the two different coping alternatives during the secondary appraisal process until Folkman (2008) found in studies of the intensely stressful experiences of caring for a dying loved one that meaning-focused coping may also exist. Positive emotions may co-occur with negative emotions during intensely stressful periods, especially when stressful situations are recurrent, as in police officers' work, for example. Folkman concluded that positive emotions have important functions in the stress process and may serve as "sustainers" that help motivate coping and "restorers" that replenish coping resources. The hypothetical (theoretical) framework of this study, which is used as a tool, suggests that memories of frequent threats and encounters of violence can be seen as a stimulus, which through cognitive appraisal and coping processes causes a reaction either with or without stress symptoms (Figure 2, p. 35).

Memories of frequent threats and encounters of work-related violence can also be seen as recurrence of stressful situations. This is based on the assumption that sometimes these memories are appraised over

and over again, if not consciously then at least unconsciously, for instance, in nightmares. These repeated stressful memories can produce the conditions of chronic stress, and potential dwelling on unpleasant memories may cause a kind of cumulative stress impact on police officers and security guards (Waters & Usserly, 2007). Figure 2 on page 35 presents a hypothetical framework suggesting that memories of frequent threats and encounters of psychological and physical violence at work, as well as injuries caused by violence, can lead to stress reactions in the form of distress symptoms, fear of future violence, or increased alcohol consumption. (Cooper et al., 1988; Romelsjö et al., 1992; Gershon et al., 2002; Waters and Usserly, 2007; Zukauskas et al., 2009).

2.2 Aims

1. To determine the most frequent forms and frequencies of work-related violence against police officers and security guards. (Study I)
2. To establish who among police officers and security guards are most at risk of work-related violence. (Study I)
3. To study whether frequently encountered work-related violence is associated with psychological distress symptoms and psychological ill-health. (Studies II and III)
4. To study whether the frequency and severity of physical injuries caused by work-related violence are associated with psychological distress symptoms and psychological ill-health. (Study IV)



Grey is used in this figure to show how memories of violence can be a stimulus to stress reaction.

Figure 2. Illustration of theoretical framework of present study: Memories of work-related violence as a stimulus to reaction. Grey is used in this figure to show how memories of violence can be a stimulus to stress reaction.

3 METHODS

3.1 Participants and procedure

3.1.1 Background

Members of occupational unions of police and security organizations had at the beginning of 2000 drawn attention to the frequency with which their staff was subjected to aggression and violence during their work duties. In a meeting together with researchers from the Finnish Institute of Occupational Health (FIOH) in 2001 an agreement was made that FIOH launches a research concerning work-related violence against the police officers and security guards.

The participants were informed about voluntary and confidential characteristic of the study by an information leaflet, and the study plan was approved by the Ethics Committee of FIOH. The studies were conducted according to the ethical standards of the Declaration of Helsinki. As approved by the Ethics Committee, completion of the questionnaire was considered evidence of consent to participate in the study. Sample selection procedure and time range are presented in Figure 3 (Study I and Study II in 2002–2005 and in Study III and Study IV in 2008–2009). It was not possible to perform any attrition analysis because no information about non-respondents was available.

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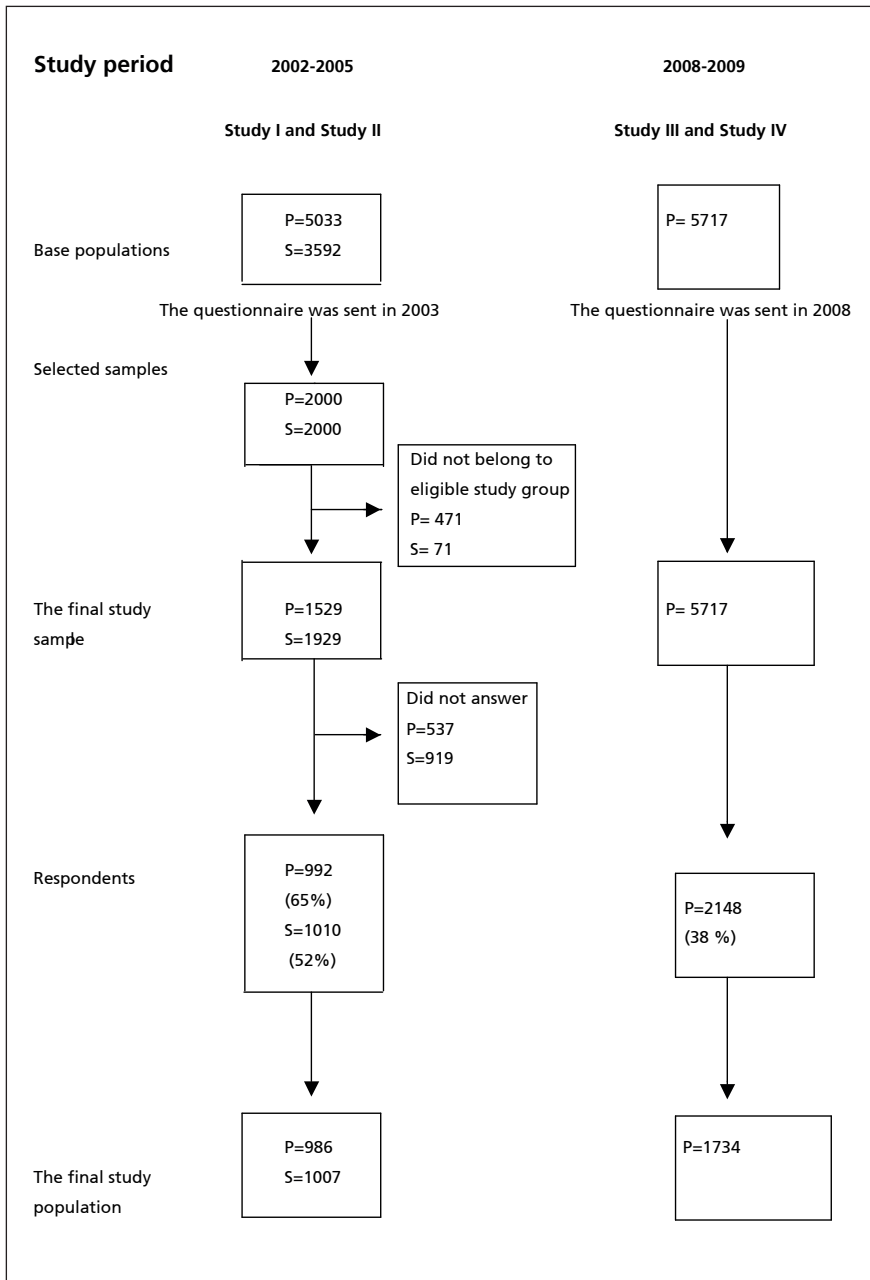


Figure 3. Sample selection procedure and time range (P=policemen, S=security guards, % refers to response rate)

3 METHODS

Because work-related violence has not been studied much before among these occupations in Finland, the data collection in 2002 began with interviews. The staff managers of two different security organizations and one local police department in Helsinki were advised to ask those security guards and police officers who had encountered threats and violence during their work to voluntarily take part in interviews. There were altogether 30 volunteers among security guards and 15 volunteers among police officers; some had often encountered work-related violence; others had experience of only minor incidents or threats that calmed down.

Among security organisations the volunteers for interviews consisted of 26 men and 4 women, aged 21–64 (mean age 30 years), and with work experience of between 1 and 28 years (mean work experience six years). Among police these volunteers consisted of 10 men and 3 women, aged 23–41 (mean age 27 years) and with work experience between 2 and 24 years (mean work experience 10 years).

The interviewer asked the participant to first describe any threatening situation he/she had experienced, and then after a break, to describe a violent situation, which had occurred during the last 12 months. A threatening situation was defined as a situation that was for a start a violence threatening but later calmed down. A violent situation was defined as a situation during which the security guard or police officer self had to use force or was directly attacked by a citizen.

The interviews gave important information regarding typical verbal aggression, threats of assaults and physical acts that citizens directed towards security guards and police officers. The interviews led to the development of our mailed survey instrument, in which the questions sought to exactly measure verbal aggression, threats and physically violent acts that police officers and security guards are typically exposed to during their work duties.

3.1.2 Police study

Summary of the participant samples in the study is presented in the Table 3 (p. 41). The study sample of the first police study in 2002 was randomized from the total Finnish patrol police population comprising 5 033 police officers. A total of 2000 police officers were randomly

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selected from the list of names in the police population using statistical programme SPSS-16.0.

A postage-paid return envelope with the questionnaire with no incentives was sent out in 2003 to police officers' work units and to preserve confidentiality, participants answered anonymously. The mailing was one-time mailing, however a reminder was sent after 3 weeks' delay in which additional two weeks more time was given.

After the questionnaires were returned we found that among the police officer sample, there were 471 non-eligible employees, i.e. those working in administrative jobs, thus the final study population consisted of 1529 police officers instead of 2000, and the total population sample decreased to 4562. Another 537 police officers did not answer to the questionnaire. A total of 992 police officers responded in 2003 to the questionnaire, at a response rate of 65%.

The second police study in 2008–2009 comprised the total Finnish patrol police population and police guards. There were altogether 5717 police officers employed at the time of the survey. This study also began with interviews of nine police officers in Helsinki area. There were nine police officers that were interviewed. Two of these were women and seven men. Six officers had work experience over ten years. These interviews resulted in three new questions that were added to the questionnaire that was used former in year 2003. These three questions concerned the verbal aggression of 'threatening with some damage for oneself' and the physical violence of 'shooting or attempting to shoot' and 'attempting to run over by car'.

A postal questionnaire was sent to the whole sample, and to preserve confidentiality, participants answered anonymously. A total of 2148 (38%) police officers responded to the questionnaire. Of these, 155 were police guards, 1955 were police officers or police investigators, and 38 did not identify their duties. We included only the police officers whose main tasks were patrol police duties, thus our final sample consisted of 1734 police officers. The sample consisted of both men and women officers (1557 men and 177 women). We were not able to perform attrition analysis because no information on the non-respondents was available. The sample is same in Studies III and IV).

3.1.3 Security guard study

The study sample in 2002 was randomized from 3592 security guards of the two largest security companies in Finland. A total of 2000 security guards were randomly selected from the list of names in these populations using statistical programme SPSS-16.0.

A postage-paid return envelope with the questionnaire with no incentives was sent out in 2003 to security guards' home addresses which were obtained from the employer organizations and to preserve confidentiality, participants answered anonymously. The mailing was one-time mailing, but if we did not get an answer during three weeks, we sent a reminder and gave two weeks more time to send back the questionnaire.

The final sample of security guards decreased to 3521 and the final study population consisted of 1929, because 71 security guards had stopped working for the firm in the preceding 12 months. A total of 1010 security guards responded in 2003 to the questionnaire, at a response rate of 52%. We were not able to perform attrition analysis because no information on the non-respondents was available.

Table 3. Descriptive characteristics of study samples.

Characteristics	I police officers	I security guards	II both police officers & security guards	III police officers	IV police officers
<i>Study sample:</i>					
Police officers of those injured	992	-	992	1734	1734
Security guards	-	1010	1010	-	-
Response rate	65%	52%	58%	38%	38%
Men (%)	91%	78%	85%	90%	90%
Women (%)	9%	22%	15%	10%	10%
Mean age (range) at baseline	38 (21–60)	30 (18–65)	34 (18–65)	37 (21–57)	37 (21–57)
Data source	Random sample	Random sample	Random sample	Total population of patrol police	Total population of patrol police
Study design	Cross-sectional	Cross-sectional	Cross-sectional	Cross-sectional	Cross-sectional
Main study question	Prevalence of violence and risk factors	Prevalence of violence and risk factors	Associations between violence and distress	Associations between violence and increase of alcohol consumption	Injuries and associations with adverse health symptoms

3.2 Measures

Work-related violence consisted of psychological violence and of physical violence.

3.2.1 Exposure to psychological violence

Exposure to psychological violence was assessed by asking 'How often have citizens directed the following verbal insults or verbal threats towards you in the last 12 months'. This question was followed by a list of items of verbal insults and verbal threats and included options from 1 to 6 for the frequency of violent acts during the last 12 months: 1=never, 2=once or twice, 3=more than twice, 4=once a month, 5=once a week and 6=daily.

Verbal insults

Verbal insults consisted of items such as swearing, shouting, and verbal abuse. For the final analysis a dichotomous 'verbal insults' was formed (0=verbal insults less than once a month, 1=verbal insults at least once a month).

Verbal threats of physical violence

Verbal threats consisted of items such as threats of hitting and kicking. For the final analyses a dichotomous 'verbal threats' variable was formed (0=less than once a month, 1=at least once a month).

3.2.2 Exposure to physical violence

Exposure to physical violence was assessed by asking 'How often have citizens directed the following unarmed physical attacks and threats to use a deadly weapon towards you in the last 12 months?'. This question was followed by a list of items of unarmed physical attacks such as struggling to get free, wrestling, hitting and kicking and threats to use a deadly weapon. Items of threats to use a deadly weapon consisted such as threats to use a striking weapon (stick, bottle, axe, knife) and threats

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to use a firearm. These items included options from 1 to 6 for the frequency of violent acts during the last 12 months: 1=never, 2=once or twice, 3=more than twice, 4=once a month, 5=once a week and 6=daily.

Unarmed physical attacks/physically violent attacks

A dichotomous 'unarmed physical attacks' variable was formed from the most often met variables of struggling to get free, wrestling and hitting and kicking (0=less than once a month, 1=at least once a month).

In Study II in 2008 the measure of 'unarmed physically violent attacks' was formed counting first the mean of most experienced items of 'struggling to get free', 'wrestling', 'hitting and kicking'. The mean scale of the new variable was divided into quartiles: 1=none, 2=seldom, 3=somewhat often and 4=very often.

Threats to use a deadly weapon

The 'threats to use a deadly weapon' variable was assessed as a mean of items concerning 'threats to use a striking weapon' and of 'threats to use a firearm'. Because of the rare occurrence of threats to use a deadly weapon, the mean scale for this variable was dichotomous, including 1=none, 2=at least once.

Injuries due to physical violence

The respondents were asked whether they had suffered an injury due to work-related violence such as unarmed physical attacks and threats to use a deadly weapon during the preceding year. A list of different types of injuries was provided in the questionnaire with response alternatives of yes/no for each type: injury to the eyes, head but not eyes, neck, back of the neck, body (but not back), back or spine, upper limbs (shoulder to wrist), palms or fingers, lower limbs (hip to ankle), and toes or foot. The frequency of injuries was calculated by summing up the yes-responses. The distribution of frequency of injuries was divided into three categories as follows: 1=no injuries, 2=one injury, 3=more than one injury. Need for medical treatment was assessed among police officers who reported suffering at least one injury during the past year (n=843). A question

on how many times during the previous year the respondent had suffered an injury that led to medical treatment was included in the survey. From the distribution of medically treated injuries the following three categories were formulated: 0=injuries that did not need any medical treatment 1=an injury that needed medical treatment once, 2=injuries that needed medical treatment more than once.

3.2.3 Outcomes

Psychological distress

To measure symptoms of psychological distress was used the 12-item version of the General Health Questionnaire (GHQ-12) (Goldberg et al., 1997), which produces results comparable to the longer versions of the GHQ (Monaghan, 2002). Furthermore GHQ-12 has shown good clinical validity in relation to diagnosed mental disorder (Goldberg et al., 1997; Holi, Marttunen, & Aalberg, 2003). Psychological distress symptoms are considered as 'alarm signals' of minor psychiatric morbidity that can grow worse if there is no support to the distressed. The GHQ is a well-established scale for the evaluation of distress in general population samples. In relation to diagnosed mental disorders, the GHQ has shown good clinical validity in identifying mood and anxiety disorders (Goldberg et al., 1997). Respondents rated how much they were affected by each of the 12 symptoms of psychological distress over the previous few weeks (0=not at all, 1=the same as usual, 2=rather more than usual or 3=much more than usual). The GHQ-12 was used as a dichotomous measure in which individuals who rated 2 or 3 in at least four items of the total measure were identified as cases, and as a summed score (range 0–12) of the dichotomised items, each representing (0=no psychological distress, 1=psychological distress). The psychometric properties of the GHQ-12 have been demonstrated in a wide variety of community populations with good construct validity (Hardy, Shapiro, Haynes, & Rick, 1999).

Personal concern about future violence

Personal concern about future violence was covered by the question: 'How strongly does the possibility of future violence fear you?' The

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item was scored on a five-point Likert Scale ranging from 1 (not at all), 2 (a little), 3 (somewhat), 4 (a lot) to 5 (very much). This question was categorized as follows: 1=none (scores of 1 to 2), 2=some (score 3) and 3=very much (scores of 4 to 5).

Fear of future violence

Fear about future violence was assessed by the question: 'How strongly does the possibility of future violence fear you?'. The item was scored on a five-point Likert Scale ranging from 1 (not at all), 2 (a little), 3 (somewhat), 4 (a lot) to 5 (very much). This question was categorized as follows: 1=none (scores of 1 to 2), 2=some (score 3) and 3=very much (scores of 4 to 5).

Increased alcohol consumption due to violence

The question concerning self-rated increase of alcohol consumption due to violence at work was as follows: 'Have violent encounters or the threat of violence at work led to an increase in your consumption of alcohol?' The response options were 1=no, 2=somewhat and 3=yes. The outcome was dichotomized as follows: 0=no (1) 1=yes (2+3).

3.3 Debriefing

Debriefing after work-related violence was elicited by asking: "Have you received debriefing or other psychological support after violent assault/threats at work?" Response options were 1=I have never needed it, 2=I have never requested it, 3=never received it, although requested and 4=yes I have received.

3.4 Covariates

In Study I:

Covariates were gender, age (divided into 24 or less, 25–34, and 35 or over), work experience (divided into less than 4 years, 4–9 years, 10 years or over), population density (divided into metropolitan areas and

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other cities), work shifts (divided into day shift, evening and night shifts, morning and evening shifts and all three shifts), time pressure (divided into never or seldom, every now and then, and often).

In Study II:

Covariates were gender, age (divided into under 25 years, 25–34 years, 35–44 years, 45–54 years, and 55 or over), occupation (divided into police officers and security guards), 12 months exposure to physically violent acts (divided into none, seldom, somewhat often, and very often), 12 months exposure to threats or assaults with a deadly weapon (divided into none and at least once), personal concern about future violence (divided into none, some and very much).

In Study III:

Covariates were gender, age (divided into under 35 years, 35–44 years, 45 years or over), marital status (divided into single, married or cohabiting, and divorced or widowed), children under the age of 18 (divided into no and yes), sufficient training (divided into no and yes), sufficient patrol police personnel to safely handle violent encounters (divided into often or always, sometimes, and seldom or never), debriefing (divided into yes, I have never needed it, I have never requested it, and never received it although requested).

In Study IV:

Covariates were gender, age (divided into under 35, 35–44, and 45 years or over), height (up to 68 inches, from 69 to 72 inches, and over 72 inches; see Kaminsky & Sorensen, 1995), work experience (3 years or less, 4–9 years, 10 years or more), urbanization level of the area (less than 10 000 inhabitants, 10 000–100 000 inhabitants, more than 100 000 inhabitants excluding the metropolitan area; and the metropolitan area).

3.5 Statistical analyses

In study I Binary logistic regression models were performed to calculate unadjusted and adjusted odds ratios (ORs) and their 95% confidence intervals (CIs) separately for three forms of work-related violence. In the

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multivariate models we controlled in each study the covariates listed above. All analyses were performed using the SPSS 16.0 statistical program.

In Study I, results are reported separately for police officers and security guards (Tables 5–7 on pages 50–52). In Study II the two study samples (police officers vs. security guards) were combined into one group, because no interaction between occupations and encounters of violence associated with distress was found. Those who were accepted for analyses had complete data on demographics (sex, age, and occupation), questions on exposure to violent physical acts, exposure to threats or assaults with a deadly weapon, and personal concern about future violence. Studies III and IV comprised the total Finnish patrol police population and police guards.

In Study II Chi-square tests were used to test the association between exposure to violence and personal concern about future violence. Binary logistic regression analyses were used to calculate the odds ratios and their 95% confidence intervals (CIs) for distress with respect to exposure to physically violent acts, adjusted for socio demographic variables. The second analysis was adjusted for personal concern about future violence to see whether the relationship between exposure to physically violent acts and distress attenuated, that is, was mediated through personal concern about future violence. A similar procedure was performed with respect to exposure to threats or assault with a deadly weapon.

In Study III Binary logistic regression models were used to calculate adjusted odds ratios and their 95% confidence intervals for increased alcohol consumption with demographic characteristics, sufficient training to handle violent situations, and de-briefing after encounters of violence.

In Study IV Binary logistic regression models were used to calculate odds ratios and their 95% confidence intervals for the association of injury at work with psychological distress, fear of future violence, and increased alcohol consumption. In the univariate model, variables were entered one by one and in the multivariate model, the models were adjusted for covariates (age, sex, height, work experience, urbanization level).

P-value for trend was calculated to examine a dose-response pattern. This was done by entering the categorical exposure variable into the model as continuous.

4 RESULTS

The main results are presented following the four study aims from Studies I–IV (on page 34).

4.1 Prevalence of work-related violence against police patrol officers and security guards (Study I)

In Study I the prevalence of different forms of both psychological violence and physical violence and their associations between demographic factors separately among police officers and security guards were examined. The results showed that most frequent forms of psychological violence at least once a month in both occupations were verbal insults and verbal threats. The most frequent forms of physical violence at least once a month in both occupations were unarmed physical attacks. Of police officers 22% and of security guards 15% had exposed to threats to use a deadly weapon at least once during the past year. (See Table 4)

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Table 4. Prevalence of work-related violence at least once a month against police patrol officers and security guards (Study I)

WORK-RELATED VIOLENCE	Police-officers	Security guards
PSYCHOLOGICAL VIOLENCE		
- verbal insults (swearing and shouting and abuse)	63%	39%
- verbal threats (threats of hitting and kicking)	25%	19%
PHYSICAL VIOLENCE		
- unarmed physical attacks (struggling to get free, wrestling, hitting and kicking)	44%	15%
- threats to use a deadly weapon at least once during the past year	22%	15%

4.2 Risk factors for work-related violence among police patrol officers and security guards (Study I)

In Study I the risk factors for work-related violence and their associations between demographic factors among police officers and security guards were examined.

Among police patrol officers the risk factors for violence through verbal insults (see Table 5) was an age of 34 or under, working in a metropolitan area, all three working shifts, and time pressure. The risk factors for violence through verbal threats (see Table 6) and unarmed physical attacks (see Table 7) were the age of 24 or less, working in a metropolitan area and time pressure. Among security guards the risk for violence through verbal insults were male gender, age 34 or under, work experience less than 9 years, morning and evening shifts, and time pressure. The risk for violence through verbal threats and unarmed physical attacks were male gender, age of 24 or less, and work experience less than 4 years, metropolitan area, morning and evening shifts, and time pressure.

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Table 5. Associations of gender, age, work experience, population density, work shifts, and time pressure at work with frequent exposure to verbal insults against police officers (N=992) and safety guards (N=1010).

	Odds ratio (95% CI), MULTIVARIATE MODEL POLICE OFFICERS	Odds ratio (95% CI), MULTIVARIATE MODEL SECURITY GUARDS
Gender		
Women	1.00 (ref.)	1.00 (ref.)
Men	1.15 (0.69–1.91)	3.28 (2.15–5.00)
Age		
35 or over	1.00 (ref.)	1.00 (ref.)
25–34	2.96 (1.14–7.72)	1.76 (1.08–2.86)
24 or less	2.42 (1.51–3.90)	2.61 (1.52–4.49)
Work experience		
10 years or over	1.00 (ref.)	1.00 (ref.)
4–9 years	0.86 (0.51–1.48)	2.84 (1.61–5.00)
Less than 4 years	1.51 (0.89–2.56)	2.41 (1.32–4.40)
Population density		
Other cities	1.00 (ref.)	1.00 (ref.)
Metropolitan area	1.75 (1.23–2.49)	1.30 (0.96–1.78)
Work shifts		
Day shift	1.00 (ref.)	1.00 (ref.)
Evening and night shifts	2.06 (0.45–9.44)	1.18 (0.71–1.96)
Morning and evening shifts	1.90 (0.46–7.90)	3.10 (1.89–5.09)
All three shifts	4.14 (1.04–16.58)	1.61 (0.97–2.65)
Time pressure		
Never or seldom	1.00 (ref.)	1.00 (ref.)
Every now and then	1.80 (1.21–2.69)	1.85 (1.29–2.65)
Often	3.02 (1.98–4.61)	2.84 (1.90–4.26)

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Table 6. Associations of gender, age, work experience, population density, work shifts, and time pressure at work with frequent exposure to verbal threats against police officers (N=992) and safety guards (N=1010).

	Odds ratio (95% CI), MULTIVARIATE MODEL POLICE OFFICERS	Odds ratio (95% CI), MULTIVARIATE MODEL SECURITY GUARDS
Gender		
Women	1.00 (ref.)	1.00 (ref.)
Men	1.53 (0.94–2.50)	5.49 (2.82–10.67)
Age		
35 or over	1.00 (ref.)	1.00 (ref.)
25–34	2.41 (0.98–5.96)	1.28 (0.69–2.40)
24 or less	2.80 (1.77–4.42)	2.51 (1.27–4.95)
Work experience		
10 years or over	1.00 (ref.)	1.00 (ref.)
4–9 years	0.98 (0.58–1.65)	2.12 (0.93–4.85)
Less than 4 years	1.07 (0.65–1.75)	3.93 (1.82–8.49)
Population density		
Other cities	1.00 (ref.)	1.00 (ref.)
Metropolitan area	1.55 (1.12–2.15)	2.22 (1.51–3.28)
Work shifts		
Day shift	1.00 (ref.)	1.00 (ref.)
Evening and night shifts	2.08 (0.38–11.48)	0.81 (0.42–1.55)
Morning and evening shifts	1.39 (0.27–7.03)	2.10 (1.15–3.84)
All three shifts	2.99 (0.62–14.51)	1.02 (0.54–1.92)
Time pressure		
Never or seldom	1.00 (ref.)	1.00 (ref.)
Every now and then	2.02 (1.32–3.09)	1.66 (1.08–2.57)
Often	3.74 (2.41–5.80)	1.83 (1.12–3.00)

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Table 7. Associations of gender, age, work experience, population density, work shifts, and time pressure at work with frequent exposure to unarmed physical attacks against police officers (N=992) and safety guards (N=1010).

N/n (cases)	Odds ratio (95% CI), MULTIVARIATE MODEL	
	POLICE OFFICERS	SECURITY GUARDS
Gender		
Women	1.00 (ref.)	1.00 (ref.)
Men	1.53 (0.94–2.50)	5.24 (2.44–11.27)
Age		
35 or over	1.00 (ref.)	1.00 (ref.)
25–34	2.41 (0.98–5.96)	1.48 (0.73–2.97)
24 or less	2.80 (1.77–4.42)	2.58 (1.20–5.51)
Work experience		
10 years or over	1.00 (ref.)	1.00 (ref.)
4–9 years	0.98 (0.58–1.65)	1.53 (0.63–3.71)
Less than 4 years	1.07 (0.65–1.75)	2.67 (1.17–6.08)
Population density		
Other cities	1.00 (ref.)	1.00 (ref.)
Metropolitan area	1.55 (1.12–2.15)	2.80 (1.80–4.36)
Work shifts		
Day shift	1.00 (ref.)	1.00 (ref.)
Evening and night shifts	2.08 (0.38–11.48)	1.06 (0.49–2.26)
Morning and evening shifts	1.39 (0.27–7.03)	2.92 (1.45–5.89)
All three shifts	2.99 (0.62–14.51)	1.45 (0.70–3.04)
Time pressure		
Never or seldom	1.00 (ref.)	1.00 (ref.)
Every now and then	2.02 (1.32–3.09)	1.62 (1.02–2.57)
Often	3.74 (2.41–5.80)	1.09 (0.62–1.93)

4.3 Associations of 'unarmed physically violent attacks' and 'threats to use a deadly weapon' and psychological distress symptoms, with personal concern about future violence (Study II).

In Study II the samples of police officers and security guards were combined and we studied the associations of 'verbal insults' (=at least once a month items of swearing, shouting, and verbal abuse), 'verbal threats of physical violence' (=at least once a month items of threats of hitting and kicking), 'unarmed physically violent attacks' (=the mean of most often experienced items of unarmed physical acts, which were struggling to get free, wrestling, and hitting or kicking), and 'threats and assaults with a deadly weapon' (=the mean of items concerning a threat or assault with a striking weapon, knife or firearm) with psychological distress. 'Personal concern about future violence' as a mediator to psychological distress was also examined.

A total of 330 (17%) subjects with psychological distress were identified and formed the group referred to as 'distressed'. This means that the respondent had four or more symptoms of distress. Psychological violence (=verbal insults and verbal threats of physical violence) was not associated with psychological distress (data not shown in the tables). However, the study showed that the odds ratio of psychological distress for 'unarmed physically violent attacks' was 1.67 (95% CI=1.11 to 2.51) and for 'threats to use a deadly weapon' 1.62 (95 %CI=1.20 to 2.17). When personal concern about future violence was taken into account, the association between exposure to unarmed physically violent attacks and distress no longer held. However, with the same adjustment, the association between exposure to threats to use a deadly weapon and distress remained. The results are shown in tables 8 and 9.)

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Table 8. Associations of exposure to unarmed physically violent attacks and concern about future violence with psychological distress

	N (n of cases)	Psychological distress	
		Odds ratio (95% CI), Model I	Odds ratio (95% CI), Model II
Exposure to unarmed physically violent attacks			
None	519 (78)	1.00 (ref.)	1.00 (ref.)
Seldom	381 (68)	1.51 (1.03–2.22)	1.30 (0.88–1.92)
Somewhat often	623 (106)	1.60 (1.09–2.36)	1.23 (0.82–1.82)
Very often	463 (78)	1.67 (1.11–2.51)	1.32 (0.87–2.00)
Personal concern about future violence			
None	1113 (136)		1.00 (ref.)
Some	607 (107)		1.49 (1.13–1.98)
Very much	266 (87)		3.32 (2.40–4.59)

Model I: adjusted for demographics

Model II: fully adjusted

Table 9. Associations of exposure to threats or assaults with a deadly weapon and personal concern about future violence with psychological distress

	N (n of cases)	Psychological distress	
		Odds ratio (95% CI), Model I	Odds ratio (95% CI), Model II
Exposure to threats to use a deadly weapon			
None	1619 (253)	1.00 (ref.)	1.00 (ref.)
At least once	367 (77)	1.62 (1.20–2.17)	1.41 (1.04–1.90)
Personal concern about future violence			
None	1113 (136)		1.00 (ref.)
Some	607 (107)		1.49 (1.13–1.98)
Very much	266 (87)		3.30 (2.93–4.54)

Model I: adjusted for demographics

Model II: fully adjusted

4.4 Associations between work-related violence and increased alcohol consumption (Study III).

In Study III the factors among police officers associated with increased alcohol consumption due to violence was examined. In the study sample there were altogether 93 (5%) police officers who answered that violent encounters or threat of violence are the reasons for the increase in their alcohol consumption. (See Table 10).

Table 10. Odds ratio (OR) and 95% confidence intervals (CI) for violence-related increase in alcohol consumption among police officers, univariate model.

Risk factor	N /n (cases)	MODEL OR (95% CI)
Gender		
Female	177 /3 (2%)	1.00
Male	1543 /90 (6%)	3.59 (1.13–11.47)
Age		
Under 35	819 /20 (2%)	1.00
35–44	489 /29 (6%)	2.52 (1.41–4.50)
45 or over	407 /44 (11%)	4.84 (2.81–8.33)
Marital status		
Single	250 /5 (2%)	1.00
Married or cohabiting	1375 /81 (6%)	3.07 (1.23–7.65)
Divorced or widowed	92 /7 (8%)	4.04 (1.25–13.05)
Children under 18 years		
No	806 /34 (4%)	1.00
Yes	914/59 (7%)	1.57 (1.02–2.42)
Working Experience		
3 years or less	376/3 (1%)	1.00
4–9 years	545/23 (4%)	5.48 (1.63–18.38)
Over 10 years	801/67 (8%)	11.35 (3.55–36.32)

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The results showed that the odds ratios of the increase of alcohol consumption were 6.96 (95% CI=2.08-23.25) for lack of de-briefing, 2.18 (95% CI=1.26-3.78) for shortage of patrol personnel, and 1.71 (95% CI=1.11-2.62) for lack of training to handling violent situations (See table 11).

Table 11. Associations of training, sufficiency of patrol personnel and debriefing with violence-related increase in alcohol consumption among police officers.

Risk factor	Univariate	Multivariate*
Have you received enough training in handling violent situations?		
Yes	1.00	1.00
No	1.73 (1.14-2.65)	1.71 (1.11-2.62)
Do you have sufficient patrol personnel to safely handle violent encounters?		
Often or always	1.00	1.00
Sometimes	2.79 (1.63-4.77)	2.54 (1.47-4.39)
Seldom or never	2.38 (1.39-4.09)	2.18 (1.26-3.78)
Have you received debriefing or other psychological support?		
Yes	1.00	1.00
I have never needed it	0.54 (0.33-0.88)	0.70 (0.42-1.15)
I have never requested it	1.45 (0.68-3.06)	1.34 (0.63-2.86)
Never received it, although requested	8.85 (2.73-28.73)	6.96 (2.08-23.25)

*Adjusted for gender, age, marital status, children under 18 years of age, and working experience.

4.5 Associations of physical injuries caused by work-related violence, with psychological distress symptoms, fear of future violence and increased alcohol use (Study IV)

Study IV looked at the factors associated with the frequency and the need for medical treatment of injuries among police officers, as well as associations between injuries and psychological distress and increased

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alcohol consumption. Descriptive statistics of participants by frequency of injuries during past year is presented in Table 12.

Table 12. Descriptive statistics of participants by frequency of injuries during past year

Characteristics	All n (%)	Frequency			p-value
		One injury n (%)	No injuries n (%)	More than one injury n (%)	
Sex					0.9
Female	177 (10%)	55 (10%)	99 (10%)	22 (10%)	
Male	1557 (90%)	501 (90%)	851 (90%)	203 (90%)	
Age					.038
Under 35	827 (48%)	269 (48%)	456 (48%)	100 (44%)	
35–44	492 (28%)	173 (31%)	245 (26%)	74 (33%)	
45 or over	410 (24%)	114 (21%)	245 (26%)	51 (23%)	
Work Experience					.006
3 years or less	381 (22%)	112 (20%)	234 (25%)	35 (16%)	
4–9 years	548 (31%)	193 (35%)	272 (29%)	82 (36%)	
10 years or more	807 (47%)	251 (45%)	446 (47%)	108 (48%)	
Height					0.4
Up to 68 inches	139 (8%)	43 (8%)	83 (9%)	13 (6%)	
68–72 inches	1037 (60%)	334 (60%)	554 (58%)	146 (65%)	
Over 72 inches	555 (32%)	177 (32%)	312 (33%)	66 (29%)	
Urbanization level of area					0.2
Metropolitan area over 100 000 inhabitants	283 (16%)	78 (14%)	156 (17%)	48 (21%)	
Metropolitan excluded	273 (16%)	87 (16%)	146 (15%)	40 (18%)	
10 000–100 000 inhabitants	1010 (58%)	341 (61%)	550 (58%)	117 (52%)	
Under 10 000 inhabitants	165 (10%)	50 (9%)	96 (10%)	19 (9%)	

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The results showed that employees who had suffered more than one injury were at a 4.86-fold risk (95 % CI=2.72 – 8.66) of increased alcohol consumption, a 4.40-fold risk (95 % CI=2.87–6.76) of psychological distress symptoms, and a 2.49-fold risk (95 % CI=1.73–3.59) of fear of future violence compared with those who had suffered no injuries. Among those who had suffered injuries (n=843), the need for medical treatment more than once when injured was associated with a 2.33-fold risk (95 % CI=1.19–4.57) of psychological distress symptoms and with a 2.09-fold risk (95% CI=1.08–4.03) of fear of future violence when compared with those who did not need medical care for their injury. (The results are shown in tables 13, 14, and 15).

Table 13. Frequency and need for medical treatment of injuries and their association with psychological distress symptoms among police officers.

Risk factor	N/n of cases	Model I* OR(95%CI)	Model II** OR(95%CI)
Frequency of injuries			
No injury	953/68	1.00	1.00
One injury	556/44	1.12 (0.75–1.66)	1.19 (0.791–1.79)
Two or more injuries	225/49	3.62 (2.43–5.41)	4.40 (2.87–6.76)
<i>p for trend</i>		< .001	< .001
Need for medical treatment			
No need for medical treatment	628/71	1.00	1.00
Medical treatment needed once	148/15	0.89 (0.49–1.59)	0.76 (0.41–1.42)
Medical treatment needed more than once	67/14	2.07 (1.09–3.93)	2.33 (1.19–4.57)
<i>p for trend</i>		.101	.110

*Adjusted for demographics

**Adjusted for age, gender, height, work experience, and urbanization level

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Table 14. Frequency and need for medical treatment due to work-related violence and association with increased alcohol consumption due to work-related violence among police officers.

Risk factor	N/n of cases	Model I* OR(95%CI)	Model II** OR(95%CI)
Frequency of injuries			
No injury	945/26	1.00	1.00
One injury	551/40	2.77 (1.67–4.59)	3.03 (1.80–5.09)
Two or more injuries	225/27	4.82 (2.75–8.44)	4.86 (2.72–8.66)
<i>p for trend</i>		< .001	< .001
Need for medical treatment			
No need for medical treatment	624/46	1.00	1.00
Medical treatment needed once	146/12	1.13 (0.58–2.18)	0.96 (0.48–1.90)
Medical treatment needed more than once	67/10	2.20 (1.06–4.60)	2.08 (0.96–4.54)
<i>p for trend</i>		.061.	.149.

*Adjusted for demographics

**Adjusted for age, gender, height, work experience, and urbanization level

Table 15. Frequency of injuries, their need for medical treatment and their association with fear of future violence among police officers.

Risk factor	N/n of cases	Model I* OR(95%CI)	Model II** OR(95%CI)
Frequency of injuries			
No injury	945/545	1.00	1.00
One injury	547/345	1.24 (0.92–1.67)	1.26 (1.01–1.58)
Two or more injuries	224/155	2.44 (1.71–3.47)	2.49 (1.73–3.59)
<i>p for trend</i>		< .001	< .001
Need for medical treatment			
No need for medical treatment	620/399	1.00	1.00
Medical treatment needed once	147/90	1.26 (0.77–2.06)	1.24 (0.75–2.05)
Medical treatment needed more than once	66/47	1.95 (1.03–3.68)	2.09 (1.08–4.03)
<i>p for trend</i>		.600	.745

*Adjusted for demographics

**Adjusted for age, gender, height, work experience, and urbanization level

5 DISCUSSION

5.1 Summary of main findings

This thesis is among the first to examine the prevalence of encounters of work-related violence among police patrol officers and security guards in Finland and the association between these and psychological health. The prevalence and different forms of work-related violence, and the risk factors and associations with psychological well-being among police officers and security guards was investigated in four sub-studies. This study showed that physical violence at work, as well as injuries caused by violence in police work, are associated with the psychological ill health of police officers and security personnel. The findings are significant as they provide new information on work environment and health in these occupations.

In this thesis, work-related violence refers to any incident in which someone is abused, threatened or assaulted in circumstances related to his/her work, involving either an explicit or implicit threat to safety, well-being or health. The results showed that the prevalence of the most frequent form of psychological violence at least once a month during the past year were insults; 63% among police officers and 39% among security guards. The corresponding prevalence of the most frequent form of physical violence were unarmed physical attacks; 44% among police officers and 15% among security guards. The risk factors for both psychological and physical violence among police officers were young age, working in a metropolitan area and time pressure. Among security guards risk factors for both psychological and physical violence were male gender, young age, low work experience, working in a metropolitan area, and morning and evening shifts. In addition to these, time pressure was also a risk factor for physical violence among security

guards. The studies showed that being threatened with a deadly weapon had a strong and independent association with psychological distress symptoms among both occupations. Physical violence was also related to psychological distress, but the association was explained by concern about future violence. Among police officers, high frequency of physical injuries and their severity, as expressed by need for medical treatment, was associated with an increased risk of psychological distress, fear of future violence, and increased alcohol consumption. The association followed a dose-response pattern; that is, the higher the frequency of work-related violence, the higher was the risk of psychological distress, fear of future violence and increased alcohol use. In addition, police officers who felt that debriefing was lacking, that there was not enough personnel to handle violent situations, or that training in how to handle violent situations was insufficient, reported increased alcohol consumption. These results are partly in line with the framework of the present study. They show that frequently encountered work-related violence is associated with psychological distress symptoms and increased alcohol consumption. It was not possible to study different coping styles in this thesis, but the results give indirect evidence by showing that those who felt that debriefing was lacking increased their alcohol consumption. This result raises the question of whether coping methods, such as meaning-focused coping (Folkman, 2008), should be taught more systematically to police officers and security guards.

5.2 Prevalence of work-related violence

The most frequent forms of psychological violence at least once a month in both occupations were verbal insults and verbal threats. Of police officers 63% had encountered verbal insults and 25% verbal threats. The corresponding prevalence numbers against security guards were 39%, 19%. The most frequent forms of physical violence at least once a month in both occupations were unarmed physical attacks. Of police officers 44% and of security guards 15% had encountered these. Threats to use a deadly weapon at least once during the past year were 22% and 15% respectively. The explanation for the high prevalence of violence may be the fact that the study questionnaire was created on the basis of

interviews. It thus dealt with threats and violent acts in day-to-day tasks, rather than with more rare events such as serious traumatic incidents, as have earlier studies (Stephens & Miller, 1998). Moreover, the study's violence rates cannot be easily compared to those of previous studies, because their prevalence of violent incidents has usually been measured as those occurring at least once during the last 12 months. Furthermore, difficulties in comparing results across studies arise from inconsistency in the definitions of workplace violence. Some studies have focused only on direct physical assaults, whereas others have also included verbal threats of assault, non-physical acts of aggression and even vicarious violence (Schat & Kelloway, 2003). Others have divided work-related violence into physical acts and considered threats, sexual harassment and verbal abuse as non-physical forms of violence (Gerberich et al., 2004).

The results showed that the prevalence of psychological and physical violence were high in both occupations and even higher among police officers. The higher prevalence among police officers may be explained by police officers' role as official law protectors (Santos et al., 2009) and by the fact that they have the right to make arrests if needed (Brandl & Strohshine, 2003). In arrest situations, the police feel often compelled to use physical force for controlling unco-operative or resisting citizens in order to gain control, and this can result in further violent acts by the resisting citizens (Renck et al., 2002; Brandl & Strohshine, 2003; Alpert et al., 2004).

5.3 Risk factors for violence among police patrol officers and security guards

In both occupations the risk factor of young age for psychological and physical violence is in line with earlier studies of police work (Kaminski & Sorensen, 1995) and also with studies among other occupations such as hospital emergency wards (Landau & Bendalak, 2008) and nurses (Nolan, Soares, Dallender, Thomsen, & Arnets, 2001; Harvey et al., 2002; Gerberich et al., 2004; Viitasara, 2004; Beech & Leather, 2006; Camerino et al., 2008). Earlier studies have shown that low work experience is a risk factor for psychological and physical violence among security guards is also a risk factor among police officers (Kaminski & Sorensen,

1995) as well as nurses (Nolan, Soares, Dallender, Thomsen, & Arnets, 2001; Mayhew, 2001; Gerberich et al., 2004; Beech & Leather, 2006). Male gender among security guards as a risk factor for violence is also in line with earlier studies on other occupations such as police officers, nurses in mental hospitals, medical doormen and assistants, jailers, social workers, butlers and waiters, other guarding workers, judicial workers (Klein et al., 1997; Heiskanen, 2007; Webster et al., 2008; Landau & Bendalak, 2008).

Time pressure being a risk factor for both psychological and physical violence among police officers and a risk factor for physical violence among security guards was also in line with earlier studies among nursing staff (Camerino, Estry-Behar, Conway, van Der Heijden, & Hasselhorn, 2008). The fact that time pressure was associated with psychological and physical violence may suggest that busy police officers and security guards may not have time to listen to citizens, and thus may react too hastily. This, in turn, can have an effect on the way a citizen counter-reacts. Indeed, one important predictor of workplace violence has been found to be person-situation interaction (Barling, 1996). It is also possible that in this person-situation interaction some police officers and security guards may lack the ability to utilize verbal skills, the verbal dexterity to negotiate, or controlled verbal aggression to intimidate (Hobbs, Hadfield, Lister, & Winlow, 2002).

5.4 Work-related violence and psychological outcomes

5.4.1 Psychological distress

The overall prevalence of distress was 17% among both police officers and security guards. This is higher than the prevalence of stress in the Finnish working population as a whole (10%) (Perkiö-Mäkelä et al., 2009). Verbal insults or verbal threats were not associated with psychological distress in either occupation, whereas threats or assaults with a deadly weapon had a strong independent association with psychological distress among both police officers and security guards. This strong association may mean that although low in prevalence, the intensity of these kinds

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of threats and assaults may be very high. During these situations, the personal appraisal of threat is probably an appraisal of a threat to one's life. Threat as a precursor to a stress reaction is also suggested by our theoretical framework suggests in Figure 2 on page 35. This should be studied further. The result is also in line with evidence that in police work, a threat or assault with a deadly weapon makes police officers feel that the situation is no longer controllable (Tang & Hammontree, 1992; Kobasa, 1982). The same strong independent association with life threats and psychological distress has also been seen before in studies among soldiers, which have shown that a perceived threat to one's life increases the risk of PTSD as well as distress symptoms (Koren, Norman, Cohen, Berman, & Klein, 2005). The explanation for the majority who did not suffer psychological distress symptoms may be that frequent exposure to work-related violence results in the emotional numbing of these officers and security guards (Violanti, Vena, & Marshall, 1996). It may also be explained by "immunity to stressful events" as Renck et al. (2002) write on page 13: *'the more difficult situations you face, the easier you forget previous traumatic events'*. Another explanation may be individual personality characteristics, social support structure, and the use and type of coping strategies may explain the lack of distress symptoms (Zukauskas et al., 2009). In addition, as our theoretical framework on page 35 suggests, meaning-focused coping can explain how some people can sustain coping and restore their resources so that there is no distress symptoms afterwards (Folkman, 2008). This should be studied further, through interviews for instance.

Compared to police officers with no injuries, those who had suffered frequent injuries were at an elevated risk of ill-health symptoms such as psychological distress and fear of future violence, as well as increased alcohol consumption. This corresponds to the result of studies that show how bodily injuries are most stressful in police work and affect feelings of personal safety (Koren et al., 2005; Berg et al., 2005). The results are also in line with findings that the psychological consequences of injuries resulting from one person harming another are more psychologically significant than injuries that occur as a result of physical exertion (Brandl & Strohshine, 2003). This is also shown in results from studies in psychiatric hospitals, which reveal that injuries sustained in patient-staff incidents, although often mild, are nevertheless significant stressors (Langsrud et

al., 2007). The study also found associations between injuries that needed medical treatment and psychological distress and fear of future violence. However no association was found between injuries that needed medical treatment and increased alcohol use. This may be explained by some of the demographic variables, because adjustment for covariates attenuated the association with increased alcohol use. Moreover, medically treated injuries may require the patient to abstain from alcohol during treatment. However, this study suggests that the risk of adverse mental health increases along with the frequency of injuries.

5.4.2 Personal concern about future violence/ fear of future violence

The prevalence of personal concern about violence was 44% of those who answered this question. Due to this high percentage follow-up studies with deeper interviews concerning this fear of future violence are recommended. Physical violence, as unarmed physically violent attacks such as struggling to get free, wrestling or hitting and kicking, was related to distress, but the association was explained by personal concern about future violence. The mediation was complete because experiences of physical violence no longer affect distress after personal concern about future violence had been entered into the model. Thus these results showed for the first time one potential pathway between physical violence and psychological distress. This is in line with a study that found fear of violence to be one of the most traumatic stressors (Malac-Pines & Keinan, 2006). The results are also in accordance with earlier studies by Robinson et al. (1997), Wieclaw et al. (2006) and Santos et al. (2009), which all show that those who react to work-related violence beforehand with fear become vulnerable to distress. In addition, earlier studies emphasize that simple awareness of the possibility of being exposed to violence may increase a worker's risk of various stress-related disorders (Wieclaw et al., 2006), and coping by worrying may either worsen or maintain psychological distress (Terluin, Van Rhenen, Schaufeli, & De Haan, 2004; Clair, 2006). No previous study has differentiated between unarmed physical violent acts and more serious threats to use a deadly weapon.

5.5 Increased alcohol consumption and debriefing

A minority of police officers (5%) reported that they had increased their alcohol consumption due to violence. One of the strongest factors associating with this reported increase was lack of debriefing after violent situations. This finding supports studies that show how alcohol may be used to cope with feelings of powerlessness and stress (Cooper et al., 1988; Romelsjö et al., 1992; Gershon et al., 2002; Zukauskas et al., 2009). If alcohol really is used as a coping method then this result is in line with the illustrated and hypothesized framework of this study (page 35), because it shows that over time, unsuccessful coping can cause distress to develop into more serious symptoms and conditions, such as PTSD or depression (Wiecklaw et al., 2006). This should be studied more deeply. In addition, debriefing was relatively rarely used. This supports the findings of earlier studies suggesting that police culture discourages the expression of personal feelings (Clair, 2006; Pogrebin & Poole, 1991; Violanti et al., 1983; Zukauskas et al., 2009) and distress (Herbert, 1998), which have been associated with lack of organizational trust and fears of a breach of confidentiality (Violanti et al., 1996). Police officers may also perceive their own emotions as some sort of occupational weakness or hazard (Clair, 2006; Pogrebin & Poole, 1991). Some police officers even want to be left alone after they have encountered work-related violence, but this does not mean that they do not make active efforts in handling a difficult situation. However, it is also possible that if they are isolated they may use alcohol as a coping instead of seeking support from professionals for instance in the form of debriefing. Increased alcohol consumption among some police officers due to violence may also create a vicious circle in police culture, which results from all the traumatic experiences that are not dealt with properly (Martinussen, Richardsen, & Burke, 2007; Rees & Smith, 2008; Zukauskas et al., 2009). Furthermore, alcohol misuse can in the long run have especially serious consequences in the context of policing, which requires fast reflexes and quick thinking. Increased alcohol use can also create later on problems such as sickness absence (Vasse, Nijhuis, & Kok, 1998), impaired performance of job-related tasks, accidents and injuries, poor attendance, high employee turnover, and increased health care costs for organizations (Frone, 1999). Among

some police officers it can even develop into alcohol abuse (Anshel, 2000; Gershon et al., 2002; Vasse et al., 1998).

In addition, this study showed increased alcohol consumption due to work-related violence among those who felt there was a lack of personnel and insufficient training for handling violent situations. Not enough personnel in their organization and a lack of training may both result in increased feelings of powerlessness (Romelsjö et al., 1992) and thus more stress (Gershon et al., 2002). Furthermore, low resources may mean haste at work, which, in turn, can lead to increased exposure to critical incidents. Lack of training may also be inadequate if it does not adequately address the effects of working in traumatic conditions, and does not provide sufficient training to meet threatening and traumatic conditions. (Rees & Smith, 2008).

5.6 Methodological limitations and strengths

This study has some important limitations. Firstly, because it was cross-sectional, it was not possible to interpret the temporal order between variables. Exposure to violence may lead to distress symptoms, but likewise, those who are distressed may also be more prone to exposure to violence. The association between distress and violence may also be bidirectional. This does not, however, fully remove the value of cross-sectional studies, because they provide new hypotheses to be tested in further longitudinal studies. Secondly, the police patrol officers' and security guards' response rates in the 2002–2005 study were quite low (65%, 52%). The same is also true of the 2008–2009 study among police officers (response rate 38%). The representativeness is not certain because of the low percentage of those who responded to the questionnaires, even though the basic study sample was the total population of Finnish police officers and security guards from the largest companies in Finland. Unfortunately it was not possible to perform any attrition analysis because no information about non-respondents was available. It is known that non-respondents can cause response bias (Madigan et al., 2000), which means that differences between respondents and non-respondents tend to exaggerate real differences between respondents and the population sampled (Jackson et al., 1996).

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The third limitation is that all measures were based on self-reports, thus causing concern regarding common method bias; both violence and mental health outcomes were assessed by the same person (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Common-method bias may affect the results by threatening the validity of conclusions about the relationships between measures. The fourth limitation concerns the single-item scales of '*Personal concern about future violence*' in the 2002–2005 study, '*Fear of future violence*' and '*Increased alcohol consumption due to violence at work*' in the 2008–2009 study, as they may not be as valid as multiple-item scales (Wanous, Reichers, & Hudy, 1997). The fifth limitation is that the measures of injuries and the need for medical treatment were retrospective, which caused concern regarding e.g., recall problems (Braun, Fielding, & Grover, 1999).

The sixth limitation is the assessment of alcohol use: studies concerning alcohol problems have used different self-report screening instruments (Richmond, Wodak, Kehoe, & Heather, 1998; Romelsjö et al., 1992; Smith, 2007; Swatt et al., 2007; Vasse et al., 1998;). The Alcohol Use Disorders Identification Test (AUDIT) has often been used, which shows how much alcohol a person consumes (Ahola et al., 2006; Davey, Obst, & Sheenan, 2001; Frone, 1999; Grunberg et al., 1999; Lindsay & Shelley, 2009; Obst et al., 2001; Rallings, Martin, & Davey, 2005). Different reasons for drinking have been studied (Davey et al., 2001; Grunberg et al., 1999), but the items have never included work-related violence. A direct question as to whether work-related violence increases alcohol consumption was used in this study. An advantage is its ability to connect work-related violence with increased alcohol use. The seventh limitation is that in both the 2002–05 and 2008–09 studies, the cases of psychological distress symptoms were based on a version of the GHQ-12 scale (Goldberg et al., 1997), which is rather a measure of change than a measure of level (Mäkikangas et al., 2007). However, the GHQ-12 was used to measure mental ill health symptoms in this study, because it is a valid measure of mental and physical health (Hardy, Shapiro, Haynes, & Rick, 1999). Moreover, it might have been desirable to include a standardized scale such as the 17-item PCL (=psychometric properties of the PTSD(=Post-Traumatic Stress Disorder) checklist) scale to assess post-traumatic stress symptoms (Blanchard, Jones-Alexander, Buckley, Forneries, 1996) which is based on DSM-IV diagnostic criteria (Frances

et al., 1997). This would have permitted comparison with other police literature on the amount of probable PTSD derived from this scale.

The first strength of this study was its survey in which survey items were based on information obtained from interviews, which were used to get focused on the as accurate questions as possible. This proved to be successful, because the interviews suggested that during day-to-day duties the most relevant forms of psychological violence would be verbal insults and verbal threats, and the most relevant forms of physical violence would be unarmed physical attacks. The second strength of the data collected in 2002–05 was that the study sample was randomized from the police patrol officers of the total Finnish police population (5033 police officers). Similarly, a randomized sample was derived from the two largest security guard companies in Finland. The third strength was that in the 2008–09 study the sample consisted of all police officers in Finland, although the representativeness is not guaranteed.

The fourth strength, which makes this study unique, is that it was possible to make a more fine-grained analysis by examining the relationship between the frequency of injuries and injuries that needed medical treatment, increased alcohol consumption due to work-related violence, psychological distress symptoms and fear of future violence.

5.7 Practical implications

It is not possible to totally eradicate work-related violence as a stressor from the work of police officers and security guards, as they are the ones who are called on for help and also charged with the major responsibility for maintaining law and order in the society. They cannot withdraw even if they feel they are seriously under threat. (Collins & Gibbs, 2003; Beech & Leather, 2006; Clair, 2006; Andrew et al., 2008; Santos et al., 2009). Thus the prevention of violence would lead to less ill health symptoms. Prevention policies should be especially directed towards risk groups such as young police officers and security guards. Stress reduction programmes could contain, for example, learning to use available debriefing practices or further strengthening new coping methods that better suit police and security culture. It would also be useful to encourage police organizations to give more basic information on the advantages of coping with the

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help of debriefing (Everly, Flannery, & Mitchell, 2000; Kaplan, Iancu, & Bodner, 2001; Antai-Otong, 2001). New techniques to strengthen coping methods could be such as simply writing down personal emotions without revealing them to anyone (Ireland et al., 2007) or peer support (Stephens et al., 1998; Zukauskas et al., 2009). Peer support officers and security guards are not expected to be psychologists, but are there as someone to talk to. To give psychological support to those who need it is highly important and has been shown to play an important role in stress-mental health process (Gadalla, 2009). The peer support model encourages talking about traumatic experiences with trained peer supporters, who are sympathetic and supportive members of the work group. In the United States this has been successful in police officer groups. The supporters may also help educate the officers and guards regarding normal stress reactions, which are framed as positive coping resources, rather than pathology. (Stephens & Miller, 1998). Infusing threatening and violent events with positive meaning (such as “defending values of justice”, “security personnel have to be capable of bearing violence”) can help to create a kind of social support structure that increases coping efficiency (Folkman, 2008). Moreover, police officers and security guards can also benefit from such training that prepares them to adequately address the effects of constantly working in traumatic potentially conditions. Specific training to withstand severe and prolonged stress could also be beneficial.

Because the results regarding increased alcohol consumption due to violence showed that those police officers who increased their consumption felt lack of training, it seems to be highly important to provide the staff such training that they learn to handle threatening situations before they escalate to violence. Among police officers in Finland, adequate tactical training is already used to prepare them to combat hazards and tough situations (Vuorensyrjä, 2012). International studies have also shown how specific training to withstand severe and prolonged stress among special police forces has resulted in good stress tolerance (Garbarino et al., 2011). It thus seems that tactical training could be the basis of a model that includes teaching how to handle threatening citizens, how to learn to listen to citizens, and how to forget one’s own time pressure in these situations.

Despite that the Finnish police officers’ alcohol consumption is lower than that of the general population (Vuorensyrjä, 2012), the results of the present study suggest that a small proportion of police officers had

increased their alcohol consumption; it is, however, good to remember that alcohol misuse can in the long run have serious consequences, especially in the context of policing, which requires fast reflexes and quick thinking. Increased alcohol use can further create problems such as sickness absence (Vasse et al., 1998), impaired performance of job-related tasks, accidents and injuries, poor attendance, high employee turnover, increased health care costs for organizations (Frone, 1999), and can even develop into alcohol abuse (Anshel, 2000; Gershon et al., 2002; Vasse et al., 1998).

5.8 Conclusions

Although police officers work has many rewarding aspects such as cooperation with colleagues, working with people, variation of work, freedom and responsibility, shift work, and the excitement and action related to working on the street (Kop et al., 1999; Vuorensyrjä, 2012), in both international and national statistics, this occupation as well as that of security guards, is in the highest risk group of encountering violence. (Perrot & Kelloway, 2006; Beech & Leather, 2006; Heiskanen, 2007; LeBlanc & Kelloway, 2002; LeBlanck et al., 2006; Beech & Leather, 2006; Clair, 2006; Webster et al., 2008). Both police officers and security guards know that violence or its potentiality is to be expected in their work (Flannerly, 1996; Brandl & Strohshine, 2003). Nevertheless, studies on work-related violence in these two occupations in Finland have been scarce until now. In conclusion, this study showed that physical violence at work, as well as injuries caused by violence in police work, are associated with the psychological ill health of police officers and security personnel. Lack of psychological support after violent encounters may increase alcohol consumption among police officers. However, longitudinal studies are needed in order to prove whether the associations are causal. Because violence seems to be a threat to mental well-being in security work, the prevention of violence and the way in which violent situations are handled are of great importance. Special attention should also be paid to the risk groups recognized in this study. In further longitudinal studies, well-being scales with measures of different levels (for example job-related anxiety, depression, comfort) should also be used (Mäkikangas et al., 2007).

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This study examines the prevalence of encounters of work-related violence among police patrol officers and security guards in Finland and the association between these and psychological health.

The results suggest that physical violence at work, as well as injuries caused by violence in police work, are associated with the psychological ill health of police officers and security personnel. Lack of psychological support after violent encounters may increase alcohol consumption, which was found in the study of police officers. Because violence seems to be a threat to mental well-being in security work, the prevention of violence and the way in which violent situations are handled are of great importance. Special attention should also be paid to the risk groups recognized in this study.

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