OCCUPATIONAL VIOLENCE AGAINST PARAMEDICS: HOSTILITY, MITIGATION PRACTICES, AND THE INSIGHT OF PRACTICE THEORY

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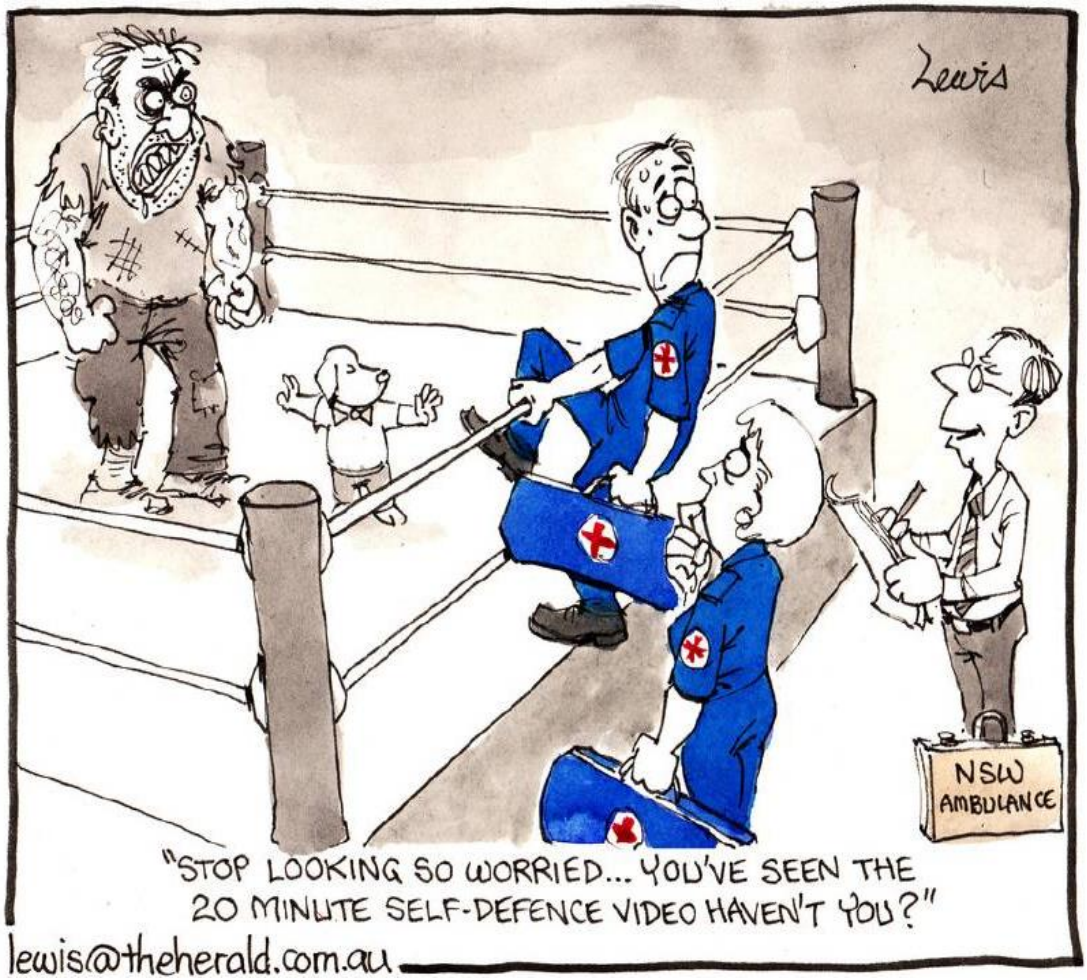

"Editorial cartoon," by Peter Lewis, May 15, 2014, *Newcastle Herald*. Reproduced courtesy of Peter Lewis and the *Newcastle Herald*.

Definition of Key Terms

AVic: Ambulance Victoria (AVic) provides emergency prehospital medical response, non-emergency patient transport, adult retrieval, emergency management, and air ambulance services across the Australian state of Victoria. It is a statutory authority under the direction of the Victorian Department of Health and Human Services, and employs almost 4,500 on-road clinical staff, including paramedics, patient transport officers, and retrieval registrars.

EMS: Emergency medical service (EMS) is a common abbreviation used to describe a prehospital medical emergency organisation. In Australia, EMS organisations are typically termed *ambulance services* and run under the management of state government health services. Internationally, particularly in North America, many EMS organisations are governed by smaller municipal or regional governments, private health organisations, or included within other emergency services such as the fire department.

MPSM: The Model of Paramedic Situational Manipulation (MPSM) is an adaptation of Campeau's Space-Control Theory of Paramedic Scene-Management that was developed from the findings of this research. The MPSM evolved to incorporate the elements of paramedic–patient interaction more effectively into paramedic scene management theory.

NSWAS: The New South Wales Ambulance Service (NSWAS) delivers mobile health support, prehospital clinical care, rescue, and retrieval assistance to patients with emergency and other medical health needs. The NSWAS is an Australian, state-aligned EMS organisation that forms an integral part of the NSW health system. The NSWAS supports 221 operational ambulance stations, 17 paramedic response points, and almost 5,000 on-road paramedics.

OV: Occupational violence (OV) is a social phenomenon of interpersonal aggression directed towards an individual within the setting of their

work. Though OV characterises undertakings of workplace violence, the often complex nature of these acts has seen difficulties arise in both the legal and academic conceptualisation of these behaviours. This thesis commonly refers to acts OV through the terms of hostility, aggression and violence. Hostility is utilised to described the state or feeling that commonly presents in aggression or violence. Aggression is behaviour that can result in physical and mental harm, whereas violence is the most extreme form of this conduct with the primary goal that of intentional injury.

Paramedic: Throughout the world, emergency prehospital healthcare personnel are known by many different titles, including paramedic, ambulance officer, Emergency Medical Technician (EMT), and EMS personnel. Although there may be some variances between these titles, depending upon education, training, or organisational credentialing, the common objective of these personnel remains the prehospital healthcare and transport of the ill and injured. For consistency, this thesis will utilise the term *paramedic* to describe all related prehospital emergency medical response personnel.

Patient: The person receiving prehospital emergency healthcare and transport is the *patient.* In the context of this thesis and the discussion of paramedic OV, it also identifies the person responsible for the act of physical or verbal violence or aggression. Although paramedic OV can incorporate bystanders and friends and family of the ill and injured, it is most commonly a process of paramedic–patient hostility. Hence, for congruence and to alleviate confusion, when describing acts of paramedic OV, this paper will utilise the term "patient" to define all perpetrators of violence and aggression.

QAS: The Queensland Ambulance Service (QAS) operates within the Australian state of Queensland under the authority of the state's Department of Health. It is responsible for the delivery of pre-hospital ambulance health services throughout Queensland. The QAS employs

over 4,500 full-time-equivalent staff with approximately 87% classed as operational or front-line.

SCTPSM: The Space-Control Theory of Paramedic Scene-Management (SCTPSM) is a paramedic theory of practice developed by Dr. Anthony Campeau for his 2007 research thesis of the same name. The SCTPSM provides a contextual model for the way paramedics approach and manage the prehospital emergency scene through the control of specific social processes and the activities that both precede and support them. The SCTPSM is an integral frame of reference in this thesis.

Abstract

Occupational violence is a significant issue in prehospital healthcare, with most paramedics reporting some form of abuse, intimidation, or physical or sexual assault in the context of their work. In comparison to the structured nature of a hospital setting, paramedics operate within an environment that is dynamic, inconsistent, and often volatile. The issue of paramedic occupational violence is a global phenomenon not limited to any nationality, culture, or ethnicity. Contrasting influences from gender, experience, location, workload, and prevalence toward paramedics demonstrate the variation and inconsistency of the phenomenon throughout the world. The potential individual and organisational consequences of paramedic exposure to violence can be severe and debilitating, and it is these impacts and their associated consequences that highlight the considerable importance and relevance of mitigation systems. However, the paramedic literature does not reflect on the effectiveness of these mitigation systems as part of a multifaceted approach towards violence prevention.

This study utilised a generic qualitative approach to examine the effectiveness of paramedic occupational violence mitigation systems and the associated strategies designed to provide management, support, and moderation. Campeau's (2007) Space-Control Theory of Paramedic Scene-Management was used as a lens through which the phenomenon of paramedic occupational violence was approached and considered. Analysis of the data was undertaken via a general inductive methodology. The study recruited Australian paramedics (n = 25) who had experienced an incident of occupational violence and had completed a violence mitigation program through their relevant ambulance organisation. Data was collated and analysed using NVivo 12 qualitative data management software.

The results of this study suggest that paramedic occupational violence is a bilateral, dynamic activity that is subject to the transference of social processes between the paramedic and the patient. Despite the high levels of complexity that can exist in the paramedic–patient relationship, interaction was a constant that pervaded every occurrence of violence or aggression that was examined. Notably, the implications of the paramedic–patient relationship towards violent behaviour do not occur in vacuity, and thus must be comprehended within the context of the

environment in which they occur. Notwithstanding the inference of these social constructs towards the initiation of hostility, the results additionally reveal a central theme of unpredictability and uncertainty to these interactions that severely impacts the effective application of mitigation practices.

The conclusions developed from this study represent a significant shift in terms of not only how occupational violence is understood but ultimately how it is defined and educated. The insights of this research challenge the current approach to paramedic occupational violence mitigation utilised by emergency medical service organisations. Existing strategies, which focus heavily on the proactive and reactive management of violence and aggression, commonly disregard the active period of this hostility. However, it is this active phase that accentuates the paramedic–patient relationship and the subsequent communication, understanding, and empathy it promotes.

This study identified the absence of social interaction between the paramedic and the patient in mitigation interventions as a basis through which to engage the phenomenon of occupational violence. The domain of risk management was identified as a means through which a new approach to violence mitigation could be understood and formulated. Instead of resisting the idea of uncertainty, risk management accepts the unknown and recognises that mitigation of adverse events does not only lie in the minimisation of uncertainty but can also occur through the strengthening of correlated knowledge. One of the fundamental features of the application of risk management strategies towards occupational violence is the recognition that it is effectively unachievable to foresee all possible hostile situations a paramedic may encounter. The recognition of this limitation to violence mitigation is important, as it accentuates the value of support and recovery practices as a critical component of any occupational violence mitigation system.

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Acknowledgements

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To my supervisors, Professor Vivienne Tippett and Associate Professor Scott Devenish, your guidance, support, and knowledge throughout this research has been invaluable. I wish to thank Scott for his belief in me at the very start of this journey, and for backing a paramedic with an idea. Viv, thank you for taking that idea, turning it completely around, and providing the catalyst for the study that lies within these pages. As always, your perspectives and insight into the research domain are exceptional.

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Chapter 1: Introduction

Occupational violence (OV) is a complex social phenomenon of interpersonal aggression and violence directed towards an individual within the context of their work (Pourshaikhian et al., 2016). Occupational violence is acknowledged as a significant global occupational health hazard for all employees in all industries and professions (Beech & Leather, 2006). As such, the prevention or mitigation of OV has become a priority for governments, organisations, and individuals alike, as a safe and secure workplace is a necessity for all employees.

The issue of OV begins unassumingly, through the absence of a universally recognised classification and definition of workplace violence and aggression. The literature commonly refers to acts of pugnacity as OV, workplace violence, job-related violence, and even simple violence (Murray et al., 2020; Tay et al., 2020; Touriel et al., 2021). The description of such behaviour is further complicated by the variability of potential aggressive acts, which include physical assault, verbal assault, bullying, and sexual harassment, as well as the categorisation of the perpetrators as either external (public) or internal (colleagues; Beech & Leather, 2006; Murray et al., 2020).

Despite the lack of clarity surrounding OV classification, it is imperative that acts of workplace hostility are accurately categorised and defined. Such contextual certainty provides not only a focus for literature and research but a premise through which meaningful discussion, policy, procedures, and interventions may evolve. Consequently, this thesis utilises the term OV as its preferred terminology for acts of violence and aggression, for two primary reasons.

First, it enables occupation-specific discourse without dispute of what constitutes a "workplace" (Beech & Leather, 2006). This has important implications, particularly for paramedics, as their workplace is a dynamic milieu with contrasting locations as diverse as a stranger's house, a street corner, an ambulance, and even a hospital. Second, the use of the term OV enables a congruent alignment between this research and established occupational health and safety ideology regarding the protection and welfare of workers.

Defining the contextual nature of OV towards the individual is fundamental to the interpretation of the phenomenon. However, such rationalisation is obstructed by the lack of a clear categorisation regarding acts of occupational hostility. Although the literature has long identified the difficulties associated with the issue of definition, it would appear that it has chosen to continue along a path of avoidance and ambiguity rather than clarification (Beech & Leather, 2006; Murray et al., 2020). Certainly, confusion is continually evident in the way the literature seeks to describe acts of violence against workers (Murray et al., 2020; Pourshaikhian et al., 2016; Soheili et al., 2016).

This thesis seeks to clarify the definition of OV by ensuring it entails both physical and verbal acts of violence, and that it pertains to hostility perpetrated solely by external forces. The act of excluding colleagues, or internal violence, from a definition of OV may be somewhat debatable, however this distinction is important. The motivation for the acts of OV undertaken by the public towards workers is generally distinct from the motives displayed by work colleagues that perpetrate OV through acts of bullying and harassment. Furthermore, many organisations identify and manage these issues separately, devising comprehensive policies and procedures for each (Beech & Leather, 2006). With these factors in mind, the definition for OV adapted and utilised within this thesis for acts of violence or aggression is:

> The external abuse, threat, or assault of an employee in the context of their work that involves a clear or implied challenge to the individual's personal health, safety, or well-being (Beech & Leather, 2006; World Health Organization, 2002).

This definition clearly describes a framework that encompasses a contextual understanding of acts of occupational hostility. There are, however, two further important features of OV that are critical to address. First, the impact associated with the violence and aggression can be either direct—that is, an individual's response to OV directed at them—or as a result of witnessing such acts against someone else (Safe Work Australia, 2017). Second, the application of OV will not always correspond to a law enforcement or judicial characterisation of acts of violence, such as assault or battery (Drew et al., 2021). This disconnect between paramedic and judicial comprehension of OV is addressed in greater detail during the systematic review section of this thesis.

While OV is a concern for all occupations, it is within the health-related industries, particularly those involving patient care, where some of the highest rates of OV are experienced (Murray et al., 2020). The severity of this problem is emphasised by the fact that globally, incidences of OV towards healthcare workers, including paramedics, now rank second only to employees working within the protection and security industries (Hills et al., 2015). More so than any other health workers, paramedics are subject to some of the highest incidences of patient workplace hostility (Gormley et al., 2016; Kowalenko et al., 2012). This concern is acutely evident within the paramedic literature, where studies have identified the prevalence of OV as high as 90%, with this violence taking the form of abuse, intimidation, physical and even sexual assault (Bigham et al., 2014; Boyle et al., 2007; Corbett et al., 1998; Pozzi, 1998). As opposed to the structured nature of a hospital setting, paramedics operate within a dynamic, inconsistent, and often volatile work environment. Close personal contact with patients, often during times of high stress and vulnerability, as well as isolation from the security and support systems that exist in other workplaces inevitability expose paramedics to risks rarely seen in other professions (Oliver & Levine, 2015; Petzall et al., 2011).

1.1 The Researcher's Perspective

As a Critical Care Flight Paramedic with over 20 years of experience within the prehospital domain, I have worked in a variety of distinct roles and environments. These include operational dual paramedic ambulance response, single paramedic critical care response, rotary flight paramedic, and numerous educational and training positions within an Australian-based emergency medical service (EMS) organisation. As part of this employment, my work has given me the opportunity to influence my EMS organisation's OV mitigation policy, guidelines, and training. In association with my supervisors, I have also completed and published a detailed systematic review into the OV interventions utilised within emergency services for potential use with paramedicine (Drew et al. 2021; see Appendix A).

My experience with paramedic OV is diverse, both as the subject of multiple violent and aggressive incidents over the course of my career, and as an observer of such events inflicted upon friends, work-partners, and colleagues. From my perspective, it has been painful and thought-provoking to witness the physical and

psychological injuries that have accompanied such incidents, as well as the personal realisation that follows regarding the failure of individuals and systems to prevent such assaults. It was this contemplation that led me to question not only existing OV mitigation systems but the very premise of why patients assault those who are there to help them.

Although my questioning of OV was new, I had been interested in the notion of OV mitigation throughout my career. The progression of OV, from an occurrence that was rarely acknowledged and was considered "part of the job" at the beginning of my career, to its current standing as a critical component of EMS policy, education, and training, has been dynamic. Despite this training becoming commonplace in most EMS organisations, it was evident to me that there was a clear disparity between the characteristics of OV interventions and the actual acts of patient-initiated hostility. Having worked in environments and locations comprising an array of socioeconomic and cultural backgrounds, I have considered many of the key social processes and interactions—or lack thereof—that appear to have contributed to such events. It seemed evident that the procedures and interventions often utilised within paramedic OV mitigation were often incompatible with the context and environment where the OV occurred. Too often paramedic OV mitigation philosophies were appropriated from other industries and professions, such as nursing or the police, with little consideration for the unique and specialised prehospital milieu. It was this gap within existing paramedic OV mitigation strategies that I identified as a potentially critical limitation, one that necessitated further analysis.

The informal nature of my interest in OV was developed and encouraged by my supervisors into a research program and reflects my genuine desire to provide a more thorough understanding of the phenomenon as well as proffer evidence-based suggestions about reform in this area. I firmly believe that a clear and robust elucidation of both what comprises paramedic OV and the interventions that are targeted towards it needs to be established in literature, with appropriate consideration given to the experiences and literature of those who work in the profession.

1.2 Background

The consequences of OV are far greater than the immediate threat or injury to the affected paramedic, with both the individual and their EMS exposed to potential

long-term deleterious consequences (Bigham et al., 2014; Murray et al., 2020). Paramedics who have been exposed to OV can present with significant levels of psychological illness, including emotional exhaustion, anxiety, post-traumatic stress, moodiness, isolation, and depersonalisation (Bernaldo-De-Quiros et al., 2015; Bigham et al., 2014; Gómez-Gutiérrez et al., 2016). At the organisational level, the consequences of OV can translate to difficulties with employee retention, attitude and behavioural problems, increased sick leave, and premature ill health. Moreover, these problems are reflected in lost working hours, staff replacement costs, treatment expenses, and compensation claims (Beech & Leather, 2006; Bigham et al., 2014).

Notwithstanding their moral obligation to protect their employees, organisations have a legal obligation, typically under workplace health and safety acts, for the maintenance of a violence-free workplace (WorkSafe Queensland, 2020). As such, significant resources and labour are dedicated towards OV mitigation procedures and systems (Comptroller and Auditor General, 2003; Queensland Ambulance Service, 2016; Victorian Auditor General, 2015). However, the importance of these OV mitigation systems as part of a multifaceted approach towards workplace violence prevention is not reflected in the paramedic literature (Beech & Leather, 2006; Occupational Health and Safety Administration, 2015). This paucity of research has resulted in much of the published guidance for paramedic OV mitigation originating from within the broader classification of healthcare, and in particular nursing (NSW Health, 2015; Occupational Health and Safety Administration, 2015; Victorian Auditor General, 2015). Although there are many similarities between allied health disciplines, safety measures developed for OV mitigation in a hospital may not translate effectively into a prehospital setting, where the environment is unstructured, often unpredictable, and resources are frequently limited.

Despite limited evidence in the paramedic literature, studies on the efficacy of OV mitigation systems in healthcare identify that weaknesses can arise from two fundamental deficiencies of system development: program evaluation and program adaptation (Beech & Leather, 2006; Runyan et al., 2000). While systematic program evaluation is an essential element of any OV mitigation system to ensure interventions are effective, safe, and relevant to the specific needs of the participants, it is the adaptation that positions the intervention within the occupational perspective (Knott et al., 2014; Runyan et al., 2000). Adaptation of OV mitigation systems comprises

orientating program design around both careful analysis of the context in which the violence occurs and employee-specific risk assessment and management (Hills et al., 2015; Runyan et al., 2000). In the prehospital care setting, where the environment is both dynamic and inconsistent, however, such analysis remains elusive (Campeau, 2008a; London Ambulance Service, 2015; Victorian Auditor General, 2015).

Nevertheless, the act of identifying and defining the paramedic workspace is essential to the development of effective prehospital OV mitigation systems. It is this understanding that provides the foundation for violence mitigation through consideration, assessment, and manipulation of the work environment (Bentley et al., 2014; Occupational Health and Safety Administration, 2015; Victorian Auditor General, 2015). This characterisation is critical because the paramedic workplace is unique within healthcare in terms of the management and treatment processes for ill, injured, and infirmed patients. The paramedic workspace is inconsistent, ambiguous, isolating, and demanding. Paramedics may find themselves working in such diverse locations as a street, a car, a bathroom, a nightclub, a building site, a mine, a mountainside, or even a boat. It may be any time of the day or night, in sunshine, rain, or snow. The patient may present at any stage of the lifecycle, from the newborn to the geriatric; they may exhibit medical malaises that incorporate the psychological, obstetric, cardiac, or respiratory systems; they may have traumatic injuries from falls, machinery, or motor vehicles; they may be lying, sitting, or even trapped; they may be by themselves or they might be in a crowd; there may be a single patient, or there may be multiple patients; and there may be no safety screens, no cameras, no lighting, no security guards, and no assistance. Whatever the environment and patient presentation, paramedics cannot rely on the consistency, routine, and stability that exists in other workplaces as a dependable framework for their practice (McCann, 2022). Although there are undoubtably more inherently hazardous workplaces, it is the dynamic nature of paramedicine that both defines its practice and distinguishes it from other occupations.

The definition of an employee's workspace, however, needs to extend beyond a simple portrayal of the work milieu. A comprehensive representation of the workplace necessitates a deep exploration of the occupational practices, principles, and culture in which it operates. Within the context of social science, this attainment of knowledge is commonly expressed through theories of practice; a theory of practice represents an

occupational-specific framework that provides context-specific ideas and allows for distinct perspectives as part of a flexible and dynamic approach to improved practice (Campeau, 2008b; Corbin & Strauss, 2008). As such, a paramedic theory of practice is a critical component of the understanding of patient-initiated violence because it can contextualise how paramedics define, manage, and control the prehospital scene where hostility develops. Furthermore, it is through a paramedic theory of practice that the structure of paramedic performance and the phenomenon of OV may be better understood (Smith, 2019).

Thus far it has been established that paramedic OV is a widespread, complex and insidious phenomenon of workplace hostility encompassing the unique domain of prehospital care. Despite the problem of paramedic OV, there also appears to be inconsistencies between how acts of prehospital aggression and violence are perceived within the profession and the application of interventions designed to mitigate their effect. This thesis postulates that fundamental to the understanding of paramedic OV is the consideration of how paramedics operate and interact within the prehospital domain and towards key participants such as patients and family members. It is proposed that this understanding may emerge through the identification and application of a relevant theory of paramedic practice. Such an awareness would both extend the relevant knowledge base and provide a foundation for the development and application of paramedic-specific mitigation systems and interventions.

1.3 The Emergency Prehospital Health System Context

Paramedics and EMS organisations are an integral component of primary healthcare systems. They are often a patient's first encounter with care networks and provide a critical link between the prehospital treatment of acute and chronic conditions and access to the broader healthcare system. Globally, paramedics respond to tens of millions of emergencies and other calls for medical assistance every year. In Australia, EMS organisations undertake almost four million episodes of care annually (Maguire & O'Neill, 2017; Productivity Commission, 2021; Queensland Department of Health, 2021).

In the context of this volume of work it is estimated that approximately 5% of paramedic–patient encounters will encompass some form of verbal and/or physical

violence (Grange & Corbett, 2002), and this violence will effect almost all paramedics at some point during their careers (Murray et al., 2020).

The magnitude of this problem is highlighted in the rate of assaults towards paramedics, which is as much as double the average for all occupations (Maguire & Smith, 2013). Statistics from within Australian EMS organisations confirm the extent of the issue. Ambulance Victoria (2020) reported that, for the 2019–2020 financial year, there were 696 incidents of violence and aggression against paramedics. This figure was up from 653 and 610 incidents in the years 2018–2019 and 2017–2018, respectively. These acts of reported hostility corresponded with almost one in eight staff reporting an OV incident, with approximately 5% of these reporting an injury, illness, or related ailment (Ambulance Victoria, 2020). These reported incidents are concerning, particularly as their significance may be underestimated: it is suspected that a large proportion of OV incidents against EMS personnel go unreported (Maguire, O'Meara, et al., 2018).

The impact of this violence against paramedics and EMS organisations cannot be understated. Paramedics exposed to OV present with physical injury rates far higher than workers exposed to OV in other occupations, as well as with increased incidence of exhaustion, depression, anxiety, and post-traumatic stress disorders (Kellner et al., 2020). The cost of this exposure is not limited to individual damages, with the financial burden to EMS organisations potentially substantial when predominant flow-on effects including lost working hours, increased injury and sick leave, burnout, reduced productivity, and increased staff turnover (Maguire, O'Meara, et al., 2018).

The ‘problem’ of paramedic OV lies not only through its extensive influence and exposure of paramedics to patient-initiated hostility but through the additional human and financial costs associated with these incidents. It is the problem of paramedic OV that the following sections of this thesis will examine in detail including assumptions, accepted practices and process, effects of current understanding, knowledge gaps, and potential elucidation. As a guide, the thesis will employ Bacchi’s ‘What’s the Problem Represented to be?’ approach to assist this critical review (Bacchi (2009).

1.4 Research Aim

This thesis seeks to contribute to the evidence base of paramedic OV mitigation through an examination of the key concepts and theory that comprise this subject. In order to achieve this, the study critically reviewed the literature relating to paramedic OV theory and practice and, in conjunction with the research investigation, provides a thorough examination of the lived experiences of paramedics exposed to prehospital violence and aggression. Examination occurs through the lens of a paramedic practice theory known as the Space-Control Theory of Paramedic Scene-Management (SCTPSM), that relates to the scene management principles of prehospital emergency healthcare. As such, the practice theory provides a conceptual context for the analysis of the relationship between the paramedic, the patient, and the initiation of violent behaviour (Saldana, 2014). It is anticipated that if paramedics are better able to appreciate the key elements of OV in their individual interactions, they may be better placed to both identify and control the threat of OV before a critical incident occurs. The following research questions guided this study:

RQ 1. How effective are existing paramedic OV systems and strategies in providing OV management, support, and mitigation?

RQ 2. How can paramedic practice theory contribute to the overall understanding and mitigation of paramedic OV?

1.5 Research Objectives and Overview of Research Design

The objective of this study was to examine paramedic OV within the prehospital environment and achieve a greater understanding of the specialised role of the paramedic within this process. To address this objective, I undertook four key activities:

1. *A systematic review of the literature examining OV and paramedics:* This comprised a critical systematic analysis of the peer-reviewed literature on paramedic OV, including aetiology, epidemiology, mitigation, and paramedic practice theory.
2. *An analysis of current paramedic OV mitigation policy and practice:* I conducted a review of EMS OV mitigation approaches, including training programs, interventions, and responsibilities within an Australian context.

3. *An investigation of the OV perceptions, experiences, and behaviours of paramedics, with a focus on aetiology, training, and mitigation:* Twenty-five in-depth, semi-structured interviews were conducted with paramedics who had experience with OV and associated mitigation programs.
4. *An examination of the role of the paramedic theory of practice, known as the SCTPSM, in OV systems and strategy through an analysis of the preceding three objectives:* Finally, I conducted a critical review of the data that was guided by a theory of paramedic scene management principles.

This study sought the involvement of Australian paramedics from within state-aligned EMS organisations, including the NSW Ambulance Service (NSWAS), Ambulance Victoria (AVic), and the Queensland Ambulance Service (QAS), that provide active OV mitigation systems and strategies. A combination of male, female, novice, experienced, urban, and rural paramedics were identified for the recruiting and inclusion process. Inclusion criteria were developed to identify paramedics exposed to OV within the context of their healthcare duties. These paramedics were invited to participate in the study through an in-depth semi-structured interview. In-depth interviews are congruent with the theoretical positioning of this qualitative research study since they are inductive and emergent, focussing on the *how* and *why* of a particular issue (Dworkin, 2012). An interview guide influenced by paramedic practice theory targeted the participant's perceptions of their organisation's OV mitigation system, as well as investigating their personal OV incident.

1.6 Significance

The systematic review of the literature demonstrated the paucity of evidence on which to base paramedic-specific OV mitigation strategies. As such, it is hoped that this research investigation will be valuable to the paramedic profession to further explicate the phenomenon of paramedic OV within the context of violence mitigation systems and strategies. While research highlights the importance of these interventions for paramedics, no evidence has been identified that assesses the efficacy of these activities. The literature is also limited as to any consideration of the value that practice theory may offer to this profession.

1.7 Outline of the Thesis

The thesis is organised into seven chapters. The first chapter has introduced the research subject of paramedic OV and provided an overview of its context within the prehospital environment. The chapter has also provided a rationalisation of the importance of the study and established the objectives and research questions on which the thesis is based.

Chapter 2 comprises a review of the literature on the epidemiology of paramedic OV, including the frequency, patterns, causes, and associated risk factors. This review incorporates the organisational and human costs associated with this violence, including the concomitant physical and psychological damage of this exposure to paramedics. As part of the review, the chapter includes a critical appraisal of the current literature regarding OV mitigation systems and interventions in order to provide a vital framework for the phenomenon. The chapter also explains in detail the paramedic theory of practice known as the SCTPSM; this theory is the theoretical lens through which this study is explored and analysed. The chapter concludes with a description of the individual components of the SCTPSM, including specific social processes, and the contextual application of these towards paramedic OV and its mitigation.

Chapter 3 comprises a review of existing EMS organisational OV mitigation approaches and identifies the practice gaps within these organisations. The chapter provides evidence of the OV mitigation philosophy that exists within Australian EMS organisations and identifies the focus of current mitigation programs and interventions. Through the examination of the limitations of these strategies, the chapter also introduces the theoretical concept of mindfulness as a component of OV mitigation practices.

Chapter 4 describes the research design utilised by the study. It explains and justifies the methodology and research design, providing a description of the participants, the procedures and timelines, and the data collection and data analysis techniques. Important information pertaining to the study's ethics approval and limitations is also provided.

Chapters 5 and 6 provide the results of the study and the subsequent discussion and exploration of the outcomes. The results in Chapter 5 include relevant extracts

from the participants' interviews for contextual support and positioning of the key ideas and themes. This chapter considers the impact of both the paramedic and the patient on the development of OV, its mitigation, and consequences. The discussion in Chapter 6 then integrates the results of the research into a theoretical context and proposes an evolution of the SCTPSM model.

Finally, Chapter 7 summarises the research findings and provides important discourse regarding the implications of the study, as well as guidance for EMS OV policy and practice. The thesis concludes with a description of the strengths and limitations of the study, as well as recommendations for future research in this field.

Chapter 2: Systematic Review

The characteristics of paramedic OV are dynamic and complex and present an insidious mitigation challenge to EMS organisations, managers, administrators, supervisors, educators, and individuals alike. In order to provide a critical insight into the phenomenon of paramedic OV, this chapter undertakes a narrative review of the OV literature against the backdrop of the paramedic profession and the actions of those who undertake prehospital care. The review includes an examination of the epidemiology of patient-initiated hostility against paramedics, and importantly the context and impact of this violence on individuals and organisations alike. Subsequently, the review also assesses the evidence pertaining to OV mitigation systems to mitigate the effect of this violence and aggression through the perceptions of paramedics and the interventions utilised by EMS organisations. This section of the review will draw considerably from my published review of the subject (Drew et al., 2021; see Appendix A). Finally, the review considers the active role of the paramedic as a critical component of the development of OV in relation to theories that define prehospital health practice.

Aggression and violence against paramedics is not a new phenomenon. While anecdotally, OV has always existed within EMS, it has only recently been documented in the peer-reviewed literature. Tintinalli (1993) was the first to examine the concept of violence towards prehospital providers against the backdrop of a North American EMS model. The study, a review of ambulance call reports, ascertained the potential for OV towards paramedics was likely extensive. The study identified that 67% of respondents had reported an injury in the past year, and over 97% had utilised law enforcement for management of a violent patient (Tintinalli, 1993). Although limited by its small sample size, this initial foray into paramedic OV research was significant as it identified the potentially extensive nature of OV within paramedic practice. Importantly, Tintinalli's study initiated a discourse on OV mitigation systems and scene management practices in paramedic violence prevention. While the frequency and significance of paramedic OV has remained unchanged since Tintinalli's initial exploration, the amount of paramedic literature attempting to quantify the phenomenon has increased. This growth in research studies may be somewhat

attributable to an increase in both the political and media attention towards the issue (Cuijpers & Brown, 2016; Kaiser, 2013).

The search strategy for the current review of the paramedic OV literature included an initial limited search of CINAHL and PubMed, followed by analysis of the text/words in the title and abstract and the index terms used to describe the article. (The initial search strategy for CINAHL is detailed in Appendix B.) The outcome of the analysis informed the development of a broader search strategy, which was customised for different areas of paramedicine and prehospital healthcare. This review examined English language studies from 1990 through to 2021. This timeline was selected because it is the period of the earliest identified paramedic literature on the theme of patient-initiated hostility (Tintinalli, 1993).

2.1 Epidemiology

The phenomenon of paramedic OV is a complex construct of human behaviour that is mired in issues of frequency and an array of risk factors and causative influences. In order to provide a thorough examination of paramedic OV, these influences are addressed in turn.

2.1.1 Frequency

Following the seminal paramedic OV research by Tintinalli (1993), further studies have attempted to examine the incidence and prevalence of paramedic OV. There have been two research approaches to the problem, which is either examined through paramedics' own individual perceptions and experiences, or through an analysis of paramedics' patient care reports.

Mock et al. (1998), Grange and Corbett (2002), and Coomber et al. (2019) were the only research studies identified that examined the incidence of paramedic OV from the perspective of individual case reviews. Mock et al. (1998) used an observational analysis of paramedic–patient interactions in a North American urban prehospital environment to examine the phenomenon of OV, recording over 737 hours of observation and providing a final analysis of 297 patient care interactions. These authors identified that over 5% of EMS dispatches involved some form of either verbal or physical aggression directed towards paramedics (Mock et al., 1998).

Similarly, Grange and Corbett (2002) analysed reports of verbal or physical violence identified by paramedics during individual patient care interactions. These interactions, which took place over a 31-day period, occurred in 11 metropolitan EMS organisations in the North American state of California. An examination of 4,102 patient contact data forms found that 4.5% of interactions involved a pattern of verbal or physical violence against the attending paramedics. The most common form of violence was physical, in 49% of cases, followed by a combination of both verbal and physical violence, in 30% of cases (Grange & Corbett, 2002).

The same method was used to examine paramedic OV incidence within an Australian context by Coomber et al. (2019), albeit through the perspective of alcohol, illicit, and/or pharmaceutical drug use. The study, a 5-year analysis of AVic patient care records, documented aggression or violence towards a paramedic from a patient or bystander where substance use contributed to the EMS response. Over the course of the study, 205,178 ambulance attendances met the criteria for inclusion. Of these, paramedics detailed that 11,813 (5.76%) included an act of violence or aggression (Coomber et al., 2019).

The studies by Coomber et at. (2019), Grange and Corbett (2002), and Mock et al. (1998) report concerning levels of paramedic–patient interaction that resulted in exposure to some form of violent or aggressive behaviour. Based on the data from these studies, it can be estimated that approximately one in 20 prehospital interactions result in an act of hostility against the attending paramedic. Remarkably, these results were demonstrated despite significant heterogeneity between the studies. Although it is not possible to generalise the frequency of paramedic–patient violence from these studies, their data nevertheless provide an appreciation of the extent to which acts of violence permeate prehospital medical care.

In conjunction with patient care reports, the levels to which paramedics self-report OV exposure has been regularly examined within the literature, both in Australian and international contexts. Four large-scale research studies have examined the frequency of OV towards paramedics in this regard (Bigham et al., 2014; Gormley et al., 2016; Maguire, Browne, et al., 2018; Oliver & Levine, 2015). The first of these studies, Bigham et al. (2014), examined over 1,600 rural, suburban, and urban paramedics from two separate and distinct Canadian provinces. Using a mixed methods survey approach, Bigham et al. examined paramedics' exposure to episodes

of verbal assault, intimidation, physical assault, sexual harassment, and sexual assault over the preceding 12-month period. The data revealed that more than 75% of paramedics had been exposed to a form of OV over this period, with females significantly more likely to be the victims of this violence. Verbal assault was the most common type of OV, with over 67% of paramedics reporting exposure to this form of violence (Bigham et al., 2014).

The second of these studies, Gormley et al. (2016), was similarly survey based, and investigated the characteristics of the OV exposure of 1,800 nation-wide paramedics from across the USA. The study highlighted that 69% of paramedics had reported at least one incident of OV over a 12-month period, with verbal abuse the most prevalent, at 67%. Almost half (44%) had also experienced at least one or more forms of physical violence, including punching, spitting, and biting (Gormley et al., 2016). Correspondingly, a retrospective analysis by Oliver and Levine (2015) of the data from the 2000 LEADS study[1] examined the phenomenon of OV through the responses of 1,900 randomly stratified paramedics. The report identified that 67% of respondents acknowledged that either they or their partner had experienced some form of verbal violence, and 45% cited some aspect of physical violence (Oliver & Levine, 2015). The fourth study was a large-scale survey study by Maguire, Browne, et al. (2018) of over 1,700 international paramedics from 13 countries; these authors reported that 65% of paramedics had experienced an exposure to physical OV while on duty.

The presence of an array of international paramedics in the study by Maguire, Browne, et al. (2018) underscores that the phenomenon of paramedic OV is by no means an isolated problem for EMS organisations. Indeed, this is supported by a growing base of international literature that examines paramedic self-reported exposure. Of the international paramedic OV research studies, Nethercott's (1997) was the first identified to demonstrate that the occurrence of paramedic OV was comprehensive and not limited to a North American focus. Through a survey of 311

[1] The LEADS study is a longitudinal research project undertaken by the National Registry of Emergency Medical Technicians (USA). The project is designed to accurately identify and describe the demographics and attributes, including work activities, conditions, and job satisfaction, of the individuals providing prehospital emergency medical healthcare throughout the USA. The 10-year project, which began in August 1998, collected annual survey data gained from cohort of paramedics. https://nremt.org/document/research

paramedics from the Westcountry Ambulance Services Trust in the United Kingdom, Nethercott's study provided acute insight into a growing phenomenon. Although lacking in rigor and validity due to a lack of a methodological framework, the study reported that, over the previous 3 years, 50% of paramedics had experienced some form of physical assault, 58% had been threatened by either word, weapon, or action, and 78% had been subjected to an act of verbal abuse (Nethercott, 1997).

Since Nethercott (1997), the extent of paramedic OV within European EMS organisations has been the subject of further investigation. A 2002 survey study by Suserud et al. (2002) examined both the frequency and nature of threats and violence against 66 urban and rural Swedish paramedics. The investigation reported over 80% of paramedics had at some stage been subjected to abuse and/or violence during their work. Furthermore, as many as 35% of these paramedics reported that they had experienced a similar incident at least once every 3 months (Suserud et al., 2002). In contrast to many of the other paramedic OV epidemiological studies (Boyle et al., 2007; Rahmani et al., 2012; van der Velden et al., 2016), the exposure rates identified by Suserud et al. (2002) for physical and verbal abuse and threats, at 67% and 78%, respectively, were closely aligned.

This initial analysis of paramedic OV in Sweden was reinforced by a larger scale assessment of the phenomenon by Petzäll et al. (2011). Directed at investigating the incidence and prevalence of OV, 134 paramedics from 11 different ambulance stations in both urban and rural environments participated in this study by questionnaire. Twenty-six percent of the respondents recorded that they had been subjected to threats, and 16% to physical assault, while performing their duties during the preceding 12 months. These numbers increased to 66% and 42%, respectively when the question was adjusted to include any occasion during their career (Petzäll et al., 2011).

Likewise, the issue of paramedic OV was demonstrated by Bernaldo-De-Quiros et al. (2015) in a study of 441 paramedics in the Southwestern European country of Spain. Bernaldo-De-Quiros et al. (2015) reported that, of the total, 18% of paramedics testified to having never been exposed to aggression, 48% had exposure to only verbal violence, and 34% had been exposed to both verbal and physical violence. Similarly, a Dutch study by van der Velden et al. (2016) examined the incidence of repeated violence and aggression against paramedics from five regional ambulance services in the Netherlands. The study utilised two surveys across a 12-month period for data

collection. Verbal aggression was the most common form of OV reported, as 40% of paramedics described an incident in the first survey with this number increasing to almost 50% in the second survey (van der Velden et al., 2016). In contrast, while exposure to levels of physical aggression over the two surveys was substantial, at 35% and 34%, the chance of repeated exposure to such acts within the ensuing 6-month work period was dramatically lower, at 7% and 4%, respectively (van der Velden et al., 2016).

The global prevalence of violence against paramedics suggests that the problem is not restricted by background, ethnicity, or culture. Rahmani et al. (2012) explored the issue within the context of a Middle Eastern Muslim culture with comparable results. Their research study of 138 Iranian paramedics focussed on exposure to OV during the last year, including episodes of sexual assault and cultural harassment. The investigation identified that the rates of OV exposure were high, with 75% of participants reporting at least one form of OV during the previous year (Rahmani et al., 2012). Verbal abuse was the most common (71%), followed by physical assault (38%). Reported experience with cultural harassment was low, at 9% of respondents, and no sexual harassment or sexual assault was recorded (Rahmani et al., 2012). These results were also replicated in a cross-sectional study of 120 Iranian paramedics by Soheili et al. (2016). These authors reported that 79% of the paramedics had been exposed to OV within the previous 6 months. Of this violence and aggression, 79% was verbal and 24% was physical (Soheili et al., 2016).

The global examples of paramedic OV are also demonstrated in the peer-reviewed literature examining the phenomenon throughout the Asia-Pacific region. In Taiwan, Wang et al. (2019), analysed the self-reported responses of 152 paramedics, reporting that 74% had experienced verbal violence during their career, with results for physical violence slightly lower, at 49%. Of those who had experienced OV, 38% reported they were frequently exposed (at least once every 3 months) to verbal violence and 11% to physical forms of violence (Wang et al., 2019). A survey of 483 paramedics from a Singapore EMS provider again delivered similar results. Tay et al. (2020) identified 63% of paramedics had experienced at least one incident of verbal harassment or assault in the previous 12 months, and 16.3% recorded an encounter of physical violence. Furthermore, a study by Lindquist et al. (2019) with Indian paramedics identified that the prevalence of OV within the previous 12 months was

as high as 67.9% of all participants. Analysis of the survey results for the 386 paramedics, who worked in four distinct regions of India, indicated that the characteristics of the OV behaviour were evenly represented between both physical and verbal assaults (Lindquist et al., 2019).

In the local context, two Australian studies were identified that have examined the epidemiology of paramedic OV (Boyle et al., 2007; Wongtongkam, 2017). These two studies are important because, given the Australian focus of this study, they provide a direct correlation for the potential size and magnitude of the Australian paramedic OV phenomenon. The first of these studies, by Boyle et al. (2007), examined paramedic OV through an analysis of survey responses from both urban and rural Victorian and South Australian paramedics. The study remains one of the most cited studies in paramedic OV. Significantly, it was the first study to include sexual violence as part of the definition of OV, and its overall results heralded the considerable size and problem of violence against paramedics. Results from the 148 paramedics detailed that, within the past 12 months, over 87% had experienced some form of violence, with verbal abuse being the most common form of aggression (Boyle et al., 2007). The second of these studies, by Wongtongkam (2017), involving South Australian and Tasmanian paramedics, similarly investigated the incidence of violence against paramedics, albeit over a shorter timeframe. Participants reporting on incidents of OV during their previous month of employment again recounted frequent levels of physical and verbal abuse. Wongtongkam described that during the specified time period, 60% of male paramedics and over 90% of female paramedics had been verbally abused. Furthermore, 12% of male paramedics and 10% of female paramedics had suffered an act of physical violence.

As the literature demonstrates, the prevalence of OV towards paramedics is substantial. The research consistently reports that approximately 70% of paramedics have been exposed to acts of violence and aggression during the context of their work. This exposure continues despite the legal and moral obligation of EMS agencies to maintain a policy of zero harm (WorkSafe Queensland, 2020). Furthermore, from the earliest peer-reviewed research through to more recent studies, the rates of violence and aggression towards paramedics has remained persistently high. Though there exists some variability between studies and the rates of both physical and verbal violence, there remains a consistency of paramedic OV exposure that is difficult to

rationalise. The prevalence of patient-initiated violence towards paramedics exists despite global cultural, religious, environmental, and socioeconomic divides.

2.1.2 Risk Factors

The characterisation of paramedic OV is important in order to identify and characterise the distinctive features and qualities of the phenomenon. However, in this regard, the determination of quantifiable risk factors associated with paramedic OV is difficult to achieve. Such difficulties arise through known underreporting of violent or aggressive incidents, research heterogeneity, and the use of different source data, including case definitions (Maguire & O'Neill, 2017). Nevertheless, the data that predominately arises from the OV prevalence literature does acknowledge three main areas for risk factors associated with violence and aggression: the perpetrator, the paramedic, and the time of assault.

The perpetrator of an incident of paramedic OV is generally identified as either the patient, the patient's family or friends, or a bystander. Although the evidence does vary depending on individual studies, clear distinctions exist between these possible culprits, depending on cultural norms and geographical locations. In studies examining Western and industrialised EMS organisations and paramedics, there is a strong tendency for the perpetrator of OV towards paramedics to be the patient. Maguire, Browne, et al. (2018) reported that of the 631 physical assaults against paramedics in which the perpetrator was identified, 90% were by patients, and 5% were by the patient's family members. Likewise, Petzäll et al. (2011) identified that, in 87% of cases, the patient committed the acts of violence, with these occurring following contact by the treating paramedic. Similarly, Mock et al. (1999) reported over 60% of violence was enacted by the patient, and Bigham et al. (2014) indicated that the patient was the perpetrator of physical violence in over 92% of assaults and 63% of verbal abuse incidents. Gormley et al. (2016), too, noted that the most common perpetrator for all types of violence was the patient, at 66% of verbal attacks and 43% of all physical assaults, and this rate of paramedic–patient physical violence was over 7 times higher than the rate of violence from family members or bystanders. Additionally, from a total of 572 paramedics identified through the US National Electronic Injury Surveillance System, Reichard et al. (2017) established that the perpetrator was the patient in almost all reported OV events.

In contrast with this characteristic of patient-centred OV focus, in Western Asian and South Asian cultures, the description of the likely perpetrator shifts to a family member or bystander. Rahmani et al. (2012) asserted the patient's family were responsible for 82% of verbal violence and 59% of physical violence, compared to bystanders at 50% and 41%, and patients 34% and 30%, respectively. Hossienkia et al. (2018) observed that relatives of the patient were just as likely, at almost 50% of assaults, to be the source of the violent behaviour as the patient themselves. Similarly, in their cross-sectional study of 120 paramedics, Soheili et al. (2016) identified the source of the violence as the patient's companion in 60% of incidents. Comparable to the above Iranian studies, in their study on paramedic OV in India, Lindquist et al. (2019) reported that the most common perpetrator was the relative or bystander in over 50% of all assaults, with the patient being responsible for just over 5% of physical assaults and 12% of verbal violence. Finally, the study by Wang et al. (2019) of Taiwanese paramedics reported that, while physical violence was most commonly committed by patients, rates of verbal violence were similar between patients, their families, and their friends.

While solidifying which patient characteristics might pose risk factors for OV is challenging, identifying the characteristics of paramedics that may create risk of OV is just as difficult. One of the most prominent studies examining paramedic risk factors was the Australian report into paramedic OV by Koritsas et al. (2009). These authors identified potential predictors for four forms of OV: verbal abuse, intimidation, sexual harassment, and assault. Gender, most notably for females, was identified as a common predictor in the latter three forms of OV, with the authors speculating that women may be perceived as an easy target for OV. Another predictor of OV identified through the study was that of patient contact time. As also highlighted in the studies of both Mock et al. (1998) and Grange and Corbett (2002), a longer timeframe of direct patient contact correlated with increased incidents of OV (Koritsas et al., 2009). The remaining two predictors of OV identified by Koritsas et al. (2009) were paramedic crew numbers and increased paramedic experience. First, a two-person paramedic crew was more likely to be exposed to verbal abuse than a single paramedic, and second, fully qualified paramedics were more likely to experience OV than student paramedics (Koritsas et al., 2009).

With the exception of paramedic crew size, subsequent paramedic literature has continued to portray the risk factors described by Koritsas et al. (2009), albeit with contrasting results. A self-reported study into paramedic safety in a North American urban EMS system revealed some comparable results (Furin et al., 2015). The survey of 196 male and female, novice and experienced paramedics reported that while most paramedics had acknowledged that they had been the victim of both verbal and physical OV, there was no significant difference in reporting in terms of gender. However, paramedics with more than 2 years' experience were up to 25% more likely to be exposed to aggressive behaviour than their less experienced counterparts (Furin et al., 2015).

Other studies have also identified paramedic experience level as a significant predictor of OV. Analysis of the 2000 LEADS study data by Oliver and Levine (2015) reported that the likelihood of being subjected to verbal OV was significantly higher for more experienced paramedics, but significantly lower for females and for those working in non-urban environments. Correspondingly, the risk of exposure to physical violence was reduced for non-urban paramedics and less qualified paramedics, but was higher for paramedics with greater experience. No association was found by these authors between gender and physical violence (Oliver & Levine, 2015).

Additionally, the numerous studies with contradictory results complicate the tangible association of paramedic-associated risk factors with paramedic OV. Maguire, Browne, et al. (2018) reported that, overall, male paramedics experienced a greater prevalence of assaults compared to female paramedics, while older paramedics (> 35 years old) were less likely to be assaulted then younger paramedics. This association between increasing age and reduced exposure to violence was also established by Bigham et al. (2014), however, there was no identified link between the exposure to OV and paramedic length of service or experience. Tay et al. (2020) observed that paramedics with less than 6 years' working experience were more likely to contend with verbal violence but there were no significant indicators regarding physical violence. Wang et al. (2019) described a higher prevalence for male paramedics experiencing any form of OV, although no significant statistical association was observed regarding paramedic gender, age, experience, education level, or workload for repeated violence. Petzäll et al. (2011) were unable to find any direct correlation between risk of OV and either the gender or the experience level of

the attending paramedic, while Gormley et al. (2016) reported that the variables of age, gender, and experience were not associated with any increased incidence of verbal violence. However, these authors did find that physical violence was more likely to be associated with female paramedics and those with greater experience. An increased risk of physical and verbal violence was also associated with paramedics in urban areas and those with an increased weekly workload (Gormley et al., 2016).

Literature does suggest that, as a risk factor for paramedic OV, the element of urban and rural environments is an important one. While in contrast to other studies, the study by Boyle et al. (2007) reported no statistical significance between urban and rural paramedics for any OV classifications, including verbal and physical abuse, they did identify a notable exception. Although disregarded by other studies, Boyle et al. (2007) featured sexual violence as an element of their data collection, importantly this did also include acts perpetrated by work colleagues and other professionals (e.g. fire and police). The study by Boyle et al. (2007), indicated that over 25% of urban paramedics, compared to 16% of rural paramedics, had experienced a form of sexual violence as part of their work responsibilities. No further analysis of the perpetrator of this violence was provided by the authors. Additionally, urban paramedics were 6 times more likely to be sexually assaulted and twice as likely to be sexually harassed as their rural counterparts. The issue of sexual violence is cause for significant concern in EMS organisations. As more females than males are likely to experience this type of OV (Koritsas et al., 2009), with increasing numbers of female paramedics joining the profession (Boyle et al., 2007; Paramedicine board AHPRA, 2023), this typically underreported area of OV may require greater research and administrative attention.

The final predominant risk factor identified within the literature is paramedic OV assault time. As opposed to previously discussed risk factors of patient and paramedic characteristics, the literature provides a clear elucidation of *when* paramedics are primarily exposed to incidents of violence and aggression. The evidence overwhelmingly acknowledges late afternoon into night as the pivotal timeframe for paramedic risk. Maguire, Browne, et al. (2018) reported the hours between 4:00 pm and 12:00 am, closely followed by 12:00 am to 8:00 am, as being the most hazardous period rates for incidence of physical assault against paramedics. This finding is reinforced by both Wongtongkam (2017), who identified that most violent incidents occur during the evening shift, between 6:00 pm and 12:00 am, and

Wang et al. (2019), who reported acts of violence were more likely to occur between the hours of 4:00 pm and 12:00 am. Furthermore, data obtained from the USA Bureau of Labor Statistics on paramedic occupational injuries secondary to violence identified that 50% of incidents occurred primarily between the hours of 4:00 pm and 12:00 am, with 39% occurring between 8:00 am and 4:00 pm, and 11% occurring between 12:00 am and 8:00 am (Maguire & O'Neill, 2017). The only identified discrepancy to this data was Knor et al. (2020), who reported that an OV incident was more likely to occur during night hours, between 2:00 am and 6:00 am.

2.1.3 Causation

Identifying late afternoon and night-time as the predominant period for paramedic OV stimulates the examination of the connection between these time periods and acts of violence. One of the principal characteristics of the twilight and night time hours is the association with non-work periods and the use of recreational substances, specifically alcohol and illicit or pharmaceutical drug use (Coomber et al., 2019). The perception of the role of these substances as a factor in paramedic OV is well documented within the literature.

The study by Coomber et al. (2019) identified alcohol as the most frequent type of drug recorded in EMS substance-related callouts where aggression or violence occurred. Alcohol use was more than twice as prevalent in OV behaviour than other EMS responses involving illicit drug use (Coomber et al., 2019). Maguire, Browne, et al. (2018) reported that in 761 physical assaults against paramedics, the belief among the assailed was that in excess of 80% of assailants may have been intoxicated or affected by recreational or illicit pharmaceuticals. Wang et al. (2019) similarly reported that substance abuse or alcohol intoxication among patients was identified as a predominant risk factor associated with violent or aggressive behaviour. Singaporean paramedics also observed that the main reason for verbal and physical violence was related to alcohol intoxication, at 52% and 63%, respectively (Tay et al., 2020). Lastly, Petzäll et al. (2011) documented that the most common reason identified by paramedics for acts of violence or aggression was the presence of alcohol or drugs.

Despite the perceptions of paramedics, the correlation between an escalation in the prevalence of paramedic OV and the increased use of alcohol and illicit substances

during this time may be somewhat misleading. The usual times of increased alcohol and substance use within the community (i.e., outside work hours) also mark the periods of time when paramedics are working either night shifts or nearing the completion of afternoon shifts. Both shift patterns reflect potential paramedic presentations of emotional and physical fatigue, which has been found to increase the risk of assault in other health professions (Tak et al., 2010).

As opposed to the influence of alcohol and substance abuse in paramedic OV, studies have also identified other factors believed to contribute to violent and aggressive patient behaviour. Dissatisfaction with EMS policy (Tay et al., 2020), lack of understanding of the role of the paramedic (Hosseinikia et al., 2018; Rahmani et al., 2012; Soheili et al., 2016), waiting times, type of treatment, feelings of helplessness, and mental illness (Petzäll et al., 2011) have all been acknowledged as causative elements of paramedic OV. The concept of communication challenges as a causative factor in paramedic OV is a recurring theme within the literature, most notably from studies originating from Iran (Hosseinikia et al., 2018; Pourshaikhian et al., 2016; Soheili et al., 2016). However, despite the bilateral nature of paramedic–patient interaction, Hosseinikia et al. (2018) reported that less than 1% of paramedics identified any self-responsibility in the deterioration of this relationship.

The studies from Iran are important and provide a thought-provoking insight into paramedic OV. Without the strong influence of drug and alcohol intoxication due to the substantial authority of the Islamic religion practised there, a unique perspective emerges of the primary aspect of prehospital healthcare—that of the paramedic–patient relationship. This relationship and the critical role that the interaction may have towards paramedic OV is a primary theme of this study and one that is addressed in detail throughout this thesis.

Some of the most compelling evidence into communication, causation, and paramedic OV was described by Pourshaikhian et al. (2016) and Knor et al. (2020), in their explorations of the processes that preceded paramedic OV. Using a grounded theory model of exploration, these studies identified a core category that focussed on the impact of communication in the context of aggressive or violent patient behaviour. From this core category, five sub-categories were isolated, three of which were delineated as contributory factors for paramedic OV: *causal conditions*, *contextual conditions*, and *intervening conditions* (Knor et al., 2020; Pourshaikhian et al., 2016).

First, causal conditions outlined the primary triggers of violent behaviour towards the attending paramedic. In contrast to other studies, Knor et al. (2020) and Pourshaikhian et al. (2016) presented an acute insight into the pressure of injury or illness on the human psyche as a cause for OV incidents. The two primary causal conditions identified were *delayed response time* and the premise of *event shock*. The first condition, delayed response time, relates to care impediments either imagined or tangible, or, alternatively, an unrealistic expectation of ambulance arrival times. The authors of these studies identified that the anxiety of any ambulance delay increases the process of cognitive stress on an individual, and presents as a subsequent catalyst to hostile behaviour (Knor et al., 2020; Pourshaikhian et al., 2016). The second condition, event shock, is characterised by Knor et al. (2020, p. 465) as the "prevalence or severe, unexpected events such as illness or trauma that may cause anxiety and agitation, resulting in unpredictable and uncontrollable behaviour, such as violence".

Although both concepts are important, the conceptualisation of event shock as a causal condition of paramedic OV is revolutionary to the idea of paramedic violence mitigation practices. The notion that the behaviour of a patient may be *unpredictable* due to the specific nature of their injury or illness represents a radical change in how violence and aggression against paramedics is perceived, not only within the literature but within the broader paramedic profession (Council of Ambulance Authorities, 2019; Maguire, O'Neill, et al., 2018). Furthermore, the suggestion that acts of hostility may be unpredictable allows the introduction of the "Black Swan" philosophy as a conceivable rationalisation of specific paramedic OV occurrences. The concept of a Black Swan event refers to an unexpected or surprising act that occurs within the context of its current environment (Aven, 2018; Taleb, 2007). The philosophy, although originally developed as part of a risk management framework, has important applicability for paramedic OV; as such, the concept of unpredictability and the Black Swan will be extensively developed as a tenet of paramedic OV later in this thesis (see section 6.3.1).

The second category described by Knor et al. (2020) and Pourshaikhian et al. (2016), *contextual conditions*, supplements causation and provides perspective on the violent behaviour. Knor et al. (2020) and Pourshaikhian et al. (2016) identified four subgroups in this category, each of which summarises a unique challenge within the dual contexts of prehospital care and the escalation of violence. The first challenge,

the public's lack of familiarity with paramedic duties and inadequate knowledge of EMS systems, is a feature that has been previously identified as interconnected with paramedic OV (Hosseinikia et al., 2018). The second challenge is that of inter-organisational cooperation, namely EMS with the police, regarding the management of heightened individuals; this intersection emphasises the discord that can exist between different emergency service organisations and their individual objectives. The third challenge relates to the specific cultural, educational, and socioeconomic status of the social environment in the paramedic–patient event; paramedics involved in the studies identified that the prevalence of OV was increased in disadvantageous social environments (Knor et al., 2020; Pourshaikhian et al., 2016). The fourth and final challenge acknowledges the insufficiencies of the OV mitigation systems and training of EMS organisations (Knor et al., 2020; Pourshaikhian et al., 2016). Notably, Knor et al. (2020) and Pourshaikhian et al. (2016) both highlighted the communication inadequacies of EMS systems as being a vital component in the development of patient-initiated hostility. That such communication difficulties would provide the context for the initiation of violent behaviour again underlines the critical importance of the paramedic–patient relationship in the OV phenomenon and the difficulties of this between different cultures and social structures.

The third category identified by Knor et al. (2020) and Pourshaikhian et al. (2016) as a contributory factor for paramedic OV is the *intervening conditions,* or those risk factors that heavily influence the effectiveness of EMS violence mitigation strategies. Although these authors identified various risk factors in this category, such as the time of the event and the perpetrator of the violence (both of which have been addressed earlier in this chapter), it is their identification of the element of "paramedic incompetence" that represents a new and unique insight. In particular, Knor et al. (2020) identified unsuitable behaviour from paramedics as a significant contributing factor to the violence perpetrated against them—so much so that they state all 20 of their paramedic study participants had some opportunity to prevent their conflict. Although the classification of this subgroup as "paramedic incompetence" appears provocative, it does underscore deficiencies in the social interaction skills of paramedics, particularly regarding conflict management. Van der Velden et al. (2016) also demonstrated the influence of paramedics' social deficiencies in their longitudinal study of 103 paramedics that examined predictors of OV. Despite including factors

such as age and gender in their analysis, the only significant independent predictor of repeated incidents of verbal aggression was that of paramedic problems with their superiors. Likewise, the ability to easily compromise was negatively associated with not only repeated verbal aggression but with any form of verbal or physical aggression (van der Velden et al., 2016).

The array of perceived stimulus for paramedic OV presented demonstrates that, much like the violence itself, causation remains a complex and somewhat contentious issue. Much of the literature relating to this subject appears to apportion blame to readily perceptible notions of patient presentation, including substance abuse, frustration, and mental illness. As such, the elements identified within the studies by Knor et al. (2020), Pourshaikhian et al. (2016), and van der Velden et al. (2016) represent a marked shift in the ideology of paramedic OV, away from a patient-centric blame orientation. Despite the merit of these studies, this notion represents a point of under-representation within the paramedic literature regarding the causation of paramedic OV. The most conspicuous limitation to this subset of knowledge remains a lack of insight from the perspective of the perpetrator. This limitation has been acknowledged previously in psychiatric health OV literature (Duxbury & Whittington, 2005), but remains underrecognised within the prehospital data sphere.

2.2 Impact

The preceding discussion would suggest that there can be no doubt as to the magnitude of the size and complexity of the phenomenon that is paramedic OV. However, the issues raised so far—such as prevalence, risk factors, and causation—only provide a limited appraisal of the scope of this problem. Significant individual and organisational consequences emerge from this violence; these ramifications present as disorders of both a physical and psychological nature that impact the individual and their ability to function in the workplace.

The first study identified that analysed the impact of paramedic OV examined the physical injuries to paramedics as a direct result of patient assaults (Mechem et al., 2002). The study by Mechem et al. (2002) was a retrospective analysis of an occupational injury database, which reviewed all incidents over a 3-year period involving paramedics and firefighters in a large North American metropolitan fire department. During the study period, 1,100 occupational injury reports were filed, and

of these, 4% were classified as assaults. Further analysis of these records noted 80% of these assault cases involved paramedics, and the remaining 20% involved firefighters. Importantly, only one of the assaults on the firefighters occurred during actual firefighting activity; the rest occurred whilst the officer was undertaking paramedic work or was assisting paramedics (Mechem et al., 2002). The most common types of injuries sustained during the assaults were bruises, sprains/strains, and scratches, with almost one third of these injuries resulting in lost work time. Of all the assaults, 93% occurred during patient care activities, however, 39% of these were deemed to be unintentional, that is, resulted from a situation where a patient with a medical problem or altered mental status struck out without apparent intent to do harm (Mechem et al., 2002).

The study by Mechem et al. (2002) is significant in that it introduces into the literature the physical impact of OV on paramedics within an EMS system. Although insightful in terms of detailing physical injuries, the usefulness of the study is restricted because the study design only allowed for the documentation of the physical impact of these assaults. As such, the study provides only a narrow perspective on the potential impact of such violence, the most significant and debilitating of which can be the associated psychological injuries (Bernaldo-De-Quiros et al., 2015; Gómez-Gutiérrez et al., 2016). Furthermore, through focussing only on the occupational injury reports, the study ignores one of the most significant areas of paramedic OV, that of verbal violence. Notwithstanding these limitations, the study addresses the issue of intent in association with paramedic OV. Intent and the perception of patient responsibility, particularly whilst presenting with an altered mental status or medical condition, is an area of uncertainty within healthcare, and, indeed, within the law (McKenna, 2017). Although Mechem et al. (2002) provide some distinction between perceived intentional and unintentional assaults, its limitations point to the potential bias and confusion in the OV literature that stems from the absence of a clear, distinct definition of paramedic OV.

Another examination of the impact of paramedic OV was undertaken through the epidemiology of occupational fatalities within North American paramedical services (Maguire et al., 2002). Through an analysis of three independent fatality databases (the Census of Fatal Occupational Injuries, the National EMS Memorial service, and the National Highway Traffic Safety Administration's fatality analysis

reporting system), Maguire et al. (2002) were able to compile and compare rates of paramedic occupational fatalities within the USA. While the authors noted some difficulty in obtaining wholly accurate figures due to the lack of acknowledgement of paramedics as a specific occupation within the data, they were able to establish that the rate of occupational fatalities for North American paramedics was over two and half times the rate of the general population (Maguire et al., 2002). The study determined that assaults on paramedics were the third major cause of these deaths, at a rate of 1.1 fatalities per 100,000 workers per year. In comparison to other healthcare workers during the same period, the fatality rate for paramedics was approximately 7 times higher (Maguire et al., 2002).

One of the authors of this study, Dr. Brian Maguire, remains one of the most prolific researchers within this field and has engaged the subject of paramedic OV injury in no fewer than four pieces of peer-reviewed literature. While two of these works have involved examination of US and international paramedics (Maguire, Browne, et al., 2018; Maguire & Smith, 2013), two have analysed occupational injury among Australian paramedics (Maguire, 2018; Maguire et al., 2014) and consequently provide important contextual information for this thesis.

The first Australian study by Maguire et al. (2014) examined occupational injury risk amongst paramedics through a review of serious workers' compensation claims. The study involved secondary analysis of aggregated data and defined serious injury as any case that resulted in at least one week of lost work time. The data was provided by the Australian government statutory body, Safe Work Australia, from the period of 2000 to 2010 (Maguire et al., 2014). Maguire et al. (2014) identified that during the 11-year period of data analysis, there were 6,728 cases of serious workers' compensation among paramedics. Of these cases, potentially 275, or 4% of incidents, involved OV towards the paramedic. The injury categories associated or potentially associated with OV were: *assaulted by a person or people* (100 incidents); *exposure to workplace violence or OV* (40 incidents); *harassment* (five incidents); *work-related harassment and/or workplace bullying* (30 incidents); *contact with, or exposure to, biological factors of human origin* (55 incidents); and *hit by a person accidentally* (45 incidents; Maguire et al., 2014). Both the nature of the reports referenced by Maguire et al. (2014), and, once again, the indistinct definition of OV itself, make it difficult to provide an accurate representation of the injuries sustained by the paramedics. While

some categories, such as *exposure to OV*, are easy to position, others, such as *exposure to biological factors of human origin* (which could include spitting), are less so. Nevertheless, the study by Maguire et al. (2014) still identifies that, based purely on the categories of *assaults* and *exposure to OV*, over 12 Australian paramedics per year require at least one week off work due to the nature of injuries or exposure sustained from paramedic OV.

The second Australian study by Maguire (2018) was a retrospective study of the data of serious injury claims related to violence and aggression against paramedics. Once again, the data from Safe Work Australia was utilised to compile claims relating to occupational health and safety or workers' compensation, with a focus on the nature of the injury received. The study by Maguire (2018) reported that 300 cases of serious injury to paramedics were recorded between 2001 and 2014. Of these injuries, 5% were fractures of the skeletal system; 43% traumatic injuries to joints, ligaments, muscles, or tendons; 27% involved wounds, lacerations, amputations, and internal organ damage; and 11% were disorders of psychiatric classification. The nature of these injuries was further supported by Maguire, Browne, et al. (2018) in their study of the physical assault of 1,778 international paramedics. While the study reported that 80% of injured paramedics predominately sustained bruising and contusions as the consequence of their attack, other paramedics reported incidents of fractures, abrasions/scratches, lacerations, stab/puncture wounds, and an amputation (Maguire, Browne, et al., 2018).

While these studies identify the physical consequences of OV towards individual paramedics, the cost of these injuries is rarely limited to the individual level. The effects of paramedic exposure to acts of violence can spread into both financial and operational penalties for the associated EMS organisation. Maguire (2018) highlights data from Safe Work Australia that details that the median amount of lost time for an Australian paramedic sustaining an assault that resulted in serious injury is 2.4 working weeks. Furthermore, the costs associated with this lost work time are in addition to the median compensation cost per assault case, which exceeds AU$8,300 (Maguire, 2018). These productivity markers are supported by data from the USA Bureau of Labor Statistics, which reported the average median days lost to injuries sustained due to paramedic OV was 14 for men and seven for women (Maguire & O'Neill, 2017).

An individual paramedic's exposure to OV can be both severe and debilitating. However, while the physical effects of OV are easy to identify, the effect of this violence on the mental health and wellbeing of paramedics can be far more insidious. An example of the potential size of this problem can be demonstrated by the findings of Wang et al. (2019), who reported that in excess of 80% of paramedics exposed to violent acts stated that it affected their personal mood, and almost 50% identified a deterioration of professional workplace performance. The implication that acts of aggression and violence towards paramedics are a prevalent cause in the development of features of psychopathology in this group is a premise that has received considerable attention within the prehospital literature.

One of the first studies to examine the psychological effects of OV on paramedics examined Australian paramedics (Chappell & Mayhew, 2009). The study by Chappell and Mayhew (2009) utilised an abbreviated form of the General Health Questionnaire-12 (GHQ-12) to assess the psychological impact on paramedics after acts of OV. It stipulated that a GHQ score of between eight 8 and 10 was recognised as normal, with any score greater than 14 indicating that an individual required urgent psychological assistance (Chappell & Mayhew, 2009). Forty operational paramedics from a large Australian EMS organisation were selected for the study, with approximately half being from rural and half from urban areas. The average GHQ score of paramedics experiencing no violent events over the previous 12-months was 8.78; for one incident it was 10.75, for two incidents it was 8.75, and for three or more incidents it was 12.95 (Chappell & Mayhew, 2009). The paramedics in the study had an average GHQ score of 10.75, which was noted as being above baseline when compared to similar healthcare populations. Further analysis of the data identified a significant relationship between exposure to acts of violence and elevation of GHQ score. Of note, the analysis unexpectedly revealed that the stress impact of OV on paramedics was not necessarily related to the physical severity of the incident (Chappell & Mayhew, 2009).

The study by Chappell and Mayhew (2009) demonstrates an increased negative psychological impact from exposure to paramedic OV. Although the instrument chosen by the authors was exclusively limited to measuring paramedics' general levels of stress, this finding should not be trivialised. High levels of stress have been documented to adversely affect emergency service workers in their daily working lives

and have been proven to contribute to increased rates of sick leave, resignations, early retirement, and even risk of self-harm (Chappell & Mayhew, 2009). Additionally, these authors' recognition that the stress impact of OV is not directly linked to *physical* assault or injury is important. While physical violence can often be confronting and frightening for victims, the study by Chappell and Mayhew (2009) establishes that the effects of verbal violence can be no less debilitating.

Expanding on the concept of stress and OV, a large-scale Spanish study of prehospital care personnel explored the potential psychological consequences associated with exposure to OV (Bernaldo-De-Quiros et al., 2015). The study, by Bernaldo-de-Quiros et al. (2015), examined two key areas of psychological health, *burnout* and *general mental health status*. Burnout was defined as the psychological syndrome of emotional exhaustion, while general mental health status referenced an individual's holistic health status, and encompassed somatic symptoms (pain, gastrointestinal & cardiac disorders), anxiety, insomnia, social dysfunction, and severe depression (Bernaldo-De-Quiros et al., 2015).

Of the 437 participants who participated in the study, 18% had never been exposed to aggression, 48% had exposure exclusively to verbal violence, and 34% had been exposed to both verbal and physical violence. The results of the burnout questionnaire revealed that, of the paramedics who had not been exposed to any type of OV, a small number (2.5%) presented with high levels of emotional exhaustion. These numbers increased in relation to exposure to OV, with emotional exhaustion rising to 5.8% with verbal violence and to 17.3% with verbal and physical violence. Similarly, levels of depersonalisation were recorded at 7.7% for paramedics with no exposure to OV, 14.1% for those exposed to verbal violence, and 15.1% for paramedics subjected to both verbal and physical violence (Bernaldo-De-Quiros et al., 2015). However, despite the increased levels of psychological malaise, there were no significant differences noted between the three groups of paramedics in relation to the existence of burnout syndrome (Bernaldo-De-Quiros et al., 2015). The results of the mental health status questionnaire documented no significant differences for a paramedic's exposure to OV on psychological symptoms of social dysfunction, depression, or somatic symptoms. However, important differences were observed regarding the paramedic's level of anxiety. In total, the 3.9% of paramedics who had not exposed to incidents of OV were recorded as having anxiety at levels determined

to be psychologically distressed. These percentages increased to 6.2% for paramedics exposed to verbal aggression, and 15.1% for paramedics exposed to both verbal and physical violence (Bernaldo-De-Quiros et al., 2015).

The study by Bernaldo-de-Quiros et al. (2015) is noteworthy because it is one of the first large-scale studies to examine the nature of paramedic psychological injuries resulting from exposure to OV in depth. These authors acknowledge that findings of increased emotional exhaustion, depersonalisation, and anxiety are significant psychological consequences associated with OV. These findings by Bernaldo-de-Quiros et al. (2015) are supported by those of Wongtongkam (2017), who explored the concept of OV and its relationship to burnout and post-traumatic symptoms. In survey of 48 paramedics across two Australian EMS organisations, Wongtongkam (2017) identified that while both male and female paramedics exposed to OV exhibited similar results on post-traumatic scores, females demonstrated higher levels across all subcategories than their male colleagues. Regarding burnout, females exhibited significantly higher levels of emotional exhaustion than males (Wongtongkam, 2017).

The psychological consequences of paramedic OV are wide-ranging and notably include the deleterious condition post-traumatic stress disorder (PTSD; Gómez-Gutiérrez et al., 2016). Given that the development of PTSD has been associated with an individual's experience of aggression and subsequent emotions (such as fear) that emerge during a violent encounter (Gómez-Gutiérrez et al., 2016), the potential link between PTSD and paramedic OV is considered of great importance.

In this regard, Gomez-Gutierrez et al. (2016) examined the phenomenon of OV and PTSD in paramedics in a study of 441 prehospital care personnel within a Spanish EMS system. The study's research design comprised two parts: first, examining the frequency, type, and severity of any incidents of OV, and second, assessing for symptoms and diagnosis of PTSD (Gómez-Gutiérrez et al., 2016). Analysis of the data established that, of the 441 paramedics surveyed for the study, 34.5% had been physically assaulted, and 76.2% had been subjected to some form of verbal abuse (Gómez-Gutiérrez et al., 2016). Demonstrating the significant impact of verbal OV, over 85% of paramedics identified threats, insults, and threatening behaviours as causing the most distress in their OV incident. Paramedics who had experienced verbal OV developed post-traumatic psychological symptoms of re-experiencing (95%),

avoidance (95%), and arousal (96%). In comparison, an incident of slapping or punching recorded levels of 13.5%, 2%, and 25% for the same post-traumatic symptoms (Gómez-Gutiérrez et al., 2016). From the results, Gomez-Gutierrez et al. (2016) were also able to identify that the emotions (including fear, helplessness, or horror) which paramedics experienced during their OV incident were significant for the development of the PTSD symptom of incident *re-experiencing*. Furthermore, a direct correlation was established between the paramedic's perceived severity of their OV incident and them developing symptoms related to re-experiencing (Gómez-Gutiérrez et al., 2016).

The association between paramedic OV and PTSD is further supported through research that examined the link between the development of PTSD and threats of a direct or indirect nature (Michael et al., 2016). The study by Michael et al. (2016) defined *indirect threats* as being the stress from helping or wanting to help a traumatised or suffering person (i.e., the stress from patient care), while *direct threats* encompassed stress from all aspects of OV, including physical abuse, intimidation, or sexual harassment. Six hundred and sixty-eight paramedic participants from the European countries of Switzerland and Liechtenstein were assessed for the association and management of dysfunctional post-traumatic cognitions, including negative emotions and self-blame (Michael et al., 2016). Results indicated that 34% of paramedics experienced only indirect threats, while 66% reported having experienced both direct and indirect threats. Of these groups, 1.37% of the indirect threat group and 5.91% of the direct threat group suffered from comprehensive PTSD symptoms. Furthermore, 3.74% of the indirect threat group and 14.06% of the direct threat group were noted to be experiencing partial PTSD symptoms (Michael et al., 2016). Significantly, these authors were also able to establish that experience of direct threats was more strongly associated with dysfunctional post-traumatic cognitions than experience of indirect threats (Michael et al., 2016). Lamentably, although these authors were critical of the ability of the paramedics to manage the consequences of OV, the study provided no details regarding the mitigation strategies utilised by the paramedics or their EMS organisations, either pre- or post-exposure to patient-initiated hostility (Michael et al., 2016).

The establishment of the link between PTSD and exposure to workplace violence remains a prominent discourse within the paramedic literature. In 2020, a

Canadian study of 129 paramedics and 117 firefighters via an online survey measured symptoms of PTSD, depression, anxiety, OV, and post-traumatic cognitions and was able to detail some important findings (Setlack et al., 2020). First, Setlack et al. (2020) identified that the study participants met or exceeded specifications for symptoms of post-traumatic cognitions at rates far exceeding those of the general population. Second, these authors found a positive correlation between OV and symptoms of PTSD, depression, and anxiety. Finally, higher levels of exposure to OV, specifically threats to injury or life within the previous year, were significantly associated with higher levels of psychopathology and symptoms related to PTSD. While the primary results of the study are meaningful in themselves, the research also provided new insights into paramedic OV and psychopathology. The authors established that, as rates of OV increased, so did individual self-blame and negative perceptions of the self and the world. Consequently, these authors suggest that OV serves as a primer to an individual developing damaging perceptions and outlook, which may in turn increase their susceptibility to anxiety, depression, and PTSD (Setlack et al., 2020).

2.3 OV Mitigation Systems and Interventions

As the previous section has outlined, the consequences for paramedics exposed to OV are varied but they can far exceed the immediate physical or mental injuries associated with the incident (Bigham et al., 2014). Anxiety, depression, post-traumatic stress, increased sick leave, and premature retirement are all problems negatively associated with paramedic OV (Bernaldo-De-Quiros et al., 2015; Koritsas et al., 2009). Critically, it is not only the exposure of the paramedic to an aggressive or violent incident that can result in psychological distress. The literature substantiates that psychological injury can also arise from an organisation's response or lack thereof to such incidents (Lawn et al., 2019). In conjunction with employers' moral and legal obligations to provide and maintain a violence-free workplace, the consequences of OV exposure result in substantial resources being dedicated towards paramedic OV management and its mitigation (Doyle, 2015; Mendes, 2015; Queensland Ambulance Service, 2016). The challenge for EMS organisations lies in the development and facilitation of these interventions.

At the core of OV mitigation is the development of systems and interventions that aim to provide staff with the right knowledge, skills, and support to identify and

manipulate incidents of violence and aggression (Hills et al., 2015; Occupational Health and Safety Administration, 2015; Wang et al., 2008). However, the considerable array of risk factors that expose paramedics to the threat of violence are problematic for EMS organisations and their OV mitigation strategies (Drew et al., 2021). Furthermore, the various hazards of prehospital healthcare exacerbate these risks, which include: contact with the public, isolation from colleagues, operating in mobile workplaces, working with volatile patients, working in high-crime areas, the transportation of patients, and shift patterns incorporating night or early morning work hours (National Institute for Occupational Safety and Health, 1996). Literature identifies that effective paramedic mitigation strategies may address these risk factors and hazards. As such, identified strategies include *personal interventions*, such as self-defense and situational awareness; *engineering interventions*, such as restraint use; and *organisational interventions*, such as leadership commitment to safety (Maguire & O'Neill, 2017; Occupational Health and Safety Administration, 2015).

Occupational violence mitigation strategies, specifically organisation- and industry-specific education and training programs, form an indispensable component of any preventive measures. Such is the recognised importance of these training programs that virtually all published guidance on OV mitigation recommends their implementation (Beech & Leather, 2006; Occupational Health and Safety Administration, 2015; SafeWork SA, 2015; WorkSafe Victoria, 2008). However, despite a significant body of work quantifying the epidemiology and characteristics of paramedic OV, there remains a paucity of research studies examining the suggested methods of preventive intervention or providing validation of their efficacy (Hills et al., 2015; Phillips, 2016). Notwithstanding this limitation in paramedic research, it surely remains a critical requirement and focus of these training programs to ensure they are evidenced based, fit for purpose, safe, and ultimately successful at minimising the incidence of workplace violence (Heckemann et al., 2015; Knott et al., 2014; Runyan et al., 2000). This oversight, or failure to provide evaluation for paramedic OV mitigation, weakens its credibility and raises doubts as to the overall relevance and effectiveness of any intervention (Beech & Leather, 2006). It is this absent process of evaluation that provides a central theme and framework for this study by questioning whether current paramedic OV mitigation systems and strategies are providing effective management, support, and mitigation for their staff.

The paramedic literature on OV is limited in the sense that no study was identified that has evaluated an EMS mitigation system or its approach to violence reduction against its employees. What exists within the literature is a fragmentated arrangement of studies examining isolated elements of potential mitigation interventions or systems. While contributing important evidence regarding common practices within mitigation systems, such studies provide only a narrow insight into a system-wide problem. The evidence that does exist concerning OV mitigation systems and interventions has been broadly classified under five headings: the *perspectives of paramedics* working within these systems, *chemical sedation, physical restraint, self-defence skills,* and *OV training approaches*. The *paramedic OV mitigation perspective* examines the views of paramedics exposed to incidents of patient-initiated hostility and, importantly, their position towards OV mitigation practices. *Chemical sedation* and *physical restraint* appraise the application of patient control techniques for violent or aggressive patients. *Self-defence skills* explores the evidence surrounding the use of force manoeuvres utilised in many EMS OV mitigation systems. Last, *OV training approaches* reviews specialised educational and training approaches toward the mitigation of violent or aggressive patient behaviour. The literature pertaining to these studies is systematically addressed in the following subsections.

2.3.1 Paramedic OV Mitigation Perspective

Three studies discuss the experiences of paramedics regarding OV mitigation and its associated prevention strategies, the most notable of which is Drew et al. (2021), which provides a systematic review of emergency service worker violence mitigation. The other two studies, Maguire, O'Neill, et al. (2018) and Taylor et al. (2016), used a mixed methods approach to gather and examine paramedics' own perspectives on violence against EMS responders. Maguire et al. provided the opportunity for 633 respondents to offer their insights on the prevention of EMS workplace violence through short, open-ended questions, while Taylor et al. conducted 10 semi-structured interviews with paramedics about their experiences of patient-initiated violent injury. The review of prevention strategies and experiences by Drew et al. (2021) includes a meta-synthesis of the studies by Maguire, O'Neill, et al. (2018) and Taylor et al. (2016) and thus forms the primary basis for this analysis of the paramedic OV mitigation perspective.

The systematic review by Drew et al. (2021) was able to identify two synthesised findings and four distinct categories from the study data that examined paramedics' perspectives of being exposed to incidents of OV. The first synthesised finding categorised by Drew et al. (2021, p. 4) was "organisational, societal and judicial commitment", which was derived from the following two categories: (a) law enforcement and judicial mitigation interventions, and (b) EMS OV mitigation systems. This finding asserts that there is a requirement for OV mitigation systems to be constituted beyond an internalised EMS, paramedic-focussed response; that is, the issue of OV requires an integrated comprehensive approach utilising all levels of individual, organisational, and governmental involvement. The data identified that OV mitigation systems advocate for organisational, societal, and judicial congruence through shared characterisation, support, and regulation of the OV phenomenon and hostility against paramedics. There were three core themes supporting this finding: OV characterisation, police involvement, and internal support and commitment.

The first of these, *OV characterisation*, is one of the primary themes identified by Drew et al. (2021) in the studies; these authors highlight the contrast between this portrayal and aspects of law and judicial enforcement. The description of OV—as a social phenomenon of interpersonal hostility and aggression directed towards an individual within the setting of their work—provides a clear representation of unacceptable and antisocial behaviour. However, this definition contrasts with the characterisation that is applied by a law enforcement or judicial perspective. The term "violence" generally bears no legal definition unless it is further identified under a more specific title, such as "domestic violence"; hence, any violent crimes are prosecuted under common law offences such as assault, battery, and trespass (Judicial Commission of NSW, 2022). The legal terms aim to compartmentalise acts of hostility through descriptions of direct and *intentional* threats or contact with another individual for the purpose of inflicting harm. Aside from the inherent difficulties of prosecuting such acts (which often involve widely conflicting descriptions of the event), the legal interpretation of "intent" remains a constant issue (Judicial Commission of NSW, 2022). For example, if a paramedic is assailed in the course of their work but the perpetrator had no intent due to a medical, traumatic, or psychological impairment, then in a legal sense, an assault may not have been committed (Australian Associated Press, 2017; Judicial Commission of NSW, 2022; Wright et al., 2019). Although it is

not within the scope of this review to discuss the legal intricacies of intent, the studies underline a disconnect between the characterisation of OV and the attempts of EMS organisations and governments to mitigate practice through legislation (Queensland Sentencing Advisory Council, 2020).

More than through definition, disconnect further transpires within OV mitigation practice through EMS organisations' embracing of concepts and systems pertaining to a "zero tolerance" approach to OV mitigation (Queensland Ambulance Service, 2016). While the pursuit of OV elimination is a meaningful objective, its realisation within prehospital healthcare becomes problematic. Indeed, it has been argued that the very circumstance of paramedic OV typically occurring outside of a defined, structured environment ensures its almost inevitable occurrence (Walker, 1998).

Paramedics will constantly encounter patients who are aggressive and potentially violent because the nature of their work means primary exposure to patients experiencing medical, traumatic, psychological, and substance abuse impairments. A classic presentation is the hypoglycemic patient, whose brain is deprived of glucose, manifesting with uncharacteristically irritable or aggressive behaviour. This "clinical" aggression becomes encircled by a duty of care between the paramedic and the patient due to the potentially life-threatening medical emergency of the individual (despite the real possibility of the condition inciting paramedic–patient violence). This example demonstrates the predicament of OV mitigation and the zero tolerance concept, as well as the difficulty of constituting the acceptable limits of patient behaviour inclusive of cognitive dysfunction. Clinical presentations such as these render the concept of zero tolerance to violence and aggression against paramedics unrealistic, and contribute to the frustration and disengagement of paramedics towards their prevailing OV mitigation systems (Knott et al., 2014; Morphet et al., 2018).

The second core theme categorised by Drew et al. (2021) for the first synthesised finding was *police involvement*. This theme pertains to the utilisation of law enforcement as a key component of paramedic OV mitigation interventions. The involvement of police is generally seen to have a positive role in the prevention of paramedic OV (Wang et al., 2019), however analysis of the studies found that inconsistency in interactions between paramedics and the police was alluded to by respondent paramedics as being occasionally problematic. Drew et al. (2021) observed

that the perceived benefit of police involvement in the management of violent individuals and the safety of paramedics does not always translate into effective mitigation practice. Moreover, instead of reducing the risk profile, some police–patient interactions actively contributed to increased patient violence and aggression (Knor et al., 2020). These difficulties most likely emerged from differences between the specialties in their management objectives (i.e., treatment or containment, patient or offender), and the conflict this promoted in susceptible individuals. Hence, while there can be no definite approach to the management of violent patients, an alignment of objectives between allied emergency services in OV mitigation would appear to be beneficial to paramedic OV mitigation strategies (Drew et al., 2021). This consideration was demonstrated by Teller et al. (2006), who reported that police officers trained in mental health crisis work were able to both decrease transportation of such patients to detention facilities and increase their transportation to mental health treatment facilities.

The third core theme, *internal support and commitment* pertains to the support, communication, and responsibility regarding EMS OV mitigation systems from within the organisation. These elements of organisational responsibility comprise some of the most important characteristics of any OV system and are readily recognised by participants in these systems (Gillespie et al., 2013; Peek-Asa et al., 2007). Drew et al. (2021) identified that the commitment demonstrated by EMS organisations needs to incorporate system-wide engagement of OV mitigation, including robust program evaluation, structured reporting procedures, investigation and support mechanisms for victims, and a system-wide preventative approach that encompasses all elements of supervisory, operational, and dispatch practices. Without this holistic response from EMS organisations, negative employee reactions to mitigation systems, such as disconnection and indifference, would appear unlikely to change (Drew et al., 2021).

The second synthesised finding categorised by Drew et al. (2021, p. 4) was "occupation specific OV strategies and training"; this was derived from two categories that focussed on the training and interventions paramedics receive to mitigate OV. The understandings extracted from within these categories demonstrate paramedics' continued perceptions of inappropriate OV training, skills, and interventions. These perceptions relate directly to an environment that is both unique and dynamic, and

which encompasses an ever-increasing scope of medical, social, and psychological patient management (O'Brien et al., 2014; O'Meara, 2009). The prehospital environment necessitates OV mitigation programs and training that are tailored to the specific needs and requirements of the individuals working within them, and to the context in which they work (Drew et al., 2021). The unsuitability of current OV mitigation interventions is not an isolated procedural issue but rather is a symptom of an evolving profession contending with issues of identity, perception, and a deficiency of paramedic-specific peer-reviewed research (Drew et al., 2021; Knott et al., 2014; Runyan et al., 2000).

There is a significant body of work about the structure, objectives, and content of health-related OV mitigation interventions. Yet from the perspective of EMS, there remains a paucity of research examining either system-wide or individual approaches to OV mitigation (Hills et al., 2015). With limited available paramedic-based evidence, the composition of the specific skills and training that form such programs is often based on comparable disciplines, such as nursing or law enforcement. While similarities do exist between health-related disciplines, safety measures developed for OV mitigation in a hospital are unlikely to translate effectively into the EMS setting, where the environment is unstructured and resources frequently limited. Indeed, the ability to provide medical care to a patient while maintaining an element of control and adaption regarding external physical and human elements is a skill unique to paramedic practice (Campeau, 2007).

The literature cautions that adoption of surrogate OV systems is likely to result in flawed OV mitigation practices owing to a lack of system specialisation for the specific needs of the participants and the environment where they work (Hills et al., 2015; Runyan et al., 2000). It is essential that these requirements are constructed around careful analysis of the context in which the violence occurs and participant-specific risk assessment and management (Beech & Leather, 2006; Runyan et al., 2000). The rigorous evaluation of these systems and interventions is a necessity if purposeful, safe, and relevant interventions are to be effective at minimising the incidence of OV (Hills et al., 2015; Knott et al., 2014). However, evaluation of OV mitigation systems by EMS organisations is too often a belated after-thought that is frequently restricted to an immediate measure of trainee satisfaction; it rarely becomes an integral component of ongoing improvement (Baby et al., 2014; Doyle, 2015).

The understated issue of EMS evolution further encumbers the lack of system evaluation and paramedic OV research. The role of EMS work and its position within the health system has changed dramatically over the past 20 years (O'Brien et al., 2014). Traditionally, paramedic services were perceived as an exclusive "emergency service" that managed critically ill and injured patients before transporting them to hospital. While this still occurs, the progression EMS delivery regulated by the introduction of legislative requirements, has seen paramedicine incorporate a greater public health function (Ambulance Service Act 1991, Qld). A large proportion of EMS assistance to the community now involves low-acuity, complex medical cases, with an increasing concentration of mental-health work (Eastwood et al., 2018; Prener & Lincoln, 2015). Correspondingly, paramedics have also progressed from a low-skilled vocational occupation to a highly skilled, tertiary-trained, regulated, professional medical workforce (O'Meara, 2009; Paramedicine Board AHPRA, 2021). At the same time, the requirements on tertiary institutions to provide highly-skilled, work-ready paramedics results in education and training programs that are predisposed to low-frequency, high-risk case presentations such as cardiopulmonary resuscitation, obstetric emergencies, and multi-system trauma (O'Brien et al., 2014). While important, this kind of training is disparate from the vast majority of the work that paramedics will attend in their careers. Patients presenting with mental-health disorders, cognitive impairment (such as dementia), and psychiatric emergencies represent a considerable component of EMS presentations and OV perpetrators, yet paramedic education for these conditions is often wanting (Emond et al., 2019; Parsons et al., 2011; Prener & Lincoln, 2015).

Although the role of EMS and paramedicine has evolved, expectations and social understandings of the emergency paramedic have remained largely unchanged. As well as through their training, paramedics are compelled by public perception and the depiction of their role in the mass entertainment media to be proactive with their engagement (Campeau, 2007; Thomas et al., 2020). The problem with this misrepresentation of the paramedic in connection with OV mitigation is twofold. First, paramedics experience the expectation to perform in a "gallant" manner, which can result in compromises to scene safety resolution in favour of the provision of patient care (Campeau, 2007). Second, media depiction of the action-orientated paramedic can promote expectations of paramedic practice that are inconsistent with the reality

of the work (Devenish, 2014). This inconsistency can present as frustration and tension in paramedics towards patients and their families if they perceive the patient's ailment is undeserving of their time or skill (Taylor et al., 2016). Importantly, such attitude and interaction between the paramedic, the patient, and their associated family and friends is acknowledged as an central factor in the escalation of violent and aggressive behaviour (Knor et al., 2020).

Notwithstanding the implication of these findings towards paramedic OV mitigation practices, it is important to provide some context to the studies utilised by Drew et al. (2021) for the data synthesis. Both Maguire, O'Neill, et al. (2018) and Taylor et al. (2016) focussed on the insights of paramedics personally affected by OV, and thus overwhelmingly project a strong element of frustration and negativity associated with EMS OV mitigation systems. Although the same responses may have been demonstrated by paramedics not directly affected by OV, the perspective of these findings should be taken into consideration when appraising the synthesised results. Furthermore, another shortcoming of these two studies is that they pertained to incidents of OV purely related to episodes of physical violence. This is despite the evidence that suggests verbal violence is one of the most frequent types of paramedic OV and can result in significant levels of psychological harm (Bernaldo-De-Quiros et al., 2015; Bigham et al., 2014).

Many of the issues described by Drew et al. (2021) were also canvassed by Thomas et al. (2020), who investigated barriers and opportunities for OV interventions in an Australian EMS organisation. Their qualitative study interviewed 10 paramedics regarding their insights into OV and describes results that align closely with Drew et al. (2021, p. 4) and the two synthesised findings, "organisational, societal and judicial commitment" and "occupation specific OV strategies and training". However, a main point of difference between these studies was evident in the study by Thomas et al. (2020), which raised the notion of control of the patient's behaviour by the paramedic and the subtle balance of de-escalation and assertion of authority within this process. These authors described the divergence that existed between participant paramedics in identifying the most appropriate means of patient control, where de-escalation practices were often seen as a way of rewarding bad behaviour (Thomas et al., 2020). Although such a position may seem unusual in the context of OV mitigation, it

highlights a clear disconnect between OV mitigation education and training, and the role of the paramedic in this process.

In addition to the thoughts and perceptions of paramedics regarding OV mitigation systems and interventions, a large range of studies examine the components of paramedic OV mitigation practices. These studies have been categorised under these headings: *chemical sedation*, *physical restraint*, *self-defence skills*, and *training methodologies*.

2.3.2 Chemical Sedation

The management of acute behaviour disturbances via chemical sedation plays an extremely important role in the mitigation of paramedic OV. Chemical sedation in the context of paramedic OV refers to the administration of a pharmacological agent, usually by a process of intravenous or intramuscular injection, for the purpose of constraining a patient's behaviour. Chemical sedation can reduce levels of agitation, violence, or behavioural disturbance in affected individuals to help ensure not only the safety of the paramedic but the wellbeing of the patient and others. The utilisation of chemical sedation to control an agitated or violent individual is not a new practice within emergency healthcare (Clinton et al., 1987). With high levels of effectiveness, minimal side effects, and ease of use in these types of patients, chemical sedation has now become standard practice within most EMS systems (Keseg et al., 2015). However, despite the apparent success of chemical sedation as an OV mitigation intervention, there is little consensus on the preferred type of pharmacological agent.

There are three main classifications of pharmacological agents used to achieve chemical sedation in paramedic practice: anaesthetics, anxiolytics, and antipsychotics. It is important that these pharmacological agents are defined and characterised, as they differ appreciably in their action. The most prevalent anaesthetic agent, ketamine, works to produce sedation by antagonising receptors in nerve cells to produce a dissociative state between a patient's thoughts, surroundings, and actions. Ketamine is a popular agent for chemical sedation because it has a rapid onset, short duration of action, and a high safety profile in terms of hemodynamic and respiratory function (Keseg et al., 2015). The second category of drugs used are known as anxiolytics; these act on the central nervous system to generate short-acting symptoms of tranquility. The most common anxiolytic, midazolam, works by enhancing the

inhibitory neurotransmitter GABA to produce symptoms such as sedation, hypnosis, and anesthesia (Reves et al., 1985). Though midazolam is recognised as a reliable and relatively rapid-acting drug for inducing sedation, it is also inclined to induce both respiratory and cardiovascular depression in susceptible individuals (Reves et al., 1985).

Antipsychotics comprise the last category of prehospital sedatory pharmacological agents. Antipsychotic agents typically work by antagonising dopamine receptors, prominent in the brain and spinal cord, to produce a state of patient sedation (Perkins et al., 2015). The most common antipsychotic agents utilised for sedation are droperidol and haloperidol. Droperidol is a relatively new pharmacological agent used in EMS as an antipsychotic agent. The use of droperidol was effectively limited, when, in 2001, the USA Food and Drug Administration issued a warning on the drug regarding the potential for serious cardiac arrhythmias with its use (Meyer, 2003). However, subsequent investigation and research into droperidol has found that, when used appropriately, it presents little or no safety concern (Perkins et al., 2015). The main point of difference between haloperidol and droperidol appears to lie with haloperidol's increased onset time (Kearney, 2012).

The review by Drew et al. (2021) provided a synopsis of eight studies that examined the effectiveness of chemical interventions for cases of severe prehospital violence, agitation, or behavioural disturbance (Cole et al., 2018; Cole et al., 2016; Keseg et al., 2015; Macht et al., 2014; O'Connor et al., 2018; Page et al., 2018; Scheppke et al., 2014; Weiss et al., 2012). The chemical interventions investigated by these studies were: ketamine (Cole et al., 2018; Cole et al., 2016; Keseg et al., 2015; O'Connor et al., 2018; Scheppke et al., 2014), droperidol (Macht et al., 2014; Page et al., 2018), midazolam (O'Connor et al., 2018; Page et al., 2018; Weiss et al., 2012), and haloperidol (Cole et al., 2016; Macht et al., 2014; O'Connor et al., 2018). Although Drew et al. (2021) were unable to provide a meta-analysis due to the significant clinical and methodological heterogeneity of these studies, there were some similar outcomes that did allow for a judicious evaluation. For example, all pharmacological agents were considered effective at inducing sedation in the agitated patient, with variances of between 96% and 91% (Scheppke et al., 2014) for ketamine; 86% for midazolam (Page et al., 2018); between 96% (Page et al., 2018) and 90% (Macht et al., 2014) for droperidol; and between 87% (Macht et al., 2014) and 65%

(Cole et al., 2016) for haloperidol. Regarding the time to effective sedation, ketamine achieved average sedation markedly faster (2–5 minutes; Cole et al., 2016; Scheppke et al., 2014) than either midazolam (30 minutes; Page et al., 2018), droperidol (22 minutes; Page et al., 2018), or haloperidol (17 minutes; Cole et al., 2016). The trade-off for this rapid onset of sedation with ketamine appeared to be the significant rates of complications that were associated with its administration in comparison to the other pharmacological agents. Ketamine had complication rates ranging from 6% to 49% (Cole et al., 2016), in contrast with midazolam, at 0% (Weiss et al., 2012) to 23% (Page et al., 2018), droperidol, at 3% (Macht et al., 2014) to 7% (Page et al., 2018), and haloperidol, at 4% (Macht et al., 2014) to 5% (Cole et al., 2016).

When utilised in the agitated or violent patient, the pharmacodynamics of the drugs used in chemical sedation and their resultant effectiveness and safety presents a picture of complexity for paramedics. In isolation, the utilisation of droperidol for sedation in violent or aggressive patients would seem to provide a safe and effective means of behavioural regulation. However, the limitation for antipsychotics like droperidol remains the onset time to sedation, which can be over four times as long as those recorded when utilising a more rapid anaesthetic agent like ketamine. Equally, the effective and rapid onset action of ketamine must be weighed against the tangible risk of substantial potential complications (Drew et al., 2021). This presents an area of trepidation for EMS organisations and paramedics alike, because the longer that paramedics are required to restrain a violent or agitated patient, the greater the risk of assault and injury (Drew et al., 2021).

There is little doubt about the effectiveness of chemical sedation for moderating the behaviour of agitated or violent individuals. However, this action is further tempered by the fact that facilitating the administration of these interventions requires close personal contact with individuals who are often non-compliant and physically aggressive. Despite this, only Page et al. (2018), Weiss et al. (2012), and O'Connor et al. (2018) referenced any incidence of assault against paramedics during the process of chemical sedation. Although the nature and extent of the assaults are unknown, rates of assaults against paramedics were reported to be as high as 15.8% in all chemical sedation interventions (O'Connor et al., 2018).

This discussion acknowledges that the use of chemical sedation for OV mitigation does not occur in isolation. Rather, it is a multi-step process that involves

the selection and use of appropriate resources, strategies, and techniques for the effective and safe administration of a pharmacological agent.

2.3.3 Physical Restraint

As opposed to the relative detachment of the paramedic–patient interaction brought on by chemical sedation, physical restraint involves the direct application of physical immobilisation or material devices to prevent an individual's natural movement or actions. Different forms and applications are used to physical restrain a patient for the purpose of paramedic safety. From the manacles used by police officers to the soft physical restraints used by paramedics, an act of physical limitation is often required for a patient who is aggravated or violent. Regardless of the form, the use of restraints is accompanied by risks—not only to the patient, but also to the paramedics who apply the restraint.

The increasing prevalence of chemical sedation as the primary method of restraint in the control of agitated or violent patients appears to have affected the peer-reviewed literature on the subject. The only study identified that specifically evaluated the use of physical restraint was that of Cheney et al. (2006), although Weiss et al. (2012) acknowledged the use of physical restraint in their report on chemical sedation (see section 2.3.2). In this regard, while not specifically addressing the effectiveness of physical restraints, Weiss et al. (2012) did describe that chemical sedation was often utilised in their study when the patient was struggling against the restraints, or indeed the restraints were ineffective. Furthermore, these authors observed that the application of restraints resulted in 11% of all reported paramedic injuries (Weiss et al., 2012).

These informal results by Weiss et al. (2012) are supported by Cheney et al. (2006), who reported that 85% of patients who were restrained were perceived as violent, combative, or as exhibiting a demeanour of anger, rage, or homicidal behaviour. Injuries to patients occurred in 5% of cases, either before, during, or after the restraints were in place, and consisted of scrapes, lacerations, and bruises. Assaults on paramedics occurred in 27% of cases and included bites, kicks, punches, and spitting. Physical restraint was noted to be ineffective in 77% of cases, with the primary reasons described as *the patient continued to resist*, and *the patient could not be adequately assessed* (Cheney et al., 2006).

Although the studies by Weiss et al. (2012) and Cheney et al. (2006) reported that physical restraints were limited in their effectiveness, there may be a subset of patients in which their use is more effective. Weiss et al. (2012) noted that while paramedics perceived that chemical sedation was still required in 52% of youth patients and 38% of adult patients who were already physically restrained, this dropped to 0% in the geriatric population. While this is far from definitive, the lack of muscle strength and cardiac reserve in this older population may influence the resistance they offer to physical restraint (Colloca et al., 2010). Furthermore, as identified by both Weiss et al. (2012) and Cheney et al. (2006), the clear benefit of using physical restraint may not be in its isolated utilisation but rather in its use in combination with chemical sedation (Drew et al., 2021).

2.3.4 Self-Defence Skills

The application of self-defence skills by the paramedic towards the violent or aggressive patient represents an extension of the use of physicality in OV mitigation. Self-defence skills involve the use of protective or evasive movements for the purpose of protecting an individual's safety. Self-defence skills usually incorporate actions that either disable the assailant or create an opportunity for the assailed to withdraw or escape. Typical self-defence manoeuvres include groin kicks and palm strikes. The ability of a paramedic to utilise these skills to defend themselves from a violent encounter is recognised as a common strategic component of OV mitigation strategy (Drew et al., 2021; Occupational Health and Safety Administration, 2015).

Despite the perceived importance of self-defence as a tool of paramedic OV mitigation, the evidence towards its utilisation is extremely weak. The only paramedic literature identified that examined the concept OV mitigation self-defence was an evaluation of a training program in a Czech EMS organisation (Bugala et al., 2016). The research study by Bugala et al. (2016) analysed and evaluated the self-defence training of paramedic staff via a mixed methods approach of questionnaires, observations, and interviews. The OV training plan encompassed basic elements of self-defence, including nonverbal, verbal, and physical actions, and was designed to enable paramedics to deal with acts of aggression and violence during their professional duties (Bugala et al., 2016).

Evaluating the veracity of Bugala et al. (2016) is difficult, firstly because the study used a questionable sample size of only 12 participants. In addition, the results are difficult to comprehend and the conclusions generated are confusing, undermining their overall credibility and reliability (Thomas et al., 2004). Moreover, the only information provided regarding the intervention itself is a generalised statement confirming that the chosen methods and procedures used in the self-defence training program "were correct" (Bugala et al., 2016, p. 51). Nevertheless, the study does provide the opportunity to reflect upon self-defence training as an intervention, particularly given its common utilisation within EMS OV mitigation.

While studies investigating the use of self-defence as a tool of paramedic OV mitigation are lacking within the paramedic literature, other studies have examined self-defence skills as part of violence mitigation within police organisations. Two studies, Nieuwenhuys et al. (2009) and Renden et al. (2014), demonstrated that participants' self-defence skills decreased significantly in high-anxiety or high-pressure simulations. Furthermore, a follow-up study by Renden et al. (2015) established that, while increased training was beneficial to officers' self-defence skills, particularly those who were training at least twice a week, their performance still deteriorated in high-anxiety conditions. So marked was this performance deterioration under high-anxiety conditions that participants' self-defence skills became so poor as to be frequently deemed "unsatisfactory" (Renden et al., 2015), with many officers reverting to subconscious avoidance behaviour (Renden et al., 2014).

This kind of subconscious human response to stressful situations involving violence is one of the problems associated with the use of self-defence programs in OV mitigation training. These programs rely on the assumption that participants will act and behave reliably under traumatic conditions. Yet, in reality, participants' behaviour is often erratic under these conditions and may include primitive reactions triggered through the sympathetic nervous system functions of fight, flight, or freeze (Fields, 2015). Unfortunately, since such responses are often instantaneous and instinctive, impelled from within subconscious brain physiology (Fields, 2015), there is no assured way to predict how an individual will react during an OV incident. Furthermore, the resultant physiological responses to stress brought on by such incidents, including increased heart rate and rapid breathing, can create further

impediment to an individual's effective self-defence performance (Drew et al., 2021; Fields, 2015).

Despite the extensive application of self-defence, physical restraint and chemical sedation as a credible component of many paramedic OV mitigation systems, they represent a considerable escalation and divergence from other practicable strategies including communication approaches and de-escalation techniques. The practices of physical and chemical control are consequential and are categorised as coercive behaviour as they facilitate deliberate and forceful patient treatment without prior consent. The absence of patient consent, though often unavoidable in the management of aggressive or violent patients, underlies the controversial aspect of coercive interventions (May, 2017). The application of any coercive strategy infringes upon basic tenets of an individual's health-care rights, including the right to self-determination, and the right to dignity and self-respect (Australian Commisson on Safety and Quality in Health Care, 2023). Notwithstanding the traumatising patient experience of coercive practices including profound health-care distrust, service avoidance and physical health problems (Barbui et al., 2021), the contravening of a patient's healthcare rights presents considerable ethical and legal challenges to both paramedics and EMS agencies to ensure its appropriate use (May, 2017). Legally, the provision of such interventions is typically encompassed within public health legislation such as the Queensland Mental Health Act 2016, which provide strict criteria when there exists no reasonable or practical means to protect a patient or others from physical harm (Queensland Department of Health, 2023). However, the ability to accurately and ethically apply safe and achievable pacification towards individuals demonstrating hostile or violent behaviour can test paramedics within the confines of their existing education and training. It is the complex basis of the antisocial behaviour incorporating physical (e.g. trauma), pathological (e.g. low blood sugar), toxidromes (e.g. alcohol), psychological (e.g. mental health emergencies), and psychosocial (e.g. homelessness) precursors which can easily distract and distort paramedic OV mitigation strategy towards inappropriate coercive control (Bradbury et al., 2017; May, 2017).

2.3.5 Training Methodologies

In contrast to specific interventions, training methodologies aim to influence the way that EMS organisations view, develop, and instruct their OV mitigation strategies. These strategies may concentrate on training frequency, educational curriculum, or theoretical constructs. Although the prehospital evidence regarding training methodologies is again hindered by a lack of available data, the literature is nevertheless still able to provide some important commentary on the subject. The studies that were identified in this category of OV mitigation systems were undertaken by van Erp et al. (2015) and van Erp et al. (2018). These authors approach the idea of mitigation through a focus of paramedic resilience and paramedic resource enhancement, respectively.

The first study by van Erp et al. (2015) examined the resilience of 66 paramedics in a simulation in which confrontation was utilised while participants were engaged in a medical emergency. Patient conflicts are often unanticipated, stressful, and occur in situations that are disadvantageous to the attending paramedic. The results from the paper by van Erp et al. (2015) highlight the critical role that conflict stress has on OV mitigation processes. First, strong feelings of conflict were associated with greater frustration and less enthusiasm from the paramedics. Second, the greater the feelings of conflict, the lower the level of paramedic task performance. Third, the more that paramedics considered the behaviour of the patient disparagingly, the more likely they were to blame the patient for the conflict.

Notwithstanding the immediate threat posed by the encounter, these authors noted that conflict increases a paramedic's cognitive load, induces inflexibility towards decision-making processes, and ultimately reduces their capacity to perform effectively (van Erp et al., 2015). Central to the management of such circumstances is the paramedic's ability to adapt quickly and successfully to opposition within scene operations. This conduct is typically referred to as *resilience*. Resilient individuals were not only less disturbed by unexpected events, they were also more likely to embrace patient conflict as a challenging encounter rather than a malignant event. The results allowed van Erp et al. (2015) to highlight that paramedics' resilience demonstrably reduced their association between the patient conflict and the cognitive capacity to perform the task. These authors thus argue that resilience allows

individuals to balance the immediate negative effects of conflict and enables them to rapidly recover from an OV encounter (van Erp et al., 2015).

The importance of the results of van Erp et al. (2015) for paramedic OV are considerable. Not only does the study examine the role of conflict and the effects of resilience on mitigation processes, it also emphasises the value of paramedic–patient understanding during this process. Understanding of the interaction between the paramedic and the patient appears obvious given the very nature of health work, however, as acknowledged by van Erp et al. (2015), such consideration is often absent during occurrences of conflict. This occurs primarily from a tendency of paramedics to overestimate the motivation and characteristics of the patient that pertain to a confrontation, while underestimating the significance of the patient's circumstances. Understanding is critical to this process, as it not only provides the paramedic with a better comprehension of the patient's actions, it also supports the development of effective strategies for moderating undesirable behaviour (van Erp et al., 2015). It is understanding that sustains the development of positive emotions, which in turn increase levels of resilience within individuals. Moreover, increased resilience leads to improved safeguards from the negative consequences of patient conflict situations. Importantly, as a resource, resilience is malleable and can be developed and improved through training programs (van Erp et al., 2015).

The second study by van Erp et al. (2018) built upon the concept of paramedic resilience and patient conflict through an assessment of training interventions devised by the authors to increase an individual's personal resource skillset for OV mitigation. These interventions targeted four strategic areas of personal competency: *conflict management efficacy, perspective taking, task assistance, and emotional support* (van Erp et al., 2018). Each of these specific skills have been recognised within the wider behavioural science literature (e.g., Miner et al., 2012) to influence, either positively or negatively, an individual's capacity to react and respond to conflict (van Erp et al., 2018). These strategic areas are now discussed in greater detail.

Conflict management efficacy and *perspective taking* are resource skills that can be classified under the broader construct known as "personal resources". Personal resources represent interventions that are important to the maintenance of high levels of motivation and performance in the face of OV events, as they increase an individual's ability to resolve volatile behaviour (van Erp et al., 2018). The first of

these resources, *conflict management efficacy*, relates to an individual's belief that they can effectively and efficiently manage and resolve personal conflict situations. Research has consistently demonstrated that this belief is an important predictor of an individual's attitude and their effective and adaptive behaviour when challenged or threatened. Individuals high in conflict management efficacy are proven to be more motivated and persistent in overcoming difficulties and achieving their objectives (van Erp et al., 2018). The second of the personal resources, that of *perspective taking*, is the process of apperception by the paramedic, where not only is the patient's viewpoint considered but the paramedic has the cognitive capacity to assess those thoughts and motives accurately (van Erp et al., 2018). Perspective taking is acknowledged as an important element of conflict mitigation, as the resultant understanding allows for a larger range of possible behavioural strategies. Furthermore, individuals accomplished in the practice are less likely to act on personal negative emotions, such as anger, and are instead more likely to consider constructive conflict mitigation strategies (van Erp et al., 2018).

Supplementing the category of personal resources is the classification of "job resources", which aim to both support and maintain the primary work process during patient conflict (van Erp et al., 2018). It is here that the personal skills of *task assistance, and emotional support* emerge. The first of these competencies, task assistance, refers to elements such as closed-loop communication, mutual performance monitoring, back-up behaviour, and adaptability, which are utilised between paramedics to help execute tasks effectively (van Erp et al., 2018). These skills in particular represent important features of OV mitigation through the capability of shared responsibility. All activity requires energy, and it is essential that individuals preserve sufficient energy resources, including physical and mental reserves, to complete an activity effectively. When a stressful situation places demand on these reserves, the resulting cognitive overload can negatively affect the ability of the individual to respond to the situation. In terms of managing their job resources, paramedics are particularly vulnerable to demand overload, not only because the nature of their work can predispose them to external stressors such as fatigue and hunger, but because of the collateral monitoring they must do to manage their dynamic work environment effectively. Collateral monitoring is the attention that paramedics must apply not only to their patients but simultaneously to external demands and

threats, such as those from family members or bystanders. It is the combination of the stressors of the paramedic's work environment and their associated collateral monitoring that makes the activity of task assistance so important as a strategic area of a paramedic's resource skillset. When a paramedic's attentional focus becomes constrained, particularly in a stressful situation, they may be better able to undertake all elements of patient care when supported by a work colleague or partner (van Erp et al., 2018).

The second competency of "job resources" is the premise of *emotional support*. In this situation of patient conflict, emotional support is the act of resource provision, such as emotional empathy and other perceptible assistance, to those impacted by the OV event (van Erp et al., 2018). As opposed to conventional OV mitigation practices, emotional support does not relate directly to the immediate act of aggression or violence, but rather to the care and authentication of the paramedic after the fact. Occupational violence can evoke strong emotions in those exposed to its hostility, including anger, disgust, and disbelief. Emotional support not only acknowledges and affirms these reactions, it provides individuals with incident perspective, protects their self-identity, and restores feelings of operational trust and safety. Emotional support in the context of OV is associated with improved physical and mental wellbeing, and assists in the maintenance of positive job demeanor (van Erp et al., 2018). Emotional support is a significant element of paramedic OV mitigation and will be addressed in greater detail throughout this thesis (see sections 5.3.2 and 6.4.2).

A comparison of the data from both the intervention and the control groups' pre-test and post-test results in the study by van Erp et al. (2018) highlighted that both intervention and control groups showed increased conflict management effectiveness after conflict scenarios. The intervention group, however, recorded significant increases in both the categories of *perspective taking* ($p = 0.032$) and *task support* ($p = 0.005$), whereas the control groups did not. Finally, participants in the intervention group reported stable levels of *emotional support* over time, while the control group recorded a significant decrease in these levels ($p < 0.001$). Moreover, these resources were positively associated with participants' affective wellbeing and job dedication (van Erp et al., 2018).

The study by van Erp et al. (2018) is notable in that its OV mitigation strategy is based on the premise of conflict resolution through the enhancement of personal

and job resources for paramedics. While valuable within the context of OV mitigation practices, such strategies may be easily overlooked or underestimated by EMS organisations preoccupied with an external, offender outlook on practice. Occupational violence mitigation strategies such as those by van Erp et al. (2018) are unique in acknowledging the personal influence of paramedic behaviour in patient conflict and the organisational training commitment that is required to assist employees to manage its consequences. Furthermore, such acknowledgement shifts the focus of OV mitigation strategies away from reactive positioning and towards an understanding that emphasises the active role of the paramedic within the process.

2.4 Paramedic Practice Theory

Up to this point, the chapter has appraised the evidence of the paramedic literature concerning OV and its frequency, causation, and impact, as well as that examining OV mitigation systems, strategies, and interventions. Although further evidence exists regarding OV mitigation approaches for healthcare workers (Hills et al., 2015), the majority of these reviews concentrate on OV mitigation within a hospital setting, most notably the emergency department (Kynoch et al., 2009). While this literature does provide valuable insight into violent and aggressive behaviours, it is limited in its practicality and generalisation for paramedic OV due to its contrastive situational focus. As opposed to the dependable nature of a hospital environment, paramedics function in a milieu that is both dynamic and unpredictable as well as being shaped by a vulnerability that is framed by its isolation from critical assistance and support services (Drew et al., 2021; Oliver & Levine, 2015; Petzäll et al., 2011; van Reemst & Fischer, 2016). It is this environmental context that fundamentally differentiates paramedics from other healthcare workers (van Reemst & Fischer, 2016).

In paramedic practice, the concept of environmental context establishes the critical link between the patient, their illness or injury, and their surroundings. Environmental context is distinctive within prehospital care and contributes significantly to both defining and influencing behavioural processes and social interactions (Campeau, 2007). For example, a broken leg within a hospital is a serious injury that requires assessment, pain management, splinting, and potentially surgery. In contrast, a broken leg in the prehospital environment may occur within the context

of a car accident, where treatment requires awareness of traffic and hazards, cooperation with allied emergency services such as the fire department and police, pain management, splinting, extrication, management of bystanders, family or friends, transport, and finally the handover of care.

The ability to manage and influence this environment is essential in OV mitigation because it forms a strategic component of workplace violence control (Bentley et al., 2013). Indeed, the failure to adapt to and control operational environments is recognised as a common reason for OV mitigation intervention failure (Beech & Leather, 2006; Hills et al., 2015; Runyan et al., 2000). Despite some variations to the overall configuration, the literature identifies four key strategic areas of OV prevention: behaviour, technology, administration, and environment (Bentley et al., 2014; Occupational Health and Safety Administration, 2015; SafeWork SA, 2015). *Behaviour* refers to the management of the attitudes, actions, and conduct of employees in and around the workplace; *technology* is the utilisation of technical and scientific equipment and solutions; *administration* signifies the organisational policies and procedures; and *environment* is the practice of harm minimisation through the management of situational and strategic factors (Bentley et al., 2014). Although the majority of these areas appear to be well supported in identified paramedic OV programs, environmental management remains an area of policy weakness (Queensland Ambulance Service, 2016; Victorian Auditor General, 2015).

Within the context of OV, environmental management focusses on the ability of organisations and individuals alike to both modify and utilise physical and human elements within the work milieu to reduce exposure to hostile situations (Bentley et al., 2013). Importantly, the people who exist within the confines of the prehospital care environment—including patients, family, and bystanders—are critical elements of this space. Without the context of the patient's environment, the clinician is deprived of vital perspective and the patient's injury or disease is reduced to a mere theoretical construct. Although the ability to control the work environment within an unstructured, community-based occupation such as paramedicine is challenging, the contribution of environmental management in paramedic OV mitigation systems is often downplayed or deemed implausible (Occupational Health and Safety Administration, 2015; Victorian Auditor General, 2015). Despite Tintinalli's (1993) observations almost three decades ago, the continued absence of environmental

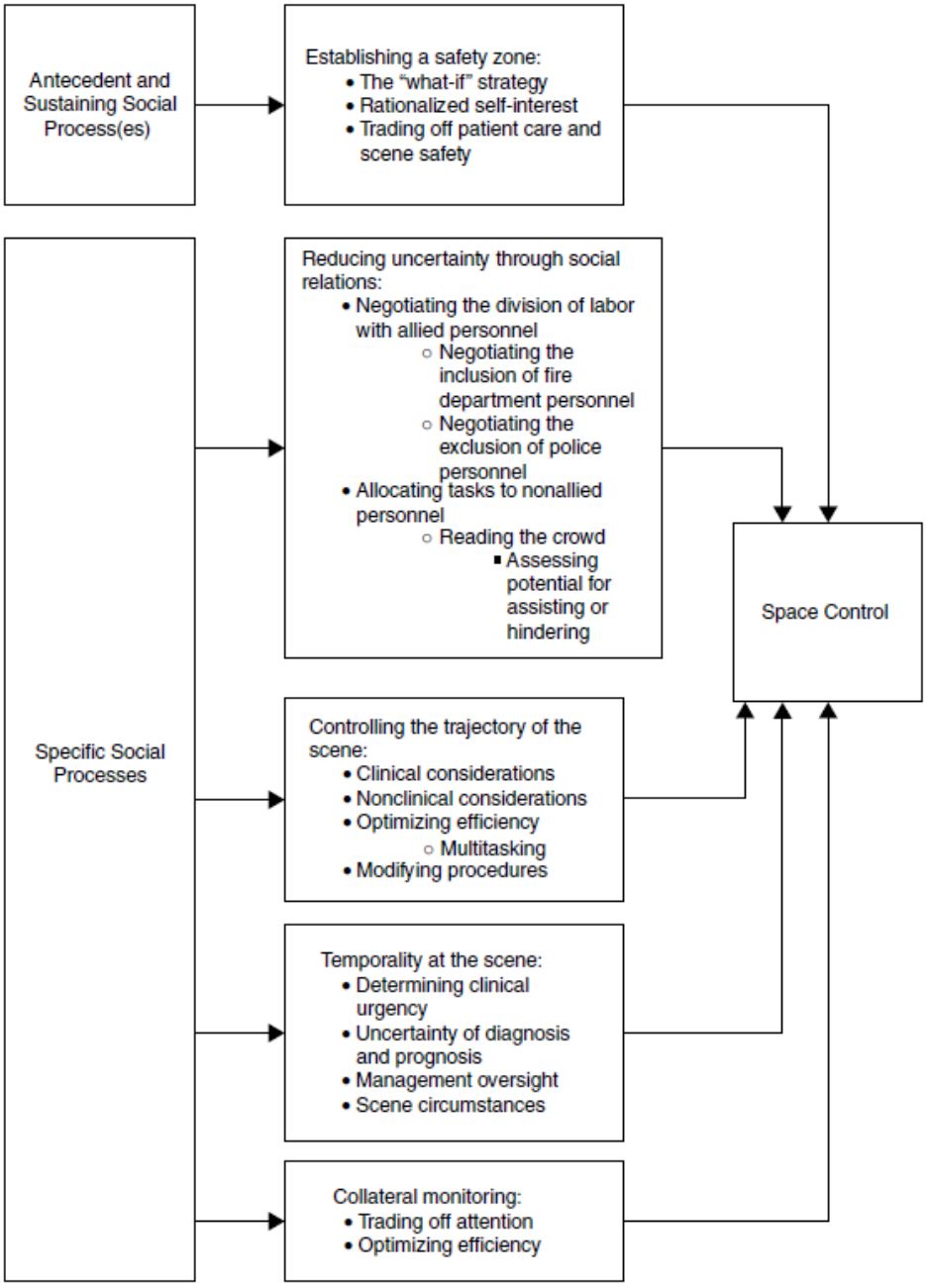
management in the development and use of paramedic OV mitigation systems remains an area of strategic weakness.

In the paramedic workspace, environmental control and manipulation are undeniably difficult. However, arguably, this difficulty often arises from a lack of effective understanding of the milieu rather than its actual unworkability for management (Runyan et al., 2000). This understanding must be greater than just a simple description of the environment. Understanding is achieved through the formalisation of knowledge into concepts and theory (Campeau, 2008b). Within the context of the social sciences, such theory is defined as a set of sophisticated insights systematically connected to form an integrated framework through which phenomenon can be explained (Corbin & Strauss, 2008). In this light, and in the context of the background of the current limitations of environmental management within paramedic OV mitigation systems, the review of the phenomenon of paramedic OV would seem to require an analysis of theories of practice. Theories of practice are just as critical to the mitigation of OV as specific policy and interventions because they provide the structure through which the complexities of reality can be understood (Smith, 2019). Theories of practice explain experiences, interpret observations, characterise relationships, and anticipate the outcomes that ultimately define the significance of an occupation (Smith, 2019).

Within the confines of prehospital practice, only one paramedic-based philosophy was identified that recognises the critical role of the scene, or environmental control, in paramedic workspaces. The Space-Control Theory of Paramedic Scene-Management (SCTPSM; see Figure **2.1**) developed by Campeau (2007) contextualises how paramedics manage and control an emergency scene through the manipulation of the physical and social elements with which the scene interacts.

Figure 2.1

The Space-Control Theory of Paramedic Scene-Management



Note. From "A Space-Control Theory of Paramedic Scene-Management" [Doctoral dissertation], by A. G. Campeau, 2007, p. 56, (https://central.bac-lac.gc.ca/.item?id=NR28107&op=pdf&app=Library&oclc_number=463757393). Copyright 2007 by A. G. Campeau.

2.4.1 The Space-Control Theory of Paramedic Scene-Management

One of the key features of this study is its analysis of paramedic OV through theories of practice in pursuit of better understanding the complexities of the OV phenomenon. To facilitate this objective, it is necessary to describe the unique piece of paramedic behavioural theory that provides this comprehension. Campeau (2007) first introduced the concept of a space-control theory in his 2007 doctoral thesis, in which he examined paramedic scene management. His findings were published 2 years later in the *Journal of Symbolic Interaction* (Campeau, 2008a). Fundamental to the SCTPSM are the concepts of management, adaption, and control of the social and physical elements of an emergency scene by paramedics as part of their ultimate goal of patient care. While this management operates ubiquitously during paramedic scene activity, with degrees of subtleness and influence, it is always present and always affecting patient and scene outcomes (Campeau, 2007). Campeau (2007) asserts that, while physical elements play an important role in the management of an emergency scene, the SCTPSM is essentially a model of paramedic social processes. Although many different definitions of social process exist, it is that developed by noted sociologist Morris Ginsberg which most resonates with this subject area:

> Social processes mean the various modes of interaction between individuals or groups, including cooperation and conflict, social differentiation and integration, development, arrest and decay. (Clement, 2014, p. 59)

In this definition, social processes are a transactional means of interaction that, at its most basic, involves the activities of social contact and communication (Argyle, 2017). It is this assertion regarding social process and the SCTPSM that identifies the potential for its use within paramedic OV. If violence and aggression are essentially transactional social processes, the ability of the SCTPSM to influence them becomes potentially significant.

Campeau (2007) identified the need for a paramedic theory of practice that integrated the specific setting of the paramedic workspace. Paramedics are not unique in healthcare in terms of their ability to care for the ill and injured patient; emergency nurses, for example, share many of the same traits as paramedics in terms of the patient–carer relationship and uncertainty regarding the nature and context of their work. However, as this thesis has discussed (see section 1.2), the inconsistent and

diverse environments in which paramedics operate provide a key point of difference between their profession and other related healthcare practitioners. As opposed to the well defined hospital environment, paramedics must "fit" their practice and skillset to environments such as a street corner, a patient's bathroom, or even the ambulance itself. Prehospital care is achieved in environments that can be dynamic and dangerous, and which may contain elements outside the paramedic's control.

Campeau (2007) identifies this turbulent aspect of paramedic practice, that is, the management of the emergency scene and its distinguishing environment, as the key characteristic that both defines and dictates paramedic practice. From this perspective, Campeau (2007) represents paramedic management of the emergency scene in the SCTPSM, identifying five key theoretical categories that establish the model:

1. Establishing a safety zone,
2. Reducing uncertainty through social interactions,
3. Controlling the trajectory of the scene,
4. Temporality of the scene, and
5. Collateral monitoring.

These categories of the SCTPSM are neither linear nor sequential, nor are they reliant on or essential for individual and/or subsequent processes. Rather, the dynamic nature of emergency scenes can result in any of these categories becoming the foci of scene management at a given time. As such, the categories can be considered interlinked and symbiotic in nature, with the emphasis shifting from one to another depending on the immediate requirements (Campeau, 2007). The following five subsections describe these categories in turn.

Establishing a Safety Zone

Establishing a safety zone describes the ability of paramedics to both recognise and manipulate actual or perceived threats before or upon arrival at a scene (Campeau, 2007). While these threats may vary (e.g., physical threats, such as traffic or dangerous pets), in Campeau's model, the activity of establishing a safety zone also acknowledges the potential safety concerns that patients themselves can represent. Campeau (2007) thus classifies the establishment of a safety zone as being distinctive from the other elements of the SCTPSM. He describes this category as unique because

it both precedes and sustains the other social processes of the theory. Furthermore, while necessary to patient care, the category performs no active role in the support process. Campeau (2007) describes three processes for paramedics to undertake in establishing a safety zone: the *"What if?" strategy*, *rationalised self-interest*, and *trading-off patient care and scene safety*.

The "What if?" strategy is a process of risk recognition and elimination that paramedics employ during an approach to the scene (Campeau, 2007). For example, approaching a car accident, the paramedics may consider the risks of the accident itself such as leaking fuel, traffic around the accident, damaged infrastructure (including powerlines), bystanders, and even the patient. The process is initiated as paramedics consider the information provided by their dispatch service. However, this information often only represents a narrow, and sometimes distorted, view of the situation at the scene. The nature of paramedic work and its operational matrix of incoming patient phone calls, call taking, and job dispatch is endemic with misrepresentation as data is compressed, interpreted, and translated along the dispatch cascade (Campeau, 2007). This process continues through to paramedics' arrival at the scene and the instigation of patient contact. The "What if?" strategy is a critical concept of the SCTPSM, because scene characterisation facilitates scene definition, which in turn determines how a paramedic will act in the scene environment (Campeau, 2007). Sociologist David Snow (2003, p. 144) describes this interconnectedness of behaviour and environment succinctly when he asserts:

> Our behaviour, whether individual or collective, or verbal or non-verbal, cannot be fully understood apart from the social situation in which it occurs and is thus embedded.

Whether in the ambulance or at the scene, the activity of scene definition enables paramedics to attend to the identification of potential risks so that, on arrival at the scene, they can engage with and, as required, alter these, or even eliminate them. In this way, paramedics are able to make the scene manageable and attend to their primary goal of patient care (Campeau, 2007). Where the misinformation cascade has perpetuated a distortion of imagined risks not actually present at the scene, the capability of paramedics to define the environment and then contest the risks is compromised. To what extent or delay this compromises the ability of paramedics to make the scene safe is not elaborated upon by Campeau (2007).

As part of the "What if?" strategy, paramedics must rationalise scene risk assessment with the associated and possibly competing factors of self-interest and patient care. Rationalised self-interest comprises paramedic acknowledgment that assistance to another individual can only be provided after their own personal safety has been ensured (Campeau, 2007). The realisation that they are unable to help the patient if they themselves are injured as a result of a scene hazard is an important part of the process of paramedics establishing a safety zone (Campeau, 2007). However, Campeau (2007) identifies that the position of self-preservation is often at issue when the patient is criticality ill or injured. The training and socialisation of paramedics makes them action orientated; this can result in a potential compromise of scene safety if they believe that the patient's condition requires immediate intervention (Campeau, 2007). Furthermore, Campeau (2007) acknowledges that paramedics will not always look for a definitive resolution of scene safety, but may instead anticipate that the scene is safe enough to undertake patient care. This trading off of scene safety for patient care occurs because, in weighing up the two concepts, paramedics will always consider that patient care is their highest priority (Campeau, 2007).

Reducing Uncertainty Through Social Relations

The next category of the SCTSPM and the first element that Campeau (2007) includes under the broader classification of "specific social process" is *reducing uncertainty through social relations*. The very nature of paramedic work is defined by its uncertainty. From geriatrics to obstetrics, medical conditions to traumatic injuries, prehospital work is both unpredictable and random. Yet despite this uncertainty, upon arrival at the emergency, paramedics are expected to take command of the scene and provide a wide range of patient healthcare services (Campeau, 2007). Campeau (2007) asserts that the only way for paramedics to decrease the uncertainty in their work environment is by taking control of the scene in which the emergency takes place. The primary way this control is achieved is through effective social relationships that support the facilitation of scene-specific tasks. These relationships regulate not only how individuals react at the scene but ultimately the course of patient management. Campeau (2007) determines that the principal social process for these relationships is the function of cooperation.

Campeau (2007) identifies two primary groups as critical to the focus of this cooperation: allied emergency services personnel, such as police and fire department,

and non-allied personnel, such as family members of the patient and even bystanders. Police and fire services play a functional and assumed role in many EMS taskings, including road traffic accidents, domestic incidents, assaults, patient non-compliance, and manual handling. As such, allied emergency services personnel will generally present to the paramedics as a constant, or known measure of assumption (i.e., law enforcement for police or patient rescue for fire services). Nevertheless, Campeau (2007) states that allied emergency services personnel will still define an emergency scene according to their own professional understandings and expectations. Consequently, paramedics need to comprehend the actions of allied emergency service personnel through this delineation (Charon, 2010), and it remains the primary responsibility of the paramedic to propel the integration and cooperation of these actions, as they are ultimately responsible for the culminated task of patient care. Campeau (2007) refers to this understanding and interaction between the allied groups at the scene as the process of socialisation. Problems that may occur with these types of interaction, for example, between paramedics and police, have been addressed (see section 2.3) through the works of Knor et al. (2020) and Pourshikhian et al. (2016).

The control of non-allied personnel at an emergency scene can present a considerable challenge to the attending paramedic. The difficulty arises from the uncertainty of the unknown backgrounds, competencies, and individual interests of those present at the scene. Furthermore, this uncertainty can be intensified by the response of individual(s) to the stress of an emergency scene or the impairment that follows medical or traumatic incidents and/or substance abuse (Campeau, 2007). Critically, these individuals cannot be disregarded. The very fact they are present at the scene ensures that they will enact some type of role in the proceedings, and this must be accommodated in any paramedic decision-making and management practices (Campeau, 2007). Campeau (2007) determines that, for paramedics, effective scene management requires the identification of these specific non-allied individuals and the disposition and nature of their likely interaction. The social interaction paramedics have with this group is different from that which occurs with allied personnel, where identification is readily detectable and management takes the form of mutual negotiation. Management of non-allied personnel requires paramedics to engage in direct leadership and the allocation of tasks. This requires them to perform a twofold

analysis of these parties by *reading the crowd* and *assessing their potential for assistance or hindrance* (Campeau, 2007).

Campeau (2007) identifies that paramedics look to *read the crowd* by means of subtle cues in body language, eye-contact, and performance. It is through these cues that paramedics then assess the individual in terms of their potential to help or harm the management of the scene. Campeau (2007) describes how paramedics look to establish competence through two categories, emotional and physical assessment. In emotional assessment, the paramedic is seeking stability and composure; in physical assessment, they are looking for somatic (bodily) competence. Importantly, physical competence is only assessed after emotional stability has been confirmed, as without emotional consistency there is no foundation for mutual cooperation (Campeau, 2007). Despite the fact that the use of the model includes paramedic identification of parties as potentially harmful, Campeau (2007) is unfortunately limited in his description of management practices for individuals who present in this category.

The premise of Campeau's (2007) category, *reducing uncertainty through social relations*, centres on the role of social processes in scene management. This identification is important not only for paramedic practice in general but also in terms of the influence this activity can have in the management of violent and aggressive behaviour. If the social process between the paramedic and patient is determined by the ability of the paramedic to determine their mutual situation, then any misrepresentation of this relationship by them can potentially result in motives that are not only dramatically different for the participants but are a channel through which hostility can occur (Åkerström, 2002; Peplau, 1997). To help overcome this limitation, Campeau (2007) advocates that paramedics view social situations, including cultural practices, settings, and relationships, from the perspective of others so that they can then interpret and act in ways that are more likely to produce successful social interactions with their patients. Campeau (2007) references the work of renowned sociologists Haas and Shaffir (1978, p. 102) when he equates successful interaction with the fundamental emotion of empathy:

> As individuals interact with one another, each tries to anticipate what the others are likely to do. By making references about others' intentions or by taking another's point of view, human beings are able to act together.

This is a vital point, because, as highlighted by Suserud et al. (2002), the chances of exposure to violence decrease when the paramedic has insight and understanding into the triggers and escalation of a violent response. However, despite the importance of this social discernment for paramedics as they work to reduce situational uncertainty, particularly in conjunction with its implications for paramedic OV mitigation, Campeau (2007) fails to address the role of the patient in this regard. Indeed, although allied and non-allied individuals will influence scene management, they are not present at every scene, and are generally not the primary focus of the attending paramedic. The attention of the paramedic, and the very reason for their attendance, remains the care of the ill or injured patient. The limitation of the SCTPSM regarding the absence of the patient in this process is described in detail in Chapter 6 (see sections 6.1 and 6.2).

Despite the weakness of the SCTPSM regarding the influence of the patient during scene management, this category is extremely important within the context of paramedic OV, as it represents the first tangible acknowledgement within the literature of the uncertainty that encompasses paramedic practice. Furthermore, the acknowledgement of uncertainty is both a vital marker for prehospital scene management principles and a fundamental key to their regulation. Uncertainty is a critical concept of paramedic OV mitigation and thus will be addressed in detail later in this thesis (see section 6.3).

Controlling the Trajectory of the Scene

A patient ready for transport represents an emergency scene where the safety of both the patient and the paramedic crew have been recognised and managed; in this sense, it describes a successful *scene trajectory*. Campeau (2007) describes that a successfully managed scene trajectory is one where the objective of a transport-ready patient is met through the optimised management of the clinical and non-clinical considerations. In this regard, *clinical considerations* relate to the paramedic's impression of the patient's acuity upon contact, the priorities of care, and the provision of medical interventions (Campeau, 2007). These determinations by the paramedic do not only affect the treatment urgency and transport, but, as identified earlier, may themselves contain issues that compromise scene safety practices. In turn, the control of *non-clinical considerations* is a significant aspect of paramedic scene management and refers to the manipulation of the physical environment to successfully manage and

transport the patient. Additionally, as has been discussed, the facilitation of non-clinical considerations is adjudged a necessary support element of all clinical considerations. Campeau (2007) identifies that paramedics who are successful at managing clinical and non-clinical considerations do so through two key areas, *optimising efficiency* and *modifying procedures*.

Optimising efficiency and modifying procedures are both elements of the SCTPSM where paramedics are required to adapt their management skills to maintain the momentum of the scene trajectory (Campeau, 2007). *Optimising efficiency* draws on the social control aspects of the SCTPSM through recognising the potential participation of family, friends, and bystanders in the prehospital scene (Campeau, 2007). Campeau (2007) suggests that it can assist in the efficiency of scene operations if these individuals are given various responsibilities, such as the manual handling (of cars, obstacles, etc.). Although not specifically addressed by Campeau (2007), the utilisation of these individuals in scene management can also indirectly influence OV mitigation practices. Individuals participating in active patient or scene management can be distracted and motivated; disconcerted people are able to replace feelings of helplessness with that of empowerment. Furthermore, the dynamic movement of these parties in the scene may assist in the diffusion of aggressive and violent situations by temporarily excluding some individuals from a volatile environment (Campeau, 2007).

Temporality at the Scene

The next category of paramedic scene management references the constant time pressures paramedics encounter during their management of the patient and the scene (Campeau, 2007). Campeau (2007) classifies this burden as the *temporality of the scene* and observes that is a result of the intercessory nature of paramedic work. Paramedics are typically tasked with the immediate but temporal care of a patient until best-practice care at a hospital or other relevant care facility can be accessed (Campeau, 2007). Campeau (2007) describes the nature of this time pressure as existing through the areas of clinical urgency, uncertainty of diagnosis and prognosis, management oversight, and scene circumstances. *Clinical urgency* highlights the burden of time felt to take the patient to definitive care. *Uncertainty of diagnosis* refers to the limitation of their own knowledge and information that paramedics must contend with while formulating an effective diagnosis and treatment. *Management*

oversight identifies the concerns of paramedics to supervisory probing of scene delays, while issues with *scene circumstances* highlights delays to treatment and transport outside of paramedic control (Campeau, 2007).

The time pressures that Campeau (2007) alludes to in his SCTPSM model are tangible but ultimately reflect a dated model of EMS education and care that was focussed on the paramedic characteristic of patient transport. Although dated models of education are still present in the healthcare industry, EMS care is rapidly changing. The profession of paramedicine has experienced significant development in recent years, not only in education, training, and research, but also in moving towards the larger domain of primary healthcare (Bigham et al., 2013; Paramedicine Board AHPRA, 2022). Such adjustments have been made to better reflect not only the changing characteristics of the population but to also reduce the burden on emergency departments and services. Instead of simply transporting patients to definitive hospital care, the focus of many EMS organisations is now on ensuring that patients get the most appropriate care at the appropriate time. This EMS care may now include treatment at home, alternate transport to a general practitioner, or referral to outpatient services, for example, for conditions such as diabetes (Chan et al., 2019; Swain et al., 2010). With this repositioning of EMS indicators, several of the findings Campeau (2007) notates in this category now appear outdated.

Collateral Monitoring

The final category of paramedic scene management identified by Campeau (2007) is *collateral monitoring*, which refers to the paramedics' capacity for situational awareness within the prehospital emergency scene. As previously highlighted, the prehospital scene is a complex, dynamic, and often unpredictable environment. The ability to continually manage this environment is a function of paramedics organising scene information through two priorities: (a) the patient and (b) the environment surrounding the patient (Campeau, 2007). This organisation takes the form of constant, simultaneous monitoring of the two categories, because both the patient's condition and the environment are dynamic in their ability for change. Campeau (2007) explains that paramedics do not know how individuals will respond at the scene of an emergency, particularly in regard to a friend or relative whose condition is rapidly deteriorating. In this again often unpredictable situation, the ability

to monitor both the patient and the environment, including its human elements, becomes a crucial skill of paramedic scene management.

This ability to scrutinise two simultaneous environs does come at a cost. Campeau (2007) describes that to undertake collateral monitoring, paramedics must compromise the quality of attention afforded to each category. The degree of this attention is typically determined by the moment-to-moment demands of the patient, their environment, and the subsequent healthcare management (Campeau, 2007). If a paramedic is required to undertake critical patient care, less attention is given to the environment, and vice versa. Campeau (2007) identifies that, in these situations, the ability of a paramedic to utilise the assistance of their colleague becomes essential. If a paramedic becomes totally focussed on the patient due to a complex or demanding intervention, the ability of their colleague to become the sentinel for environmental shift is fundamental in the maintenance of scene control (Campeau, 2007). Critically, this category represents the first time that Campeau (2007) introduces the patient as an active component of the SCTPSM model, and scene management as not solely an individual undertaking but rather one of collaboration between paramedics.

The idea of collateral monitoring has significant implications for paramedic OV mitigation. Although van Erp et al. (2018) have previously identified the importance of the paramedic team relationship as part of OV mitigation practices, evidence is limited regarding the vulnerability of the individual paramedic. Somewhat remarkably, Koritsas et al. (2009) acknowledged that two-person crews were at a greater risk of verbal OV in comparison to single operators. These authors surmised that the nature of isolated practice may mean a single paramedic will recognise inherent danger and take greater precautions in social interactions with a patient or their significant others to avoid potential disagreement or conflict. In contrast, a paramedic who is part of the "safety" of a two-person crew may not take the same precautions and may thus potentially increase the risk of OV. Although the paper by Koritsas et al. (2009) reflects an isolated finding, it does highlight that vulnerability alone is not a predominant indicator of potential exposure to patient-initiated hostility. However, by acknowledging the susceptibility of a patient-focussed paramedic, the study underscores that paramedic OV mitigation programs must limit paramedic isolation and uphold the importance of a team approach to scene control.

2.5 Summary

There is a growing body of evidence confirming and describing the global problem of paramedic OV. Notwithstanding issues with definition of the problem itself, inconsistent evidence exists about the size, nature, and the personal and organisational factors that predispose paramedics to violence. Contrasting OV prevalence among paramedics through factors of gender, experience, location, incident time, and workload demonstrates the variation and inconsistency that exists across the literature. While some variation is to be expected across studies from different cultures or with differing sample sizes and methodologies, it is difficult to rationalise the inconsistent findings. A simple assumption could be that, as many of these studies rely on self-reported data, a participant's knowledge may be affected by their ability to recall instances or situations implying threat and violence. However, it may equally be the result of the different and subjective definitions of OV used by the authors—and, indeed, by the paramedics themselves. While some authors identify OV in terms of abuse, assault, or a violent act by a patient, family member, or bystander (Pozzi, 1998), others include acts of sexual assault and violence (Boyle et al., 2007), and some make no clear definition of OV at all (Corbett et al., 1998). Furthermore, there is the possibility that paramedics may make inconsistent determinations of violence based on the intent of the patient, or what they may perceive as a threat or assault (Gormley et al., 2016; Maguire & O'Neill, 2017; Petzall et al., 2011).

The potential consequences of paramedic exposure to OV can be severe and debilitating. Aside from the initial harm sustained from any verbal or physical assault, the associated psychological and somatic impact can result in personal and organisational costs that far exceed the initial damage (Maguire et al., 2014; Mechem et al., 2002). Research has identified that paramedics who have been exposed to OV can present with significant levels of psychological illness, including emotional exhaustion, anxiety, post-traumatic stress, moodiness, isolation, and depersonalisation (Bernaldo-De-Quiros et al., 2015; Bigham et al., 2014; Gómez-Gutiérrez et al., 2016; Michael et al., 2016). At the organisational level, the consequences of OV can translate into difficulties with employee retention, attitude, and behavioural problems, increased sick leave, and premature ill health. These problems are then reflected into lost working hours, staff replacement costs, treatment costs, and compensation claims (Beech & Leather, 2006; Bigham et al., 2014). It is the impact and associated

consequences of paramedic OV that highlight the considerable importance and relevance of mitigation systems.

Although a considerable body of work exists regarding the form, content, and objectives of paramedic OV mitigation strategies, only varying evidence validates their effectiveness (Hills et al., 2015; Maguire, O'Meara, et al., 2018). This deficiency of peer-reviewed paramedic research on OV mitigation strategies is concerning. The deficit validates the position that, despite credible and well supported interventions, OV strategies remain speculative and lack a reliable evidence-base from which to inform practice. Despite this issue, this review was nevertheless able to establish some important discourse surrounding the subject, most notably through the studies of Drew et al. (2021) and van Erp et al. (2018).

In particular, the research by van Erp et al. (2018) was the first identified paramedic OV mitigation study to reflect on the idea that a paramedic's social and cognitive skills might have a function in conflict resolution strategies. Through such resource skills as task support and perspective taking, van Erp et al. (2018) were able to demonstrate benefit not only for the paramedic's management of patient hostility, but also for the preservation of their health, welfare, and occupational motivation. In the context of paramedic OV, the study by van Erp et al. (2018) is significant. In addition to a decisive change to the manner in which OV mitigation is perceived and managed, the study provides unprecedented insight into paramedic behavioural strategies that can decrease the likelihood that an individual will act on their negative emotions (van Erp et al., 2018).

The other study of note is by Drew et al. (2021), which provides a unique insight into the perceptions of paramedics with respect to OV mitigation. While Drew et al. (2021) were able to integrate some important findings associated with "organisational, societal, and judicial commitment" and "occupation specific OV strategies and training", it is the disconnect which these authors identify that is of most relevance and concern. The paramedic OV literature displays a constant divide and detachment between definitions, objectives, law enforcement, organisational strategies, and the very mitigation strategies and interventions designed as safeguards; as such, paramedics appear to be always uncoupled from the very regulation, support, and involvement that affects them the most. Although the lack of paramedic-specific evidence has a role to play in this situation, it does not excuse or explain why

mitigation systems are not differentiated either for the specific needs and requirements of the individuals who use them, or for the environment in which these individuals work. In light of this assessment, it may be therefore unsurprising that in most emergency healthcare settings, the incidences of OV continue to remain high (Phillips, 2016; Ramacciati et al., 2016). While apportioning culpability to these programs is unreasonable, it is appropriate to question whether OV prevention programs have failed to provide for the specific requirements of the staff and the environment in which they work.

The application of a theory of practice into the literature review of paramedic OV denotes a deliberate approach to view the phenomenon of paramedic OV as a challenge to be understood rather than as a simple, mindless act of patient hostility. From this perspective, Campeau's SCTPSM (2007) remains unique within the paramedic literature as the only theory identified that attempts to define the prehospital workspace in terms of its predominantly social interactions. The SCTPSM delineates the scene management practices of paramedics into five core categories of social processes that interact and evolve to allow the goal of prehospital space-control and patient healthcare.

However, despite the importance of the SCTPSM as a paramedic theory of practice, no studies were identified that have utilised this model for supplementary research or made any attempt to either critique or augment its framework. Although this is more a reflection on paramedic academia rather than the theory itself, the lack of further peer-reviewed analysis does not exclude model weakness. Most markedly, the SCTPSM appears to limit itself to the actual scene of patient care up to the point of ambulance transport. However, paramedic scene control does not cease with patient transport, rather, control of the environment moves into a new contextual phase. The internal space of an ambulance is very much as unique a domain as the side of a road, and carries its own set of challenges and potential dangers for OV. Concurrent to the same considerations of patient care, scene safety, and social process that exist at the scene, an increased element of risk emerges in the ambulance that is not present in an open environment—that of the confined space of the ambulance and the isolation that exists there from other support services, such as a work partner or the police.

The other main point of contention for the use of the SCTPSM is the issue of its age and thus its relevance. Since the SCTPSM was first introduced in 2007, the

professional development and evolution of paramedic practice within Australia and other parts of the world has been considerable. Although the fundamental action of the SCTPSM remains relevant in the face of most of these changes, some areas of Campeau's data extrapolation now appear questionable for practice. Notwithstanding these criticisms, Campeau's identification and categorisation of the thought processes and actions that paramedics undertake to achieve patient care provides significant insight into the paramedic work milieu. It is this knowledge that has the capacity to supply a greater degree of understanding and development to OV mitigation systems. Even though the SCTPSM was not developed around the premise of OV, its application in this area is highlighted by its potential to develop paramedic OV mitigation systems so that they are tailored to the specific needs of their users and the environment in which they work.

This review of the elements of paramedic OV and the SCTPSM represents a distinctive collection of knowledge on paramedic practice regarding the phenomenon of hostile patient behaviour. Despite the varying complexities, inconsistencies, approaches, and interventions that constitute paramedic OV, two consequential themes developed within the data. These themes provide not only new insights into paramedic OV but also areas of potential investigation on the development of violent and aggressive patient behaviour. The first of these themes reflects upon the notion that specific acts of patient hostility may be unpredictable for the attending paramedic. Although the appreciation of unpredictability is certainly acknowledged as a fundamental element of the paramedic scene, its association with patient-initiated hostility is less developed. Certainly, the qualitative examinations of patient aggressiveness by both by Knor et al. (2020) and Pourshaikhian et al. (2016) only acknowledge unpredictability as a small component of the causal conditions of paramedic OV. Nevertheless, the implications of a connection between paramedic OV and unpredictability are immense. The idea that acts of violence against paramedics may be *unavoidable* represents a fundamental change to the current premise of prehospital OV mitigation practices.

The second of these themes is the relevance of paramedic social engagement or interaction to OV mitigation. This theme has a more consistent and descriptive presence in the reviewed literature. As a critical element of paramedic OV, the role of socialisation was acknowledged regularly by the literature, in these various forms: (a)

as a motive for hostility escalation (Hosseinikia et al., 2018), (b) as a means of understanding OV (Pourshaikhian et al., 2016; van der Velden et al., 2016), and (c) as a methodology for training mitigation (van Erp et al., 2018). The association of social processes with the elements that define prehospital healthcare and the deterioration of the paramedic–patient relationship represents an important determination in the perception of paramedic OV. Indeed, that the only identified paramedic theory of practice, the SCTPSM, is essentially a model of paramedic social processes perhaps validates an increased focus of engagement towards the role of these processes for the development of hostile patient behaviour.

The lack of data concerning the role of social processes on the instigation of patient-initiated hostility towards paramedics represents a critical gap in the paramedic evidence base. It is this gap in the literature that positions this study and, through the role of social processes, the lens to understand paramedic OV and its mitigation. While the identified deficiencies in the paramedic literature suggest the need for further research in this area, the current appraisal still only allows a limited perspective to emerge regarding paramedic OV mitigation strategies. As the majority of paramedic-based interventions are constructed despite the availability of peer-reviewed evidence, the processes and strategies used by EMS organisations for mitigation practice are critical to this discussion. With this in mind, the next chapter addresses these OV mitigation approaches and highlights their associated practice gaps.

Chapter 3: OV Mitigation Approaches and Practice Gaps

The previous chapter has provided a detailed analysis of the literature surrounding paramedic OV and the context and application of OV mitigation practices within the paramedic milieu. Despite the detailed nature of the review, the evidence of the scholarly literature provides only a limited perspective on how paramedic OV mitigation is applied inside EMS organisations. The review was not able to identify any academic literature that examined strategic organisational approaches to paramedic OV mitigation, whether regarding policy, procedures, or interventions. Thus, to provide some perspective on the application of OV mitigation practices, this chapter extends its exploration of the data into grey literature through such sources as EMS operational reviews and EMS OV mitigation strategies.

The resulting examination of this material provides insight into the OV mitigation approaches used within the three operationally largest Australian paramedic organisations, the NSWAS, AVic, and the QAS. This exploration does not intend to outline in detail the individual processes and systems of these organisations, but rather aims to provide some clarity regarding the overall strategic direction of these services towards paramedic OV. Importantly, this chapter addresses the methodology of these EMS organisations' OV approaches and in doing so, delineates the practice gap, or an opportunity for improvement, that remains undervalued and underutilised as part of the process of paramedic OV mitigation.

From the outset of the grey literature examination, it was evident that two central constructs were substantially responsible for the current OV approaches and systems used by the three Australian EMS organisations. The first of these was a transformation in the way these organisations were approaching both the reporting and management of acts of violence and aggression towards their staff. In this regard, the QAS only began publicly reporting acts of OV against staff as part of their public performance indicators during the first quarter of the 2013–2014 financial year (Queensland Department of Health, 2013). Although OV had been a systematic issue within Australian EMS for years (Boyle et al., 2007), it appears the catalyst for this

change was due in no small part to the increasing media attention on the frequency and savagery of these assaults, and the subsequent organisational, societal, and political pressure that followed (ABC News, 2015; Duff, 2015; Stevenson, 2016). From 2015 to 2016, each of these three EMS organisations underwent an extensive review of both the problem of OV within their organisations and their current OV mitigation systems and processes. These reviews contained individual points of reference that have subsequently become a substantial part of the foundation of the current interventions utilised by these organisations. The reviews are discussed in detail in the upcoming sections of this chapter.

The second of these constructs was that the deficiency of paramedic-focussed literature and evidence has created a void for the development of industry-specific OV mitigation interventions and strategies. This underlying knowledge gap has necessitated EMS organisations taking a subjective approach to OV mitigation, including strategies acquired from alternate industries, utilisation of "expert" opinion, and adoption of anecdotal evidence. Despite this flaw, these organisations' implementation of OV mitigation systems and strategies is relatively consistent.

3.1 NSW Ambulance Service

For the NSWAS, the year 2016 marked a decisive shift in the way that OV was to be governed within the EMS organisation. The formation of the Occupational Violence Prevention Strategic Advisory Group was the cornerstone of this development; it was constituted of a diverse cross-section of NSW ambulance staff and representatives from health and industry bodies (NSW Ambulance, 2016b). The report by the Advisory Group into OV was commissioned to provide a more strategic, organisation-wide, simplified approach to OV mitigation that would strengthen and improve the safety of paramedics. The review was responsible for the identification, stratification, and classification of OV risks, and an evaluation of current and proposed mitigation strategies (NSW Ambulance, 2016b). The report identified 28 recommendations on which the NSWAS could base its updated OV mitigation strategies. The main points of these recommendations were:

- Implementation of tiered, tailored OV in-service training and refresher programs that incorporate monitoring and evaluation processes.

- Development of an OV policy that governs all aspects of violence prevention and the reporting requirements and responsibilities of staff and managers.
- Review of clinical guidelines governing acute, behaviourally-disturbed patients against best practice.
- Development and implementation of improved reporting systems to enable more effective and efficient monitoring and management of OV.
- Improvement of support and management processes for staff that reflect at-risk contributory factors and behaviours, including resilience training, psychological wellbeing, and coping with occupational stress.
- Review and develop policy governing the security of all personnel, vehicles buildings, and workplaces.
- Review and improvement of personal communication devices and duress alarms.
- Review of policy and procedures for the management of mental health patients, including risk assessments, Act[2] compliance, and paramedic awareness.
- Clarification of patient's expectations at the point of call.
- Utilisation of media and communication for the delivery of information and education to the general public, including "Zero Tolerance" campaigns.
- Review of single-operator response policy and procedures.

In collaboration with an external provider, a tailored learning program was developed from these recommendations to provide OV training to staff within the NSWAS (Hunter Headline, 2019). The key strategies incorporated into the program included:

- dynamic risk assessment,
- situational awareness,
- self-defence techniques, and
- communication and de-escalation skills.

[2] The "Mental Health Act" is a piece of legislation that was introduced by the NSW government in 2007. The Act provides paramedics with the power to detain, search, restrain, and transport patients affected by mental illness when required. As part of the Act, paramedics are required to undergo a mental health training to program to ensure correct and appropriate compliance.

3.2 Ambulance Victoria

A review of AVic's response to their occupational health and safety responsibilities was undertaken through the *Victorian Auditor-General's Report into Occupational Violence Against Healthcare Workers.* This 2015 report into OV against healthcare workers, including paramedics, was commissioned to address the vulnerability of these workers to aggressive or violent behaviour, and to identify the effectiveness of the current systems in protecting them (Victorian Auditor-General, 2015). In comparison with the NSWAS or the QAS commentaries, the independent nature of this report meant that it was able to present a greater critical perspective on the operations of Victorian healthcare organisations. As part of its audit process, the report was critical of not only the health organisations themselves, but also of the complementary agency, WorkSafe Victoria, for the lack of data and evidence supporting both their violence mitigation practices and the effectiveness and evaluation of these practices. In particular, while AVic was found to have policies, procedures, and risk mitigation practices in place, the report found that these were not always known, accessed, or applied by staff. The report identified the following recommendations for the mitigation, prevention, and support of OV against Victorian health workers (Victorian Auditor-General, 2015):

- The identification of barriers to the reporting of aggressive and violent behaviour and the development of strategies to address these impediments.
- The instigation of integrated guidance on the reporting and investigation of OV incidents.
- A collaborative approach to the collection, analysis, and utilisation of OV data to improve awareness and risk perception.
- The regular review and evaluation of the effectiveness of OV mitigation interventions.
- The need for OV mitigation training programs to become both comprehensive and tiered in nature in order to deliver relevant and flexible education, with regular refresher courses.
- The enhancement of existing investigation training and procedures, with the inclusion of root cause analysis.
- The development of a core set of OV training tools that can be adapted to the local context, as required.

- The development of appropriate public messaging, to improve community awareness surrounding the impact of violent and aggressive behaviour on paramedics.
- The provision of oversight and assessment of violence risk and intervention effectiveness within AVic by WorkSafe Victoria.

Based on the findings and recommendations of the Auditor-General's report, AVic introduced a range of OV prevention, mitigation, and support measures, including (Ambulance Victoria, 2020):

- Development and implementation of OV training for all operational staff (by industry experts).
- On-line OV scenario-based training for all staff.
- Mental health awareness training.
- Restitution of procedures relating to operational safety, including a heightened focus on safe strategies.
- Updates and changes to clinical practice guidelines, including verbal de-escalation and the agitated patient.
- Partnership with a mental health and wellbeing support organisation to deliver psychiatric training and support to employees.

3.3 Queensland Ambulance Service

Towards the end of 2015, and in collaboration with the paramedic industrial union, the QAS established the Paramedic Safety Taskforce. The objective of the Taskforce was to investigate the issue of OV against paramedics and provide practical strategic recommendations to mitigate against acts of violence and aggression (Queensland Ambulance Service, 2016). The resulting findings of the Taskforce were documented in the 2016 report of the same name (Queensland Ambulance Service, 2016). Without being critical of any existing practices, the report identified recommendations in line with nine initiatives, including education and training, media and communication, post-incident support, and technology options, through which the basis of OV mitigation activities were to be reformed. The main points from these recommendations were (Queensland Ambulance Service, 2016):

- Education and training: Situational Awareness For Everyday Encounters (SAFE) training focussing of the identification, de-escalation, and withdrawal from certain confronting situations. This training included self-defence and escape techniques.
- Media and communication: Consultation and communication with staff members and the public to gain consensus that assaults on paramedics are unacceptable. This included campaign material such as “Zero Tolerance” and “No Excuse For Abuse”.
- Linkages with staff support: The delivery of appropriate managers, supervisors, staff specialists, and employee support services to staff affected by OV-related incidents.
- Post-incident response and support: The delivery of a tailored, psychological critical incident response to OV incidents, including 24-hour free telephone counselling, self-referral counselling, and the peer-support program.
- Clinical practice and patient safety: The review and revision of QAS clinical guidelines, protocols, and procedures that pertain to OV, including chemical sedation, paramedic safety, and the physical restraining of patients.
- Research and development: Review of “best practice”, with this being identified through the OV-related literature, including definitions, organisational affirmation, and reporting tools.
- Technology: A review and implementation of current and future technological options for paramedic safety, including duress alarms within ambulances, portable radios, and operations centre data sharing between Queensland Police Service and QAS.

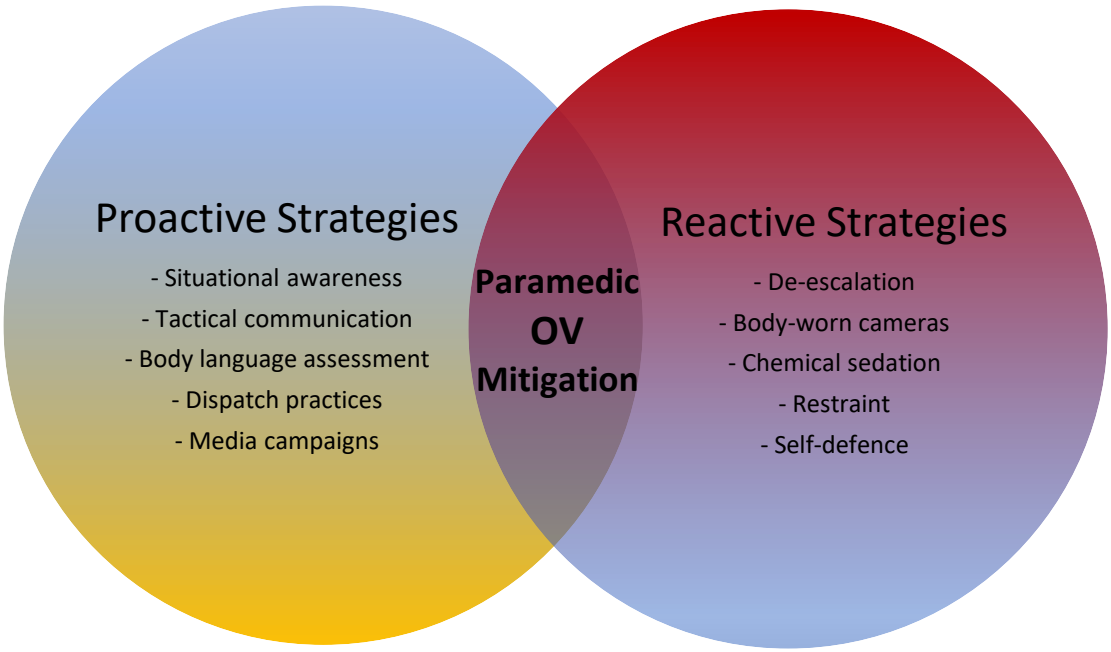
3.4 Australian EMS OV Mitigation Approaches

These reports into Australian EMS organisations and paramedic OV highlight the common problems and the resulting data and evidence gap that underpins their individual mitigation policy and procedural interventions. It is evident that while there are variances in the policies and practices of Australian EMS organisations, the ideology supporting these practices is inherently the same (Nambiar et al., 2020). The approaches of Australian EMS organisations can be broadly classified into the following categories: community awareness and punitive strategies, situational

awareness, mental health initiatives, de-escalation, chemical and physical restraint, personal and vehicular identification and duress devices, and post-incident support.

There is no doubt that the development of OV mitigation strategies and interventions by Australian EMS organisations are well intentioned and based on the perceived best practices of the available literature, "expert" opinion, and employee feedback. However, the continued high prevalence levels of violence and aggression towards paramedics demonstrates that an issue remains with the effectiveness of existing OV mitigation programs. Setting aside the post-incident care and support of the affected individual, the OV mitigation strategies utilised by Australian EMS organisations are inherently focussed on the identification and management of hostile individuals and environments. Furthermore, as demonstrated in Figure **3.1**, the nature of these approaches overwhelmingly falls into two distinct categories, that of proactive and reactive strategies. The distinction of these categories, aside from the basic categorisation of existing practices, allows for a reconceptualisation of the principles of paramedic OV mitigation strategy and identifies the strategic gap which exists within current policy. *Proactive strategies* include dispatch practices, situational and threat awareness, body language assessment, and communication approaches. *Reactive strategies* dominate the OV mitigation training space and include de-escalation skills, body-worn cameras, chemical sedation, physical restraint, and self-defence practices.

Figure 3.1
Australian Paramedic OV Mitigation Approaches



3.5 OV Mitigation Practice Gap

The focus of OV mitigation strategies on interventions that predominantly influence the actions of the paramedic or patient either before or after the initiation of aggressive behaviour, although rational, appear inherently flawed. This statement is based on the premise that a critical aspect of paramedic OV, notably the active phase for mitigation strategies, is typically neglected in EMS violence mitigation systems (Duxbury, 2002). It is important to acknowledge at this point that the active phase of paramedic OV is not referring to the moment of physical or verbal violent behaviour, but rather the "active" relationship that exists between the paramedic and the patient. The delineation of this relationship as an "active strategy" for OV is a natural consequence of identifying the gap between the proactive and reactive mitigation approaches typically employed within EMS systems (outlined in section 3.4). Although this terminology is not commonly utilised within the literature to describe this manner of intervention, the differentiation here assists in the discourse framing of OV mitigation practices.

As opposed to approaches such as communication or de-escalation practices that are proactive or reactive, active strategies place greater emphasis on the relationship that is established between the paramedic and the patient and their subsequent interaction during the care episode (Whittington & Richter, 2006). Active strategies emphasise the elements of empathy, and understanding, through which the direct management and treatment practices enacted by the paramedic towards the ill and injured are applied (Duxbury & Whittington, 2005). Furthermore, the literature suggests that these strategies are not only likely to provide a protective benefit towards violent behaviour but negatively affect the risk of its occurrence (Whittington & Richter, 2006); the benefit of an active approach towards conflict resolution was demonstrated by van Erp et al. (2018) in their examination of the role of a paramedic's personal resource skills in this process.

Although active strategies are generally referenced through individual classifications such as empathy or emotional support, they can also be grouped within the literature under the broader psychological construct known as *mindfulness*. The concept of mindfulness represents the minutiae of awareness, and, as a process, is one that has undergone extensive discourse within the peer-reviewed literature (Shapiro et al., 2006; Weick & Sutcliffe, 2006). While its origins lie in Eastern meditative traditions, mindfulness has more recently been situated within clinical psychology, with its contemporary application being its utilisation in social and behavioural settings. This emerging trend (Weick & Sutcliffe, 2006) has seen the relevance of mindfulness in discerning human behaviour extend into diverse applications such as business, the military, and even medicine (Weick & Sutcliffe, 2007). From this perspective, a mindfulness approach becomes less about internal musings and more about the processes of an individual to knowingly acknowledge their personal experience at a moment or point in time (Shapiro et al., 2006; Weick & Sutcliffe, 2006). As this is an important distinction with implications for the application of mindfulness towards paramedic OV, the following discussion explains the concept of mindfulness in greater detail.

In their pioneering discussion on the subject of mindfulness, Shapiro et al. (2006) delineate that the concept is based around the three distinct axioms of intention, attention, and attitude. It is these that are the active constituents in mindfulness-based interventions, including support, reflection, and cognitive behavioural interventions.

The first of these axioms, *intention*, coordinates the personal objective of the process, and grounds the individual in the immediacy of the moment. Critically, intentions are dynamic, enabling the individual to evolve their goal with further awareness, practice, and insight (Shapiro et al., 2006). The second axiom, that of *attention*, involves the individual's ability to observe the action of their internal and external experiences. These attentional abilities consist of the capacity to concentrate for an extended period on a single object, the ability to purposefully shift the point of interest between objects, and the proficiency to inhibit secondary processing of thoughts as well as emotions (Shapiro et al., 2006). The last axiom, *attitude*, describes the importance of the manner that the individual brings to the process. Individual attitudes can present as cold and critical or they can include a compassionate quality (Shapiro et al., 2006). Mindfulness advances the idea that, with purposeful training, a paramedic can acknowledge their own internal and external biases, and extend, without judgement, acceptance, patience, and compassion to patients, even when their beliefs are contradictory. Importantly, mindfulness practices cultivate an environment where amiable experiences are not constantly sought, nor are aversive experiences sundered (Shapiro et al., 2006).

Shapiro et al. (2006) surmise that the axioms of mindfulness (intention, attention, and attitude) occur simultaneously as part of a single, interconnected conscious process they term *reperceiving*. Through the concurrent application of these axioms, reperceiving enables the paramedic to observe their own biases about their experiences in life, thereby allowing them to observe their situation in the minutiae of the moment and respond appropriately to any hazard. It is this process that provides the greatest potential for OV mitigation, because it promotes response and engagement from the paramedic that is absent of the reactionary opinions, emotions, and behaviour often primed by routine, customs, and experience (Shapiro et al., 2006). Conversely, it is these same routines, customs, and experiences that are so prominent in existing paramedic OV mitigation understanding, education, training. The specific application of mindfulness and its particular role in paramedic OV mitigation will be discussed in greater detail in Chapter 6 (see section 6.4).

The idea that active mitigation strategies, including mindfulness, should be utilised as part of an increased paramedic focus towards OV mitigation is not an arbitrary concept. Such a position is supported by three prominent characteristics of paramedic OV identified through the grey literature analysis, specifically, the initial

safety of the scene, the timing of violent or aggressive incidents, and the associated patient risk factors. First, during training, paramedics are educated and conditioned to identify the signs and features of potential situational hazards. Furthermore, paramedics making a personal decision to not enter a scene or to retreat from a scene due to safety concerns are fully supported at senior levels of paramedic management (Walker, 2017). On this basis, it is reasonable to assume that paramedics will not generally intentionally position themselves in harm's way. Second, the evidence supports that acts of violence and aggression are unlikely to occur upon immediate patient contact with the paramedic. Although the exact time of violence or aggression against a paramedic after their arrival on scene has not been established, the NSWAS identifies that 19% of OV incidents occur in the ambulance and 31% in the emergency department (NSW Ambulance, 2016b). This is supported by QAS data, which similarly acknowledges that 20% of incidents occur in the ambulance and 13% in the hospital emergency department (Queensland Ambulance Service, 2016). This data suggests that there is often a substantial period of time between initial paramedic–patient interaction and the occurrence of OV. Third, and finally, considerable credence is applied to the patient risk factors of alcohol intoxication, substance use, and mental health and their association with paramedic OV. The evidence continues to identify the increased risk of these patient groups as perpetrators of violent and aggressive acts. While this fact is undeniable, these patients constitute a sizable component of paramedic operational workload. In consideration of this demand within the context of EMS care, it is accurate to state that most mental health patients are not violent, nor are the majority of intoxicated or substance users aggressive (Duxbury, 2002; Whittington & Richter, 2006).

When the three characteristics of the initial safety of the scene, the timing of violent or aggressive incidents, and the associated patient risk factors are appraised together they articulate a very different perspective of OV that is conventionally typecast. That is, the scene is typically not dangerous, the escalation of violence is a reactive measure during ongoing paramedic-patient interaction, and intoxicated and mental health patients are not inherently violent. Consequently, if it is accepted that the exacerbation of hostility is inherently linked to social processes than the key to its management lies in the notion of interaction or active strategies.

The current utilisation of proactive and reactive mitigation strategies towards paramedic OV is unsurprising given the lack of available data and the narrow perspective of the evidence base. Indeed, such perceptions are fuelled by associated statutory and regulatory bodies, which portray the phenomenon of paramedic OV as an inevitable process of aggression and violence toward the attending paramedic. This is evident in formal descriptions of the occupational milieu in which OV occurs and their judgement of paramedic OV as both reasonless and separate from the complexities of prehospital patient care. Descriptions such as "Work-related violence hazards generally arise as a result of: the work environment, the work tasks and how they are carried out, the way work is designed and managed" (SafeWork NSW, 2017, p. 6) and

> The Council of Ambulance Authorities[3] has adopted a zero-tolerance position on physical and verbal attacks on all health care workers, including paramedics. Illness, illicit drug abuse, drunkenness, and extreme emotional trauma cannot, and must not excuse unprovoked attacks on people doing their job. (Council of Ambulance Authorities, 2019, p. 1)

leave little room for ambiguity as to where the focus for paramedic OV lies. Despite these imbalanced perspectives, there is growing recognition of the role of the paramedic–patient relationship within the prehospital OV context (Knor et al., 2020). Certainly, the discussion of Campeau's (2007) SCTPSM in the previous chapter has acknowledged this relationship as critical to paramedic scene management. As a paramedic theory of practice, the SCTPSM emphasises the importance of the paramedics' social skills; yet, in the management of the aggressive or violent patient, such skills are often eschewed in favour of reactive and depreciating practices. It is not the position of this study to state that existing OV mitigation interventions have no place in the management of paramedic OV; however, as has been demonstrated by Drew et al. (2021), the effectiveness of such practices is often questionable. Rather, as the following chapters will demonstrate, the influence of the paramedic–patient interaction on OV mitigation is substantial and thus deserves a greater position in OV mitigation policy and practice.

[3] The Council of Ambulance Authorities is the body that represents the 11 statutory ambulance services of Australia, New Zealand, and Papua New Guinea; it includes the QAS, NSWAS, and AVic.

3.6 Summary

Analysis of the strategic approach of Australian EMS organisations to the problems of patient-initiated hostility demonstrates that these all use an inherently similar methodology the education, training, and support of their paramedics. From an initial ad-hoc approach to paramedic OV, the systematic development of EMS mitigation strategies emerged from an outbreak of media attention and a subsequent process of internal and external review and analysis. Deriving out of this practice, the resulting philosophies of the QAS, the NSWAS, and AVic in response to incidents of patient-initiated hostility are closely aligned—and not only with each other, but also with other existing OV mitigation practices in both healthcare and other industries. However, the philosophy is problematic on two fronts. First, as described through the literature review, existing strategies of OV have been demonstrated to be ineffective in the mitigation of patient-initiated hostility. Second, existing OV mitigation strategies fall predominately into two categories, that is, proactive and reactive approaches, both of which disregard the "active" phase of social engagement. Although it is easy to place the fault for the limitations of these existing OV mitigation practices on the EMS organisations that use them, their guiding philosophy ultimately reflects the existing knowledge that dominates the OV space and the failure of paramedic-specific evidence to fill it with a contextual viewpoint.

The analysis of the data suggests that, outside of the existing strategies for paramedic OV mitigation, a prominent yet highly underutilised approach exists for managing potential acts of hostile behaviour. This "active" approach to OV mitigation locates itself at the centre of violent behaviour and highlights the distinctive relationship that exists between the paramedic and the patient. This interaction, however, is not just a process of communication but is rather a pursuit, a framing that emphasises elements of empathy and understanding as its core principles. While such acts of responsiveness can be acknowledged through different characterisations, the concept of mindfulness provides a unique insight into this problem through its potential influence on human and social behaviour.

This chapter's identification of the limitations that exist within current paramedic OV mitigation practices coalesces succinctly with the findings of the systematic review in Chapter 2. Taken together, these provide a strategic approach for

the further exploration of this phenomenon. The following chapter addresses the application of the proposed approach by giving a detailed description of the study's methodology and how it will be utilised to address the specific research questions.

Chapter 4: Methodology

This chapter presents the research design and methods utilised by this study into paramedic OV. It comprises the justification for the chosen approach and its frameworks, and addresses the recruitment of study participants, including the rationale for their selection within their associated EMS organisation. The chapter describes the data collection and analysis in detail in conjunction with the paramedic theory of practice, the SCPTSM, thus providing the theoretical lens for exploration. Finally, the ethical and research clearance processes are defined and presented.

4.1 Research Design

This study does not intend to generate a theory of paramedic OV, but rather seeks to gain an understanding of the phenomenon that is constructed from the perceptions and experiences of operational on-road paramedics. Based on this objective, a generic qualitative approach was identified and utilised as the methodological design to guide the data collection and subsequent analysis. A generic qualitative research approach is focussed on the comprehension of an experience and is typically not guided by an established set of philosophical principles as in other known qualitative methodologies (Caelli et al., 2003; Merriam & Merriam, 1998). A generic qualitative approach was selected over other qualitative methods, most notably phenomenology, due to the intentionally outward focus taken by the study. As opposed to phenomenology's inward examination of cognitive processing, the outward focus of this study is centred around the actual real-world experiences, opinions, and historical reflections of the participants (Percy et al., 2015). Furthermore, a generic qualitative approach harmonises well with the framework of the SCTPSM, due in part to its foundation in common concepts, models, and theories of sociology and psychology (Caelli et al., 2003). In order to ensure the credibility of generic qualitative research, Caelli et al. (2003) identified that researchers must acknowledge and address four key areas of theoretical and philosophical understandings. These key areas, *analytic presuppositions and theoretical framework*, *methodology*, *methods congruence*, and *rigor*, will now be discussed in turn.

4.1.1 Analytic Presuppositions and Theoretical Framework

This study, including its collection, analysis, and interpretation of data, was guided by a set of philosophical assumptions that ensured both the credibility of the work and theoretical congruence (Caelli et al., 2003). These assumptions, or research paradigms, represent a set of basic beliefs that define both the nature of the world and the individual's place and interactions within it (Guba & Lincoln, 1994). Research paradigms consist of three fundamental areas—ontology, epistemology, and methodology—and these outline the intent, motivation, and expectations of the research (Guba & Lincoln, 1994; Mackenzie & Knipe, 2006).

The intent of this study was to examine paramedic OV and achieve a better understanding of this phenomenon within the prehospital environment through the perceptions, experiences, and behaviours of operational on-road paramedics. This objective finds alignment within the research paradigm of constructivism (Kahlke, 2014). The notion of a constructivist paradigm is based around the premise that individuals understand and respond to the objective world through the influence and existence of a wide variety of experiences (Gephart, 2004). The nature of reality, or ontology, within constructivism asserts that no single truth or reality exists. Rather, realities are created locally and specifically, are socially and experientially based, and are dependent for their form and content on the individual or group forming the construction (Guba & Lincoln, 1994). Constructivism identifies that knowledge of this reality, that is, its epistemology[4], needs to be created and interpreted throughout the course of the investigation (Guba & Lincoln, 1994).

The constructivist approach attempts to uncover, describe, and interpret how these experiences become meaningful in situations where multiple experiences are both present and possible (Annells, 1996; Gephart, 2004; Kahlke, 2014). Furthermore, the constructivist paradigm recognises the impact and importance of the researcher's own background and experiences throughout the research process (Creswell, 2014; Mackenzie & Knipe, 2006). This ability of constructivism to acknowledge a researcher's reflexivity is an important point within the confines of this research. Reflexivity in qualitative research is a critical process of self-reflection that acknowledges and documents the researcher's perspectives, interests, and theoretical

[4] Epistemology: A theory of knowledge that examines its nature, its presuppositions, and its validity.

positioning. Ultimately, it is about a process of transparency that enables readers of the research to identify any potential for bias or conflicts of interest (Engward & Davis, 2015). As acknowledged in detail in Chapter 1 (see section 1.1), as the primary researcher of this study, I am a Critical Care Paramedic who has worked within the industry for more than 20 years. I have seen and experienced first-hand the characteristics and intricacies of OV, and this knowledge helped to guide the formation of the research questions and influenced my interpretation and analysis of the data.

One of the key objectives of this study was to examine the role of a paramedic theory of practice in providing a deeper understanding of paramedic OV mitigation. Having identified the SCTPSM in this manner in Chapter 3, it is now able to become more than a just a theory of paramedic scene management; rather, it is expounded so that it becomes a lens through which paramedics' experiences and perceptions can be examined. The SCTPSM theory utilises the sociological perspective of symbolic interactionism to characterise the belief that behaviour is an individual's distinctive way of reacting to their interpretation of a situation (Carter & Fuller, 2016). Furthermore, this interpretation is defined by the reciprocal relationship that links the individual to their environment. The complex and intricate nature of human interaction—and, indeed, OV itself—lends itself to the philosophical perspective of symbolic interactionism through the tenet that the individual and the environment in which that individual exists are inseparable (Benzies & Allen, 2001).

Emerging from the constructivist paradigm, the complementary theoretical perspective of symbolic interactionism provides the framework for the analysis and understanding of this research. Symbolic interactionism is a micro-level theoretical framework that was developed to assist in the systematic study of human social behaviour (Benzies & Allen, 2001; Carter & Fuller, 2016). There are three basic assumptions that orientate and underpin the premise of symbolic interactionism: (a) individuals' actions are based on the meanings that objects have for them, (b) the meaning of objects emerges out of the social interactions among individuals, and (c) meanings are controlled and modified through an interpretative process that is constantly evolving (Blumer, 1969). Succinctly summarised, symbolic interactionism maintains that individuals interpret social interactions, including people, places, and objects, and that it is this interpretation which leads to behaviour in specific situations

(Annells, 1996; Benzies & Allen, 2001). This viewpoint has important connotations for paramedic OV because if behaviour and situational interpretation are linked, then the ability of an individual to manipulate social interactions and situations that arise in their relations with others becomes the key to behavioural adaptation.

4.1.2 Methodology

This study takes a general inductive approach to data analysis. As opposed to a deductive approach, which draws conclusions from established facts, an inductive approach allows the research findings to emerge from any prominent or significant categories inherent in the raw data. A general inductive approach was chosen over other methods of qualitative data analysis because its forte lies in data analysis that is guided by a specific set of evaluation objectives (Thomas, 2006). Such an approach allows data analysis to occur without the restraints imposed by structured methodologies such as phenomenology (Thomas, 2006). Instead, an inductive approach is a systematic procedure for analysing data that is commonly used in several types of qualitative data analyses, including a generic qualitative approach (Thomas, 2006). Some of the key analytic principles that guide the exploration and presentation of findings in a general inductive approach are:

1. Data analysis is influenced by the evaluation objectives, which provide both focus and the subjects to be investigated. Analysis is achieved through multiple readings and interpretations of the raw data.
2. The primary mode of analysis is the development of codes from the raw data, which are collated into categories that are most relevant to the research objectives.
3. The findings result from multiple interpretations derived from the raw data by the researcher who codes the data. These findings are influenced by the experiences and assumptions of the researcher undertaking the data analysis.
4. Findings are presented as a description of the most important themes.

The development of codes from the raw data is in essence the assignment of a word or short phrase to a piece of language-based information that accurately communicates its attributes (Saldaña, 2021). The coding of the raw data for this study was undertaken by a process known as In Vivo, or verbatim coding. In Vivo Coding is a frequently applied method of coding and refers to a convention based on the actual

language used by the participant (Saldana, 2014). In Vivo Coding enables the researcher to preserve the participants' explanation of their actions and views, and, through the provision of imagery, symbols, and metaphors, allows for deep category and theme development (Saldaña, 2021). In Vivo Coding was chosen as the primary method of coding for this study because, as described by Strauss (1987, p. 33), it portrays the "behaviours or processes which will explain to the analyst how the basic problem of the actors is resolved or processed". As this study is inherently concerned with the behaviours of paramedics and patients during incidents of violence and aggression, In Vivo Coding was deemed suitable for this research.

The data analysis and coding for this thesis utilised a practice of first and second cycle coding techniques to guide the development of appropriate categories and themes. First cycle coding is the initial coding of the data and is mostly simplistic and direct in nature. The In Vivo Coding used in this process is described as an elemental method of coding in which basic but direct filters for reviewing the data essentially build the foundation for future coding cycles (Saldaña, 2021). The first cycle coding procedure of this thesis developed an initial pass of almost 500 individual codes.

The second cycle coding procedure employed a focussed coding methodology to identify the most significant initial codes from the first cycle (Saldaña, 2021). These salient codes were then aligned to specific categories, from which parent codes, child codes, subcategories and sub-subcategories were created. The addition of memo writing also further refined and guided this data analysis process. The second cycle coding identified two predominant categories, namely *the paramedic* and *the patient*, which organised the coding identified in the data and subsequently aligned the data to the literature. The categories of "paramedic" and "patient" form the basis for this thesis and integrate closely as parts of the social process of scene management practices outlined in the SCTPSM. These two categories and their subsequent codes will be discussed in greater detail in Chapter 5.

Due to the sensitive and often traumatic nature of the participants' experiences with OV, it was decided that asking the participants to (effectively) relive their experiences during their review of their interview transcripts was injudicious. In consideration of this, my supervisory team was instead utilised as an alternative for coding validation by means of de-identified transcripts. The supervisory team were also active in the review of category headings generated through the coding process.

Though my supervisors commonly endorsed the codes and subsequent category headings generated from my analysis process, suggestions were provided regarding the coding hierarchy and condensing of categories into similar groupings. Any disagreements that arose between the myself and my supervisors were resolved through a discussion process and there was no requirement for additional mediation.

4.2 Recruitment of Participants

This study sought the involvement of participants employed by Australian EMS organisations that provide functioning OV mitigation systems and strategies for their paramedics. It was anticipated that these paramedic services would include the QAS, the NSWAS and AVic. These ambulance services were identified because they have large populations of operational paramedics, current OV mitigation programs, and well documented issues pertaining to OV (NSW Ambulance, 2016a; Queensland Ambulance Service, 2016; Victorian Auditor General, 2015). However, although the QAS and AVic were both receptive to their paramedics participating in the research, the NSWAS declined to give access to their workforce without explicit reasoning. Considering this development, increased participant numbers were sourced from the QAS and AVic to meet the study's requirements.

To help ensure fairness and prevention of undue influence or coercion, I involved both the QAS and AVic, and participants were then recruited through their own EMS organisations' research or clinical governance department. In this regard, a data suite containing a flyer (Appendix C), the study's research information sheet (Appendix D), and the study's consent form (Appendix E) was forwarded to the two EMS organisation departments. Following their approval of these materials, organisation personnel sent an email to all appropriate operational paramedics inviting them to participate in the study. Participants who wanted to participate then contacted me directly by email or telephone.

Twenty-five paramedics from within the QAS and AVic were recruited for participation through purposeful sampling, with a combination of male, female, novice, experienced, urban, and rural paramedics taking part in the study. The number and characteristics of the participants recruited for this study is outlined in Table **4.1**. Although debate remains surrounding the most desirable number of participants required for qualitative research and in-depth interviews, 25 participants is principally

acknowledged as a sample size sufficient to allow a thorough examination of a study's research characteristics (Dworkin, 2012).

To be eligible to participate in the study, participants needed to have been involved in a physical or verbal OV event within the context of their paramedic duties and to have completed their EMS organisation's recognised OV mitigation and support program. Exclusion criteria extended to any paramedic who had not experienced an OV incident and/or had not completed their organisation's OV mitigation program. To preserve the confidentiality of the paramedics involved in the interview process, all participants were assigned a pseudonym through the generation of a unique professional code. These codes were utilised for all elements of data collection and analysis. Furthermore, to ensure participants' identities were protected, all transcripts were modified to obscure any identifiable information such as geographical locations, organisational names, and ambulance stations.

All paramedics who participated in the semi-structured interview were provided with a detailed participant information and consent form, including information about any possible risks associated with the study. As part of this material, and in preparation for any possible needs for support after the interview process, all participants were informed of and referred to their relevant ambulance organisational care and support services, which include peer support, chaplaincy programs, and counselling services. Total participant numbers included 16 males and nine females, three Critical Care Paramedics and 22 Advanced Care Paramedics. Eight of the participants where from AVic, and 17 were from the QAS. Sixteen of the paramedics were recorded as working in an urban environment, classified as the city and surrounding areas, while nine were recorded as rural. The mean age of the participants was 43.5 years (range 25 to 62 years), with a mean work experience of 15.7 years (range 2 to 40 years). The characteristics of the participants involved in this study are outlined in Table **4.1**.

Table 4.1

Participant Characteristics

Gender	Age	Work experience (years)	Job classification	Work environment	Ambulance service
Male	49	15	Advanced Care	Rural	AVic
Male	37	13	Advanced Care	Urban	QAS

Gender	Age	Work experience (years)	Job classification	Work environment	Ambulance service
Female	28	7	Advanced Care	Urban	QAS
Female	35	5	Advanced Care	Rural	AVic
Male	41	15	Advanced Care	Urban	AVic
Male	32	11	Critical Care	Rural	QAS
Male	55	30	Critical Care	Urban	QAS
Female	37	12	Advanced Care	Urban	AVic
Female	31	11	Advanced Care	Urban	AVic
Female	32	7	Critical Care	Rural	QAS
Male	46	19	Advanced Care	Urban	QAS
Male	47	19	Advanced Care	Urban	QAS
Male	52	17	Advanced Care	Urban	QAS
Male	53	35	Critical Care	Rural	QAS
Male	56	15	Advanced Care	Urban	QAS
Male	62	40	Advanced Care	Urban	QAS
Female	25	2	Advanced Care	Rural	AVic
Female	48	7	Advanced Care	Urban	QAS
Male	52	27	Advanced Care	Rural	QAS
Male	55	10	Advanced Care	Rural	AVic
Male	35	10	Advanced Care	Urban	QAS
Male	47	10	Advanced Care	Urban	QAS
Male	54	24	Advanced Care	Rural	AVic
Female	38	14	Advanced Care	Urban	QAS
Female	41	17	Advanced Care	Urban	QAS

4.3 Data Collection

Data collection for this study was undertaken through an in-depth, semi-structured interview process. This process allowed for a detailed investigation of the research objectives while facilitating the interviewee the freedom to explore areas beyond the standard interview composition. In-depth interviews are congruent with

the theoretical positioning of generic qualitative research, as they are inductive and emergent in process and focus on the *how* and *why* of a particular issue (Dworkin, 2012). An interview guide (Appendix F) was developed with influence from the SCTPSM and interviews focussed on the participant's perceptions of their organisation's OV mitigation program as well as their personal OV incident.

Data collection commenced on the 29th of April 2019 and was completed on the 3rd of July 2019. The interviews were conducted at appropriate and mutually agreeable locations that included a participant's home, a coffee shop, or an ambulance station. All interviews were conducted by me, and all were held in-person. Following each interview, I created a reflective memo to document my professional reaction, personal emotions, and areas for further exploration. Any developing themes from the interview process were also commented on and documented. The interviews were digitally recorded with the consent of the interviewee, and a professional transcription service was utilised to convert the recording into a Microsoft Word document. All transcripts were entered into the research data management software NVivo 12 for further analysis.

4.4 Rigor

Rigor, or the concept of reliability and validity, is essential for ensuring that research is not only effective but is meaningful. Yet, within qualitative studies, the notion of rigor remains contentious and challenging (Caelli et al., 2003; Morse et al., 2002). The seminal work of Guba and Lincoln (1982) attempted to address some of these qualitative challenges through their "trustworthiness" model, which contained four key categories of credibility, transferability, dependability, and confirmability. These categories contain specific methodological strategies, such as audit trails and member checking, through which post-hoc evaluation can determine the extent of a researcher's rigor.

However, Morse et al. (2002) argue that the concepts of rigor identified by Guba and Lincoln (1982) have little to do with the actual attainment of research reliability and validity. Morse et al. (2002) contend that while such strategies are useful for evaluating rigor, they neither ensure the research is thorough nor that it is relevant and useful. Instead, Morse et al. (2002) reason that strategies for ensuring rigor must be built into the research process through five key approaches incorporating

investigation, checking, questioning, and theorising. Morse et al. (2002) maintain that rigor in qualitative studies can be achieved through the following strategies:

1. *Methodological coherence*: The interdependence of qualitative research dictates that the question, method, data, and analysis all correspond.
2. *Sample appropriateness*: The sample should best represent the research topic, to ensure efficient and effective saturation of categories.
3. *Concurrent collection and analysis of data*: The mutual interaction between collection and analysis forms a link between what is known and what needs to be known.
4. *Theoretical thinking*: Ideas that emerge from the data must be verified in the data already collected.
5. *Theory development*: Theory is developed through two processes. First, it is an outcome of the research process and second, it becomes a template for the comparison and further development of the theory.

The strategies outlined by Morse et al. (2002), along with the methods described in detail in this chapter, facilitate reliability and validity within this thesis.

4.5 Ethics Approval

The research involved in this study, particularly the use of in-depth interviews, had the potential to expose participants to a reliving of OV events that might have been unpleasant and painful, and that could invoke feelings of fear, anger, shame, or other powerful emotions (Seedat et al., 2004). Therefore, full ethical clearance was obtained through the Queensland University of Technology (QUT) Human Research Ethics Committee on the 12th of September 2018, prior to the commencement of the research (Reference Number 1800000763). Furthermore, to ensure compliance, ethics and research approval for the study and the interviews was additionally sought and gained through the QAS and AVic. (See Appendices G and H for ethics application and approval documentation.)

4.6 Data Management

Data from this research study has been stored in accordance with QUT's management of research data (D/2.8) and records management policies (F/6.1). A data

management plan was created and approved detailing the handling of research data both during and after study completion. All electronic data has been archived on a password protected QUT secure server, and all hard copy materials are stored within a key-locked filing cabinet.

4.7 Summary

The research design of this thesis, including all elements of data collection and analysis, was undertaken in keeping with the principles of generic qualitative research. To ensure the credibility of this process, key areas of theoretical and philosophic interpretation, as articulated by Caelli et al. (2003), were acknowledged and addressed. The 25 paramedic participants represented a diverse cohort of age, gender, experience, and geographical location and were selected from two of Australia's largest operational EMS organisations. Participants were recruited on the basis of their exposure to an act of patient-initiated hostility during their work as a paramedic, as long as they had completed their relevant OV mitigation education and training. Data collection occurred via semi-structured interviews, with the paramedic theory of practice known as the SCTPSM providing a contextual lens for the understanding and analysis of the research.

Analysis of the raw data of this study was approached via a general inductive methodology. A general inductive style was chosen over other more structured methodologies for its ability to explore the data within the evaluation objectives while still allowing findings to emerge from any prominent categories. The data analysis process utilised a practice of first and second cycle coding system, with an In Vivo technique employed for specific code, category, and theme development. Through this process, the two distinct categories of *the paramedic* and *the patient* were identified as the dominant themes pertaining to incidents of patient-initiated hostility. The results from the data analysis are discussed in greater detail in the next chapter.

Chapter 5: Results

This study investigated paramedical experiences of OV during clinical interactions with patients or supplementary participants or bystanders. The themes developed from the resulting semi-structured interviews were guided by the two principal research questions:

RQ 1. How effective are existing paramedic OV systems and strategies in providing OV management, support, and mitigation?

RQ 2. How can paramedic practice theory contribute to the overall understanding and mitigation of paramedic OV?

Using the paramedic theory of practice, the SCTPSM, as a lens for the research exposed the social constructs of prehospital scene management, providing a bilateral and complex interpretation of paramedic OV. The complexity of evaluating paramedic OV was evident in the distinctive presentation of violence and aggression in the semi-structured interviews; participants' descriptions involved a diversity of patients, contexts, environments, and influences. This variance generated a large collection of primary and secondary themes that comprised an array of topics and subject matter. While the final developed themes do provide a framework for the phenomenon of paramedic OV, it was apparent that many of these themes traversed the scope of both of the principal research questions. During the interview process, paramedics identified their own specific assertions of OV that encompassed all aspects of understanding, support, and mitigation. The principal focus areas that emerged, *the patient* and *the paramedic*, represent the study's separation of participants' assertions into two distinct categories that characterise these actors' specific roles and the subsequent interaction that occurs during the development of paramedic OV and its attempted mitigation. It is because of the interconnections between these two focus areas that the research questions will be addressed concurrently during this discussion. Table **5.1** provides an overview of the developed primary and secondary themes in response to each focus area. Each of the subject areas is then addressed in turn, and the themes are supported and illustrated by relevant quotes from the participants.

Table 5.1
Description of Principal Categories and Themes

Focus area	Primary themes	Secondary themes
Patient	*Patient engagement*	Patient compliance
		Patient cognition
		Patient disengagement
	Patient reaction	Escalating patient behaviour
		Violence triggers
		Cynosure
		Unpredictability
Paramedic	*Paramedic actions*	Critical decision-making
		Ethico-legal considerations
		Attitude and behaviour
	Paramedic effects	Default-to-truth
		Cognitive control
		Fatigue
		Partner dynamics
		Experience
		Self-assuredness
		Psychological injury

5.1 Paramedic OV Mitigation

Earlier chapters have comprehensively addressed the problem of paramedic OV and the practical and theoretical difficulties of existing mitigation systems. At the core of these mitigation strategies is OV education and training, which focusses on paramedics' recognition, elimination, or withdrawal from actual or perceived threats of prehospital aggression and violence. These strategies have resulted in the development of OV interventions such as situational awareness training, tactical communication principles, self-defence tactics, body-worn cameras, and physical and chemical patient restraint. However, despite the rationality underpinning these training curriculum and practices, paramedics' perceptions of their effectiveness for prehospital violence mitigation were overwhelmingly negative. Of the 25 paramedics interviewed for this study concerning their OV education and training, only four responded positively about the benefits of their OV mitigation program. Common

responses provided during this process indicated OV mitigation education and training was generally seen as both unreliable and ineffective.

> *I managed to avoid it [the physical assault], but I guarantee—like, after the event when I thought about it. I thought, oh, wow, there was really nothing in that that I learned from [my OV mitigation training]. T47MA10U*

> *I feel like our program has been too physical in nature. This is how you get yourself out of trouble. None of which we remember, none of which we practice, so it kind of isn't helpful. H55MC30U*

> *Institutionally, we pay lip service to it. As far as the public are [concerned]—Oh your ambos are trained in how to do this. No, they're not… They've got this mediocre way of dealing with it. R52MA27R*

> *I found—I can't defend myself in those situations, which is why I stand off because I'm very slow, my reaction times are slow. I can't—even with getting hit by [a] pool noodle I was a mess, going, Oh I can't get out of this, I don't know what to do. Y41FA17U*

> *I don't think that behaviour and those skills they attempted to teach us are in the unconscious. So, when you're in that threat or you're in that zone of "I've got to do something", that I'm actually going to be efficiently able to do it, to get myself to a point of safety. D37MA13U*

The ineffectiveness of existing OV mitigation systems appears to highlight a systemic failure with the manner in which prehospital OV is understood and subsequently managed. It is this misunderstanding that again draws attention to the paucity of peer-reviewed paramedic-specific research literature on the subject. Without this knowledge, EMS OV mitigation curriculum is compelled to utilise recommendations and guidance from alternate industries such as law enforcement. This guidance has seen the development and training of OV mitigation skills and language (such as tactical procedures and physical counter-striking measures) that appear inconsistent with the disposition of healthcare and the service nature of EMS organisations. Aside from the ongoing failure of these interventions to prevent patient violence, the underlying concern with the utilisation of these strategies is the uniqueness of the prehospital milieu.

Despite the best of intentions, the continued application of a patient-centric, reactive approach to the mitigation process appears unlikely to change the incidence of paramedic OV. This apparently ineffective approach to patient-initiated hostility necessitates a fundamental change in the way the phenomenon of paramedic OV is viewed and understood. Critical to any change process, however, is the comprehension of what constitutes paramedic practice and how this practice is carried out as paramedics achieve their goal of patient care and transport. The foundation for this understanding lies in theories of practice, or, as this study upholds, for the specific case of paramedicine, the SCTPSM. Central to the SCTPSM and the comprehension of paramedic scene management are the social processes that define the means through which paramedics and individuals interact, modify, and establish patterns of behaviour. As will be demonstrated throughout this chapter by the perceptions of the participants, the development or deterioration of these paramedic–patient social processes appears to markedly influence the evolution of violent or aggressive behaviour. In line with this, the upcoming subsections expound the phenomenon of paramedic OV through the study's key focus areas, *the patient* and *the paramedic*.

5.2 The Patient

The social processes outlined in the SCPTSM do not occur in isolation; they materialise through the scene and its participants. Paramount to the development of any social practice or interaction is the explicit influence of the individual on the process, and the most conspicuous individual in paramedic scene control is the patient. Yet, notwithstanding the palpable importance of the patient in scene control practices, the SCTPSM is inexplicably limited to the description and categorisation of this individual. The absence of the patient, and even the paramedic, from a distinct recognition within the SCTPSM occurs despite Campeau (2007, p. 92) acknowledging "space" as an "abstract term intended to capture all of the factors that operate at a scene and therefore includes any threat to establishing control be it human or non-human". Remarkably, the first mention of the patient in the SCTPSM appears in the discussion of *collateral monitoring,* when Campeau (2007) describes the two categories of scene activity for this monitoring as (a) the patient and (b) the scene environment. The absence of the patient as a specific social process of the SCTPSM is undoubtedly a weakness of Campeau's model. However, irrespective of this

deficiency, the social processes and interactions outlined within the SCTPSM can still be inferred upon the patient, as they are a critical focal area in this regard.

Social interaction is the dynamic interplay of communication and connection that occurs between individuals or groups to facilitate collaboration (Argyle, 2017). Without this reciprocity, there is no social relationship and no interaction in the form of cooperation, accommodation, or progression, all of which are necessary for the engagement of the paramedic and patient during care. Both the ability of the paramedic to engage with the patient and the patient's reaction to this engagement can profoundly alter not only the behaviour of these individuals but also the associated progression of scene management objectives. Although most patient engagement and reaction to paramedic scene management processes is cooperative and amiable, there are elements of the social interaction process that are closely associated with paramedic OV. The first of these elements was categorised as the primary theme of patient engagement, having associated secondary themes of patient compliance, patient cognition, and patient disengagement; these are now described and discussed in detail.

5.2.1 Patient Engagement

Two primary themes describe the interaction of the patient towards the paramedic during the development of aggressive or violent behaviour. The first of these is *patient engagement*. Patient engagement refers to the psychological and physical connection established between the patient and the paramedic to enable the process of care. Patient engagement may comprise many forms of social participation, including both verbal and nonverbal interactions, which may be either direct or indirect in nature. Examples of patient engagement may include voiced communication and collaboration, conformity with direction, or even a lack of resistance to assessment and treatment. Even though the timing of this connection may fluctuate due to the nature of the patient's injury or illness, the act of paramedic–patient engagement is a crucial predisposing element for the development of violent behaviour. The interview process identified three patterns of patient engagement that referenced the importance of such behaviour on paramedic OV. These patterns were secondarily themed *patient compliance*, *patient cognition*, and *patient disengagement.*

Patient Compliance

Previous reports have identified that a period of time often elapses after the arrival of paramedics and before the onset of violent or aggressive behaviour (NSW Ambulance, 2016b; Queensland Ambulance Service, 2016). These results are supported by the observations of paramedic interview participants regarding their personal OV event. One of the most common patient characteristics identified by paramedics prior to the escalation of violence was that of patient compliance to initial assessment and treatment. In contrast to the stereotypical perception of an aggressive or violent patient, paramedic OV was far more likely to present in an absence of outright hostility. The initial prehospital relationship, although not always courteous, was descriptive of patients amenable to assessment and management by the attending paramedic. For example:

> *I asked the gentleman several times, Are you happy for me to take your blood pressure, explained the procedures; Are you happy for you to take your blood sugar, his temperature, this goes in your ear, all that sort of stuff, and he was completely compliant. I asked him, Mate, can I have a look at your head? Can I give it a clean-up so I can tell the nursing staff at the hospital what it looks like, what they might need to do, that sort of stuff, and he was like, Yeah. N31FA11U*

> *It came down to we sort of agreed that she was calm and compliant and that was even something we said to the police, [I] said, Look, she's talking to me, she's letting me do observations, she's compliant. N47MA19U*

> *[The patient's] behaviour in the early stages wasn't aggressive or violent or threatening. It was somewhat subdued, really, and there was consent obtained early on. D37MA13U*

> *[The patient] was sort of slumped over the wheel, but he was sort of responsive. I think initially my paperwork said GCS [Glasgow Coma Scale] somewhere between ten and eight. But he was quite compliant, quite happy. N52MA17U*

As an active demonstration of the concept of paramedic–patient social processes, preliminary patient compliance was seen by participants as an indication of the likely nature of the interaction between the paramedic and the patient. The notion

of collaboration that is inherent in compliance and the absence of any initial threat towards the paramedic are both important perceptions. When a seemingly typical paramedic–patient interaction deteriorates into OV, it would appear that events have transpired that were either unrecognisable as pre-emptive triggers of violence or that the hostility was completely unexpected by the attending paramedic. This type of compliant patient demeanour and behaviour raises doubts as to the preparation and training of paramedics for OV hazard awareness and recognition.

Situational awareness training forms an important component of paramedic OV mitigation strategy and is typically utilised by most EMS organisations. This type of training is designed to assist paramedics in the identification of threats posed by people, objects, and places, and is primed and taught to paramedics from the earliest periods of their education. Typical instruction in this regard is demonstrated in the training acronym, *DRABC*, or danger, response, airway, breathing, and circulation, which forms the basis of all patient assessment and management within paramedic scenario-based training. The premise of paramedic situational awareness is that it commences from the moment of initial job dispatch and continues through all elements of scene and patient assessment.

With often limited information prior to the arrival of the ambulance on the scene, on arrival, paramedics are required to assess both scene safety and that of the people within it based on their professional discernment, history, and training. Paramedics make these decisions armed with the knowledge that any decision they make to refuse to proceed into a job based on safety concerns will be supported by supervisors and management alike (Walker, 2017). Yet despite their training, the organisational support they receive, and the general human predisposition to avoid danger, a feature of the OV experienced by almost two-thirds of the paramedics interviewed was their lack of concern regarding either the scene or the patient as a threat.

> *No, no threat indicators. It was a clean house, like, freshly painted, lawns were done, mowed. There was no crap anywhere. The cops were upstairs with the guy, the house was clean. It was all presentable. H32MC11R*

> *It was a male patient we went to who rang. He just wasn't feeling himself. He just wanted to go to the hospital, needed some help. T47MA10U*

[The patient] was sitting on the lounge, he was perfectly reasonable, calm. Police had already been there for about half an hour waiting for me. H32MC11R

On other jobs I have… the Spidey sense [an awareness of danger], you're a bit [concerned]. With this one, no. T47MA10U

This failure by participant paramedics to identify the potential threat posed by the offending patients does not represent isolated oversight or outlier events. Yet their lack of threat awareness prior to a violent event is notable, as it is inconsistent with existing OV mitigation reasoning of appreciable danger. In this regard, it was concerning that many of the paramedics interviewed were not apprehensive about the safety of the scene. If it is accepted that paramedics *are* adept at identifying threats, then the current association between perceptible indications of danger (as a key risk factor) and incidences of paramedic OV must be questioned. If there is a lack of association between recognisable danger and the advent of patient-initiated hostility, not only does the concept of unpredictability again become prominent, but the potential classification of these occurrences as surprising in nature or as Black Swan events appears increasingly pertinent.

Patient Cognition

In association with compliance, another aspect of patient engagement identified in the participants' accounts was that of the patient's cognitive involvement. Central to paramedics' ability to establish social processes and interaction with a patient is the patients' capacity to both comprehend and respond to that communication. Participant paramedics described that a lack of patient cognition appeared to play an influential role in the development of violent or aggressive behaviour.

He wasn't in the space to understand that and I guess if I think about that, well that's not just behavioural. T54MA24R

Just mostly, the schizophrenics are having a moment and their mental health is taking over. It's not a choice to be violent, it's the mental health L37FA12U

I honestly think it was delirium. He didn't set out to get me. I don't think he knew what he was doing at the time. T47MA10U

> *Even though [the patient] was generating those voices, it wasn't him as such that really wanted to punch on, in his mind, it [was] these voices that were forcing him to do that, because he certainly seemed conflicted about it. A49MA15R*

Social interaction is dependent on the cognitive ability of individuals to reason, problem solve, comprehend, and learn. Decline in a patient's rational thought processes affects not only their ability to communicate and participate in their healthcare choices but is a readily identifiable feature of many paramedic OV incidents (Coomber et al., 2019). Within prehospital healthcare, there are numerous patient presentations that can adversely affect cognitive ability, such as trauma, drug and alcohol intoxication, mental health emergencies, and welfare factors. Although each of these factors impacts the individual in different ways, their common effect is the negative impact on a patient's thought processes and hence their ability to effectively and appropriately engage in social interaction. Alcohol intoxication is undoubtedly the most common example of this cognitive influence, with its associated distortion of perspective often leading to myopic decision-making, including risk-taking and ambivalence (Coomber et al., 2019; Maguire, Browne, et al., 2018). When such barriers to effective social interaction present during prehospital patient care, the ensuing effects on other social processes during scene and patient management can be significant.

Patient Disengagement

While the establishment of social processes is an important element of paramedic scene management, the formation of a paramedic–patient relationship is only the beginning of these social processes. Critically, the patient's ongoing engagement with the words, actions, and demeanour of the paramedic is essential to the maintenance of the interaction between the participants. Any breakdown of the relationship between the paramedic and the patient in the form of disengagement is acknowledged as disruptive to the social processes and an impediment to effective communication. Without the ability to engage the patient, the capability of the paramedic to respond and react to the patient's requirements is significantly reduced. Awareness of the effects of physical or psychological disengagement between the paramedic and the patient was reflected in paramedics' frequent identification of this factor as an important precursor to the escalation of violent or aggressive behaviour.

Disengagement by the patient was typically acknowledged by paramedics in terms of the breakdown of social processes and was evident in remarks about ineffective communication and interaction.

> *I said, We're here now. What's happened? [the patient] was just, No, fuck off…We did sort of try to just be, like, What's going on? What's happened? Can we do anything for you? It was just brick wall from her. R25FA02R*

> *[The patient] didn't seem to be using the [pain relief] as being instructed and it's unclear as to whether he was displeased or annoyed at the care he was receiving or whether it was his pain wasn't being managed effectively or not. He was sitting up or turning around to sit on the side of the stretcher. Maybe even also his reluctance to listen. It almost seemed like he had disengaged with me and what I was saying. E41MA15U*

> *I was the one trying to engage him in conversation, not [my partner]. She was just sitting there with her window down. If it was ever going to happen, I thought that he would come directly at me but he stopped listening to me. N32FC07R*

The idea that patient engagement, cognition, and disengagement can be seen as critical factors for paramedic OV mitigation is important. Deprived of attentiveness and effective communication with patients, paramedics identified that the moderation of violent or aggressive behaviour through mitigation strategies became increasingly difficult. The likelihood of exposure to aggression and violence is undoubtedly increased when OV mitigation strategies fail. This concern was identified by paramedics, who repeatedly indicated that issues associated with decreased patient reciprocity were an antecedent to the onset of violence.

> *Yes, absolutely, [I was] trying to talk him down, trying to find out what he was doing, why he was doing it. But he was not interested, it was just Fuck you, fuck you, fuck you, fuck off. He was not interested in any form of communication whatsoever. N46MA19U*

> *She got right up in my face. I tried to remain nice and calm, try and talk her down, explain that we're actually just performing a procedure in the ambulance, the family member is okay, and we're going to get mobile again. She kept going. A49MA15R*

[I] Tried like, Mate, settle down, settle down, it's all right. But he just wasn't having a bar of it. He just was—that glazed stare. Yeah, I'm guessing he didn't even hear what I was saying. T47MA10U

He was given a couple of opportunities to take the de-escalation, but he chose just to come back and keep punching on. It's very hard to negotiate with someone when they're punching you. N52MA17U

5.2.2 Patient Reaction

In contrast to the establishment of social processes and interaction identified in the primary theme of *patient engagement*, the primary theme of *patient reaction* classifies the response of the patient to external stimulus during paramedic assessment, treatment, and transport. Importantly, these patient features do not occur independent of paramedic intervention, but rather as a direct result of the decisions and interactions of paramedic care. Four secondary themes of *patient reaction* were categorised from the interview data, where participants acknowledged key moments prior to the evolution of aggression or violence. Three of these themes, *escalating behaviour, violence triggers,* and *cynosure,* identify patient behaviour preceding hostility, while the fourth, *unpredictability,* addresses a critical feature of this behaviour. An important facet of the categorisation of *patient reaction* is the disposition of this primary theme to be influenced by the preceding features of *patient engagement.* This effect is evident in individuals with diminished cognitive processing, where impairment from factors such as alcohol consumption may reduce their capacity to moderate or rationalise behaviour.

Escalating Behaviour

The transition from patient compliance and amiability to an act of violence is rarely a simple or linear process. This intricacy is reflected in the lack of a consistent pattern of patient presentation or behaviour that manifests into violence or aggression against paramedics. The paramedics interviewed for this thesis described unique and distinct presentations of OV across a wide variance of patient age, gender, environment, time of incident, and underlying illness or injury. Yet despite this multifaceted context of patient presentation and behaviour, just over half of the paramedics did identify that an escalation of aggressive patient behaviour was a precursor to imminent violence. Although the motivation for the escalation of the

patient's behaviour was not always clear, a deterioration of the paramedic–patient relationship was frequently associated with this shift.

> *Then [the patient] started to—her behaviour and mannerisms started to amp up. She started to get a lot more restless, defiant, verbally escalating as well. Y38FA14U*

> *About halfway through the trip—we had maybe a 20/25-minute drive to the nearest hospital. The patient started becoming increasingly frustrated or annoyed or distressed. E41MA15U*

> *It started verbal, and then body language and then some actions started to reflect that, with the tearing off of the leads, an incidental strike and making moves to get out of the car. N56MA15U*

> *The patient was just getting more and more—edgy is probably a good word for it, and a little bit difficult, persistent with undoing seatbelts and things. N62MA40U*

This association of OV with escalating behaviour corresponds to conventional paramedic OV paradigms regarding aggressive mannerisms and violent behaviour. However, notwithstanding the pattern of escalating behaviour described in the participants' accounts, paramedics still identified that these behavioural characteristics were unlikely to be a consistent or reliable indicator of OV. Paramedics disclosed that, just as likely as escalating aggressiveness could precede OV, a patient's behaviour could also progress through to a *sudden* escalation or "snap" of verbal or physical violence.

> *She's, like, I'm fine. Can you just fuck off and leave me alone? I was, like, Okay. Then, out of nowhere, she just—with her top arm, just goes to strike me in the face. R25FA02R*

> *Nothing to say that he was upset. No swearing at me, nothing prior. Just zero to 100. N31FA11U*

> *I've cannulated, I've popped a 16 [gauge needle] into his arm, did not flinch. Gone to pop a second 16 and he's woken up, and he has just lit up like a livewire. A49MA15R*

> *I started the preamble of, This is what we're going to do tonight. We're going to take you to hospital, we're going to put you on an*

> *EEA[5] [emergency examination authority]. The moment that I said the words EEA, without warning, he's literally from a cross-legged position on the bed, sprung up into a standing position and uses his bed like a trampoline and jumped on top of me. Y41FA17U*

These remarks suggest a perceived impulsiveness by the patient that resulted in a sudden outburst of violence against the paramedic; such behaviour seldom appears to be a premeditated act, but rather the action of the paramedic insinuates a reactive response from the patient to a perception of danger or threat. Distinguishing paramedic OV as aggression that is compelled from individuals through a perceived threat draws focus to the paramedic–patient interaction and the influence of this relationship towards a violent trigger.

Violence Triggers

Violence in the context of paramedic OV can be unpredictable and impulsive, yet an act of aggression is rarely a gratuitous exploit. Like many human behaviours, violence can be linked to deep-rooted primal instincts. However, the often-spontaneous nature of this reaction can result in behaviour that is both abrupt and inconsistent with the degree of the potential threat. The triggers for aggression are varied but include self-defence, insult, protection of family, property, or loved ones, injustice, restraint, confinement, or impediment of objectives (Fields, 2015). In the milieu of prehospital care, violent behaviour is often associated with a reactive cognitive regulatory process. This conduct can be attributed to the direct or perceived behaviours, actions, or words of paramedics who are attempting to establish effective scene control for patient care and transport. Although the idea that paramedics may introduce triggers for violent patient behaviour appears incongruent with the nature of prehospital healthcare, triggers may be interrelated with many common paramedic practices and procedures, such as patients experiencing pain from a procedure, or a paramedic needing to provide treatment against patient consent. Examples of practices

[5] EEA: Emergency Examination Order. An EEA is a legal order established by a police officer, paramedic, or psychiatrist that authorises the temporary detention of an individual experiencing a mental health crisis. When applied, the EEA sanctions the involuntary transport of the individual to an authorised mental health service for evaluation by psychiatrist. An EEA is typically applied through the reasonable belief that the individual's mental state places them at imminent risk of significant physical harm to either themselves or someone else.

that instigated an incident of violent patient behaviour were identified in paramedics' accounts.

> *But [the patient's] taken exception to what I've said to him, and he just sucker punched me. N52MA17U*

> *I've not ever been assaulted before. I kind of felt that I was really good at reading situations and I'm a self-proclaimed wuss, so I won't go into these situations. But yeah, I obviously said a trigger word to him. Y41FA17U*

> *I can talk most people around to those things, but definitely, it was me. Wasn't my partner and it wasn't really the police. It was me. I was the person that'd taken away—given something against his will. T54MA24R*

> *It was when the needle went in, is when [the patient] reacted. Whether it was like a shock reaction, so first thing she does is grab on and bite. Y38FA14U*

The secondary theme of *violence triggers* establishes an association between paramedic language and behaviour and the elicitation of a violent patient response. In this category, it is essential to isolate that *confinement* is a pertinent trigger for this kind of hostility, and that this may come about when paramedics are obligated to confine a patient because of mandated regulations regarding the treatment and transport of patients experiencing an acute mental health crisis with accompanying potential for threat of injury (Steer, 2007). Within the Australian legal framework, regulations and principles exist such as *Duty of Care*, and *Mental Health Acts*, which assign a degree of involuntary guardianship to paramedics for patients who may be at risk of immediate serious harm from mental health emergencies or may present with cognitive impairment through (for example) severe alcohol intoxication (Steer, 2007). A judgement by the paramedic to confine a patient in this state can result in the patient being treated and transported against their own self-determination, often with minimal flexibility or alternate treatment pathways. Paramedics identified this compelled care pathway as customarily instigating violent or aggressive patient behaviour.

> *I can make a difference, but I don't think I could [in this instance]. A majority of the time I can't change the trajectory. The trajectory is always going to be they're going to be de-escalated either*

physically or chemically and end up in hospital in the majority of times… We've already committed to this path for everybody's involvement. This is the natural conclusion that it has to come to. H32MC11R

I don't think it mattered if it was me or the police officer. He knew that we'd both decided that he had to go to hospital. So, whether it was me sitting there or the [police] sitting there, he was going to yell and scream and swear at either of us. N31FA11U

You're still going to go to hospital and you're under an [emergency examination] for assessment. He still had the same issues. He didn't want to go, and he didn't want to see that doctor. H32MC11R

The type of patient management described in these participant accounts presents as a fundamental paradox of paramedicine: that the most appropriate care for certain vulnerable individuals can only occur through the disregard of their basic health right to self-determination (Whittington & Richter, 2006). With such organisational and legal principles encompassing their care, paramedics accounts suggest that, regardless of their actions and words, there can be an inevitability to a patient's behaviour that is forced on the situation by an ideology of necessary treatment.

Cynosure

The fixation of a patient, whereby a single paramedic becomes the centre of their attention prior to the instigation of hostility is known as *cynosure*. Paramedics' accounts attest that patient's reactions typically escalate prior to the instigation of aggressive or violent behaviour. However, this escalation of behaviour, whether gradual or explosive, represents the culmination of patient reaction. During the interview process, paramedics identified that, as opposed to patients choosing a confrontation against multiple paramedics, acts of violence or aggression were predominantly directed towards a single officer. Central to this event-process was the establishment by the antagonist of a focal point for their attention, whereby other sources of external attention were generally excluded. Although this focal point could also occur with other nearby individuals, such as the police, paramedics commonly identified a period of isolation from the other paramedic, either on the scene or in the ambulance, as a contributing factor of the assault.

I really think so. I think that was very much a contributing factor. Remaining in that space [the ambulance] changed the dynamic of [the relationship]—because it allowed him to focus on the person of his anger. T54MA24R

Yeah, [the patient's] gone straight for me. Yeah, that was really odd. But again, I was the one talking through the whole case anyway. R48FA07U

Then just before she lunged, her focus was purely just on my partner. E35FA05R

Police came and a single responder [Critical Care Paramedic] came as well. So we got out with the police and she just continued. Mainly at me, not my partner. R25FA02R

The secondary theme of cynosure denotes a critical alteration of the patient's social engagement towards the attending paramedic. Cynosure is acknowledged as a warning behaviour that is indicative of an increasing risk of targeted personal violence, and represents an acute and dynamic change in an individual's pattern of behaviour (Reid Meloy et al., 2012). Importantly, this type of behaviour is typically accompanied by an element of social deterioration in the affected individual, such as escalating aggression (Reid Meloy et al., 2012).

Unpredictability

The final secondary theme in the core category of *patient reaction* does not address an individual process or response but rather identifies a critical component of behaviour itself, specifically, the unpredictability of the patient's conduct and actions. While reference to unpredictability may infer this secondary theme has a direct connection to the SCTPSM and its category of *reducing uncertainty through social relations*, there is a distinct difference between the two. Where Campeau (2007) implicates action for control of unpredictability, this thesis asserts that control may in fact be unattainable.

Existing OV prevention programs commonly give credence to the assumption that aggressive behaviour can be identified, moderated, and managed by the attending paramedic. However, the complexities of human behaviour identified through this thesis examination of OV challenge this idea. Paramedics' accounts highlight the complexities involved in predicting patient behaviour, which was acknowledged as

multifactorial and highly dependent on social processes and the evolution of paramedic–patient interactions. Furthermore, the analysis showed that paramedics identified two specific features of prehospital care that were especially relevant regarding the unpredictability of hostility development: (a) the unknown patient and (b) the cognitively-impaired patient. The first of these features describes the generally unknown quantity of the patient for the attending paramedic, in that there is no way to comprehend how an individual might react to a given situation, word, or phrase. Even though the paramedic may have an appreciation of violence triggers, owing to this unknown quality, the priming of such triggers may go unobserved. For example:

> *There was no nastiness, he was treated quite well. I think in hindsight he took offence to my partner saying it was a pseudo seizure, inferring that it's not real. You know, he's not going through this thing. Whether it's intentional or not intentional, but that language may have been a trigger for him. It came up once again at hospital when he had another go at the paramedic during the handover to the triage nurse. H55MC30U*

> *The previous job he'd lost when he'd got taken under in EEA because he wasn't able to tell them that he wasn't going to turn up for work. So, the EEA was a big trigger for him because he thought, Oh my god, now I'm going to lose this next job. The big catalyst and trigger for him to then take it out on me. Y41FA17U*

> *I realised as soon as I said it. I didn't—wasn't—still wasn't expecting that response but it's like, Oh, that wasn't a value-added de-escalation technique. That was the time to just leave this guy be for a bit. So, I'd said something that just pushed him over the edge. S35MA10U*

The second of the prehospital features that manifest the unpredictability of hostility development is the cognitively-impaired patient, through a situation that infers the interplay of social processes is not always possible when effective patient engagement and interaction are affected by conditions such as traumatic or physiological cerebral impairment, drug or alcohol intoxication, or acute mental health crisis. A perception emerged from the interview accounts that when these limitations were applied to paramedic–patient interaction in the prehospital milieu, some types of

violent or aggressive behaviour could be at best unpredictable, and at worst, unavoidable.

> *This was the first time I've been put in harm's place in the work environment where there was no indication of it prior. Like the other times, I've had weapons pulled on me, you knew going into the job that there was potential for something weird. Like drug use, the patient's got weird injuries, they've been involved in a fight or there's history. You know the other ones that I've seen and this one was just—and the fact that I'd already been there for 20 minutes, and his demeanour hadn't changed. H32MC11R*

> *That's what really spun me out about this particular job, is that there was no fist clenching. He made good eye contact. He spoke well. He was even probably polite. He seemed to be very honest and open with the way that he intended to hurt himself. The first time he raised his voice was when he jumped off the bed. By the time I actually heard it, he was on top of me. Y41FA17U*

> *So, I left and then I came back out of the room with the glucose paste, I walked into the room and she got a big humungous fright and ran straight towards me with her hands out. Grabbed my neck with both hands, squeezed it and then pushed me up against the wall and just started strangling me. L37FA12U*

> *It just went from, you know, just an intoxicated man who was quite compliant to, Holy shit, this dude's got my—you know, around my neck, and I could not get him off me. He was just too strong. From zero to 100 in seconds. N31FA11U*

The suggestion that some incidents of OV are unpredictable was strongly supported by the disposition of paramedics' post-incident analysis of their experiences. With the benefit of hindsight, in their interviews, paramedics reflected upon their management of the patient and scene with the apparent intention of identifying characteristics that may have contributed to the advent of hostility. What was notable about these reflections was not the discovery of predominant themes regarding OV mitigation but rather the extensive number of paramedics' individual rationalisations. The 25 paramedics interviewed for this project identified almost 40 distinctive reasonings explaining why their OV incident occurred, ranging from personal practices and perspectives, equipment, and resources, to timing and the

environment. Remarkably, despite the large number of categorised themes, none of paramedics identified any failings in the presentation, attitude, or behaviour of the patient involved.

> *…maybe [the patient] disengagement via not listening to me or me not being able to engage with him, maybe should have been a sign that I needed to review my strategy or approach to this patient. E41MA15U*

> *…in hindsight when I thought back about it, I actually really rushed the whole job and I let my emotions about being there after my finish time cloud my judgement in a lot of the things that I'd done. Y41FA17U*

> *Because if I had a radio, which was my own fault because it was flat. I'd just taken it out of the pouch and just put it in the front. I would have, (1) hit duress and (2) probably hit him with it. N32FC07R*

> *That's another in hindsight. I probably would've rather have left her on scene until we sorted her head rather than put her in the back, but we did the let's get her out of the public eye into a safer environment, which we thought we were doing the right thing by her. N47MA19U*

> *If I was to do the job again, she'd either go in the [police] van or she'd go in the back of the ambulance with a police officer and me and my partner would sit in the front with the radio on or the windows down, because we don't need to be exposed to that. R25FA02R*

> *In hindsight, I probably should have poked and prodded [the patient] a little bit more, just to get a better read on him. It was raining, I was getting wet. N52MA17U*

> *I look at [the case] now and go, it was a mistake to take him. I think the situation would have been completely different had he not been present. It's that simple. I think whatever was going on between him and the daughter was—they were just feeding off each other and it was just building. Throwing kerosine on the fire, sort of thing. N62MA40U*

Beyond the data of unpredictability, the substantial amount of reflective language offered by the paramedics is itself meaningful because it highlights the deep rumination of these participants and the potential retrospective opacity and distortion that occurs with post-event analysis. Retrospective analysis of an event is indicative of the human desire to comprehend and explain the anomalous, and to rationalise the thoughts and actions assigned to it (Taleb, 2007). In this regard, the desire to comprehend an event and explain away its occurrence as foreseeable after the fact—particularly an event that has been unexpected and injurious in nature—is a feature of Black Swan events. However, despite the desire to understand their exposure to violent or aggressive patient behaviour, the paramedics also contended that mitigating for the actions of certain patients may not always be possible.

> *[You] just walk into a normal house, so how [you] could identify signs of danger, I don't know? Because it was just someone sitting on a couch and there was nothing else. There were no guns, drugs, paraphernalia, knives, or anything lying around. There was nothing of any inherent danger there. R55MA10R*

> *Nothing that I can put a finger on, and I've thought about the job a lot since it's happened. I can't—honestly, I'd love to know what was [the patient's] trigger. N31FA11U*

> *Like if you were to risk-stratify that job retrospectively, if you could change any of that, even if you would take it to completely utopian and say police will be on scene for every job we go to, they were there. You know they appeared well trained, physically fit. There was no environmental aspects. It was a single patient, there was no crowds. I don't know what else you could control for. H32MC11R*

These perspectives regarding unpredictability are significant in the context of paramedic OV mitigation because they challenge the key concepts of risk assessment and its associated management practices. It is this unpredictability of patient behaviour that highlights a central limitation of paramedic OV mitigation systems: rigidity. Paramedics commonly described mitigation systems as being too measured for the inconsistent nature of OV, which are typically contrived around the premise of a structured, outward focus of threat identification and management.

> *Unfortunately, a lot of what I've found pre-hospital training is reactive, the training comes from after someone's been hurt, or after a big incident has occurred. We've had a number of paramedics assaulted that have been in the media and that sort of stuff, and that's a lot of what it's been based on. N31FA11U*

> *I think—it's a reactive process at the moment, it's not proactive I've found, which is—it's been disappointing. N47MA19U*

> *We teach people how to defend themselves in those situations, never to attack, but do we spend any time teaching them not to get into those situations? N56MA15U*

> *The training seems to centre around after you've gotten yourself into that situation. "What to do when someone's got their hand around your throat" sort of thing. S35MA10U*

The data indicate a continued attestation of paramedics regarding the difficulties of current OV mitigation strategy; this supports the possibility of an extensive, systemised problem rather than a reflection of an individual process. The review of the grey literature in Chapter 3 has established the tendency of Australian EMS OV mitigation programs to align at a reactive perspective of OV; again, the review suggests that this is a consequence of the patient being seen as the clear and obvious source of violent behaviour. Such an approach to OV mitigation strategy is perhaps unsurprising given that it is based on a traditional methodology of hazard management that is founded on occurrence reporting, investigation, and statistical analysis (Eidesen et al., 2009). However, this emphasis on outward-focussed mitigation of OV suggests that acts of violence are intrinsically unilateral and dependable patterns of human (patient) behaviour. Data, however, indicate that there was cognisance among paramedics that the problem with this stereotypical perspective of patient behaviour is that it fails to recognise the complex processes underpinning prehospital violence and aggression.

> *They say they can escalate or clench their fists or grind their teeth or whatever they might like to do, none of that happened. Maybe just also pushing the fact that yes, this is a textbook presentation of it changing but that might not happen and just to be prepared and vigilant at all times. N32FC07R*

> *Most people, as an obvious violence situation, it's your stereotypical psych patient or drunk. You know, it doesn't focus on the medically unstable patients. L37FA12U*

> *You'll always find [a patient] who just trips in an instant from zero to 10, and they're problematic, but you can normally sense trouble—but we don't teach that. N56MA15U*

As these primary and secondary themes have highlighted, the impact of the role of the patient towards the advent of paramedic OV is significant. This significance lies not only in the patient's ability to engage with the paramedic and the care process but their reaction to the words, actions, and behaviours that this process entails. However, the aspects of paramedic OV that the study participants identified as inherent to the commencement of hostility are not limited to the patient. Paramount to any process of patient-initiated violence or aggression—and, indeed, its mitigation—is the prominent role of the most consistent aspect of this phenomenon: the paramedic.

5.3 The Paramedic

The paramedic was the second focus area identified through the analysis of the interview data. It emerged in relation to the influence of key paramedic stressors on scene management practices and the subsequent effect of these towards the development of patient-initiated hostility. The processes of self-determination (i.e., how paramedics decide) allowed the influences to be separated into the two primary thematic categories of *actions* and *effects*.

The emergence of the paramedic as a principal focus area of paramedic OV provides remarkable insight into the phenomenon on two fronts. First, the position of this category as an influential component of paramedic OV is notable considering the absence of meaningful acknowledgement of its effects in the paramedic theory of practice known as the SCTPSM. Moreover, while consistent with the processes of social interaction, the influence of the paramedic has received minimal attention or acceptance in the paramedic OV literature. Second, in contrast to the previous focus area, *the patient*, which was themed according to how the patient connects and interacts (i.e., their responses) at the scene, themes in *the paramedic* focus area reflect the processes (i.e., actions and effects) of the paramedic that generate the patient's response.

The paramedics described in detail how various direct and indirect factors or influences could decisively affect all elements of their prehospital scene management practices. From the initial establishment of a safety zone to the practices that preceded and then sustained social processes, the paramedics' actions and responses could be influenced by various factors that subsequently altered the development of scene management and patient interaction. From the data analysis, the influences were identified and classified as secondary themes in either paramedic *actions* or paramedic *effects*. Furthermore, the data indicated that the approach and reaction to these influences was unique to individual paramedics and their work activities, and that they were constantly susceptible (throughout the course of patient care) to additional inducement from these influences. The secondary themes contained within these influences represent an astute appreciation of the factors that promote paramedic OV and provide strategic cues for its mitigation.

5.3.1 Paramedic Actions

The progression of an EMS tasking results in paramedics needing to make a multitude of decisions to facilitate the effective treatment and transport of an ill or injured patient. These decisions begin prior to arrival on the scene and continue until the patient has been discharged from their care. Although the SCTPSM profiles the actions that a paramedic undertakes to achieve these objectives, it is limited in its reference to how the individual influence of the paramedic affects these actions (Campeau, 2007). Nevertheless, the framework of the SCTPSM provides an insight through which this influence can be established. During the interview process, participants identified three categories of influence that paramedics make in response to scene management evolution: *critical decision-making, ethico-legal considerations,* and *attitude and behaviour*.

Critical Decision-making

The first of the secondary themes derived from the data regarding the scene management practices of the paramedics highlights the ability of the practitioner to undertake critical and often time-sensitive decisions. These decisions are critical junctions in the direction of patient and scene management, and may include how to engage with the patient, the manner in which that interaction occurs, or even the decision to withdraw from the engagement. Regardless of the choice, once made, the

decision sets the immediate scene for patient action and reaction. Paramedics identified that such pivotal moments during patient interaction were critical to the development of violence and aggression by the affected patient.

> *So that's why I stepped in and I figured the safest way of stepping in was to remove the ability to drive off. So safest for me, safest for the patient and safest for the guy doing the assault. There was no—perhaps I did a stupid thing, who knows, but at the time it was for the right reasons. N46MA19U*

> *I guess it's that hard decision to make, isn't it; these people come over and you try and engage or not engage. Before you know it, you're arguing with drunk people that are impossible to negotiate with. E28FA07U*

> *The majority [of other paramedics] say, Fuck [the patient]. Just go. Save yourselves. Easy way out. You don't have to make a courageous decision. You don't have to be brave and just go, [but] you know what? I'm now going to have to turn around and still do my job because actually, this is what the patient needs. L37FA12U*

Throughout the progression of scene management, paramedics are required to make critical choices regarding a myriad of patient engagement, treatment, and transport decisions. These decisions are typically made with limited information or knowledge about the people and environment they are interacting with. Decisions based on such cues as personality, training, and experience can significantly affect the direction and course of all stages of a paramedic's scene management. Although largely made with good intentions, decision-making processes can be profound in their consequences, with the outcome only visible after the decision is made. However, such decisions are not always made in isolation. There are external pressures for these decisions that can dramatically influence a paramedic's judgement.

Ethico-legal Considerations

As the previous discussion has identified, paramedics are required to make critical decisions regarding the context and application of their patient care. Ethico-legal principles are an important feature of paramedics' decision-making processes, approach to care, and decisive choices (Paramedicine Board AHPRA, 2021). These principles exist not only to guide paramedics' actions but also to ensure that ill and

injured patients receive appropriate and timely care. However, paramedics identified misperception of their rights and obligations in the treatment or non-treatment of patients as a point of confusion and even danger when it came to the management of violent or aggressive individuals.

> *Getting [the patient] to hospital and everybody living through the case is more important than having two magical sets of vital signs. But you're not taught that in the organisation. S35MA10U*

> *Understandably the organisation put the wellbeing and safety of their staff—their paramedics—higher than the patient. Understandably so. But then are we putting ourselves at risk if something happens to the patient while in our care? I'm just struggling to find a middle line right there. E41MA15U*

> *Because it would have been quite right then to feel [fear], but I didn't feel that, I thought, Well, this guy's on the road. Maybe from my own point—if I'm there, and he gets hit by a car, I've got some responsibility and some accountability for that as well. N52MA17U*

> *At what stage are we allowed to go, Okay, we don't have to tolerate this behaviour? That might be nice to learn—and especially for the young ones, too—and for someone like me—at what stage is it okay to go, I'm not going to tolerate this behaviour anymore? R48FA07U*

Emergency medical service organisations and paramedics are accountable for their delivery of prehospital healthcare to the ill and injured within the community. Paramedics' management of patients is guided not only by legislation, including relevant ambulance and public health Acts, but is also influenced by individual and professional ethics, expectations, and standards (Ambulance Service Act 1991, Qld; Paramedicine Board AHPRA, 2021). Paramedics are held accountable by their EMS organisation, their professional registrar, and the law for their adherence to these standards of professional practice, and this reality can and does influence the manner and means by which they choose to administer care. As the extracts indicate, this was particularly evident in cases where the advent of a tangible or perceived threat of prehospital violence could result in the paramedic withdrawing or withholding care for their personal safety requirements. Any decision by paramedics to withhold

treatment may present inherent legal and professional consequences for both the patient and the paramedic.

Attitude and Behaviour

The final theme derived from the data that related to *paramedic actions* was that of attitude and behaviour. The social characteristics of attitude and behaviour include both the manner in which a paramedic thinks and feels and the physical demonstration of these internal considerations in the form of their associated conduct and/or actions. For example, a paramedic's negative attitude may present with behaviour that is dismissive, unsympathetic, and even disrespectful. Of all the themes that encompass paramedic self-determination, it is the disposition of the paramedic and their approach to the patient and the scene that is of greatest importance. This is demonstrated in the effect of the paramedic's demeanour on their interaction with the patient; furthermore, its influence extends into the decision-making and choices that define the interaction. The perceptions of paramedics regarding the impact of their attitude and behaviour on the development of patient-initiated hostility provide insightful observations on the issue.

> *A lot of situations get out of control just with verbal and non-physical aggression. I think something we could probably focus on more is… what role we play in not necessarily causing these situations but contributing to them. E28FA07U*

> *Then there's officers that just grate on people. It's their normal self, but their demeanour can come across as being aggressive or patronising. If someone's already a bit amped up and then you come in with that patronising tone, chances are you're going to amp them up even more. T47MA10U*

> *The [data terminal goes] off, and [paramedics can] start to lose their shit on the way to the job which means they walk in already with a distorted, closed view on what's going on, and create bedlam when they get there; just either in their attitude, in their demeanour, [or] in the way things come across. H55MC30U*

> *A lot of annoyance and frustration that we experience comes from unrealistic expectations placed on us by our communications and management, which leads us to be angry, disconcerted, and*

> *disillusioned with the job, which then come out in frustration, and sometimes it's directed at the patient. S35MA10U*

The identification of paramedic attitude and behaviour as an influence on scene management reinforces the reciprocal role that social processes play in human behaviour generally. As previous themes have outlined, paramedics' assessment and care of their patients is dependent upon social processes such as accommodation, cooperation, and even disagreement, which establish the practice of engagement and interaction. Through this social interaction, the interchange of both connection and communication between the parties results in subsequent adaptation of their behaviour and attitudes (Argyle, 2017). Although some of these social processes, such as cooperation, occur in an intuitive manner, activities such as aggression can be characterised by a personal and goal-orientated manner of behaviour (Anderson & Bushman, 2002). Regardless of the manner of this social interaction between the paramedic and the patient, the fact that the very nature of the interaction *will* result in behaviour and attitude modification represents an important concept for the understanding of OV.

Despite the role paramedics themselves may play in contributing to acts of violence or aggression against them, study participants were acutely aware of the limited inclusion of personal responsibility in their OV mitigation training. There was a common belief that current mitigation training had failed to recognise the subtlety of individual performance and the impact of personal experience, behavioural traits, and education on scene management practices. Furthermore, paramedics observed that the standardised training of scene and patient management were too rigidly contrived and did not support the notion of a "toolkit" to inform, guide, and assist individual practice.

> *We've tried to do some virtual reality occupational violence training, about walking into jobs and doing your dynamic risk assessment, that sort of stuff, but again, your approach to a job, my approach to a job, a student's approach to a job, are going to be completely different. N31FA11U*

> *They talk about physical assaults. They don't talk about the impact of the escalating emotions. T54MA24R*

> *There's no training on that situational awareness to realise when you're getting yourself vulnerable or when you're goading someone or you're egging someone on or when somebody might snap. S35MA10U*

> *They need to be better educated in how to communicate with people so that they don't fire up a situation. N46MA19U*

Paramedics' recognition of their own influence on OV mitigation is important, as it marks a considered shift in the ideology of current OV mitigation education and training. The currently understated role of paramedic behaviour and influence in mitigation practices also translates to the eschewing of social skills within these programs. There was an appreciation from paramedics that this constraint had resulted in them being deficient in the relevant social and behavioural practices that they felt were required to assist in violence mitigation. These appeared to refer to elements of conduct that constitute social interaction, through which individuals interact, regulate, modify, and establish relationships. Participants observed that the limitations in OV education and training included a lack of attention to the communication, interaction, and de-escalation skills they needed on the job. While such skills were often addressed in OV mitigation theory, the paramedics reflected that the training to perform these consistently and effectively was generally inadequate.

> *I don't feel like we learn enough about how do I then apply—or how to verbalise—verbally de-escalate—or how to identify when—at what stage do we stop trying to de-escalate and go, Okay, now, I'm concerned here. R48FA07U*

> *There's been a hundred or thousands of times where I've stopped a violent episode from happening before it's even happened because of chatting nicely to somebody or a verbal de-escalation. But that hasn't—none of that training has come from the organisation. S35MA10U*

> *I think learning some realistic de-escalation, yeah, that's—the talk side of thing is more us. That's more where our heads are at. For us to talk to people and try and talk things down, that's almost a natural, or it should be, rather than step in and throw someone to the ground. N62MA40U*

> *We had some scenarios about de-escalation during that period of time. But it was more on the first approach to the patient, not for these particular jobs where you've approached, and you've made contact with the patient and things have [deteriorated]. Y41FA17U*

This study has already highlighted the practice gap that exists within the existing mitigation practices of Australian EMS organisations. Central to this discussion was the notion of "active strategies" to engage the patient as part of the paramedic–patient relationship. Although participants were not "labelling" the idea, these extracts demonstrate that they were contextualising a process of mindfulness regarding their patient interaction and its association with OV mitigation practices. This "active" phase of OV mitigation strategy elucidates the paramedic–patient interaction and emphasises the principle of attentiveness as a means of adjusting to unanticipated events (Weick & Sutcliffe, 2007). While the concept of mindfulness will be addressed in detail in the next chapter, its identification by study paramedics marks an important link between the concept and the potential relevance of its application.

5.3.2 Paramedic Effects

While the first thematic component of *the paramedic* focus area encompassed the direct actions of the practitioner for scene and patient management, the next theme represents the elements that either directly or indirectly influence these activities. In contrast to the purposeful exploits of paramedic *actions*, paramedic *effects* refer to elements largely outside the self-determination of the attending paramedic. The secondary themes of paramedic effects comprised two intuitive elements, *default-to-truth* and *cognitive control*, and five personalised elements, *fatigue*, *partner dynamics*, *experience*, *self-assuredness*, and *psychological injury*. Although the elements identified as secondary themes are not purposeful by nature, their consequences for scene control are no less impactful, as they can alter both performance and decision-making processes.

Default-to-Truth

The first of the secondary themes identified through the process of data analysis describes the innate problem of cognitive bias that paramedics must contend with during management of patient-initiated hostility. These biases and conventions, inherent to and established in the human psyche, can represent a formidable obstacle

for paramedics' management of patient hostility (O'Sullivan & Schofield, 2018). One such convention, the principle of trust, is a preconception that is fundamental to human behaviour and critical to the social interactions and functions of an effective society. The preconception of trust proposes that interaction between individuals contains a default presumption that the words and actions of other individuals are essentially truthful. Although this foundation enables efficient communication and cooperation, it also exposes individuals to occasional deceit (Levine, 2014). Paramedics identified that this tendency towards the presumption of trust influenced not only their management practices but their ability to tolerate the patient's conduct.

> *Yeah, initially it was just, I think that's just [the patient] trying to clear his mouth from all that taste of vomit, so I was, I'm okay with that [spitting]. R48FA07U*

> *That was just in my head, I think this is postictal [post-seizure behaviour] and I'm here to help. So, I'm not going to move away from you. I'll give you a bit of space, but I think you're just a bit confused and postictal and I think you're sick... I just think—it's just hard and I try in this job, I think, to give people the benefit of the doubt. R25FA02R*

> *It is hard but I'm always conscious. I always give people a second chance, right? I've always had that attitude. L37FA12U*

The concept of default-to-truth remains a seminal issue within paramedic practice and it is identified by Campeau (2007) in the implied acceptance of a patient's injury or illness. The default-to-truth principle typically ensures that when a patient states that they have chest pain suggestive of ischaemic heart disease, the paramedic is inclined to believe them and treat accordingly. The default-to-truth principle is essential within paramedic practice due to the limited availability of diagnostic tests and corroborative data, and the uncertainty that often exists within the paramedic–patient relationship. However, the default position of trust can put paramedics at a heightened risk of danger through a misguided belief that patients will not intentionally target them with aggressive or violent behaviour.

Cognitive Control

The second psychosomatic influence in the primary theme of *paramedic effects* is that of the cognitive control of the paramedic during the development of hostility.

Exposure to an act of hostility, whether verbal or physical, is often a traumatic event. The literature review in Chapter 2 has outlined in detail the psychological repercussions of this process on those affected (see section 2.2). However, it is not only the post-trauma effects of this event that can impact those involved. In the interviews, the paramedics described that their subsequent reaction to the OV event included effects in their mental processing ability, such as rational decision-making and perception skills. These interruptions to function were identified by van Erp et al. (2015) in their examination of paramedic performance during conflict. The potential consequences of patient-initiated hostility on a paramedic's ability to rationalise and regulate their behaviour, particularly when such skills are required for mitigation practices, is immense.

> *I certainly needed to catch my thoughts, and keep myself nice and calm and centred, and be mindful about what I was doing. N31FA11U*

> *It's almost like an out-of-body experience. I sort of talked about it with another girl at work, who I've worked with, and she's been the victim of domestic violence. She said it's quite similar. You have this out-of-body experience, where you're thinking about all this other stuff, apart from what's actually going on. N52MA17U*

> *It was difficult to do it. My heart was beating really fast, and I was dealing with my own kind of—supressing my own anxieties for sure. L37FA12U*

> *You have a mild—[Actually] I wouldn't say mild, [it's a] pretty big amygdala [stress] response; you're in flight or fight but you've still got to work through the process. N53MC35R*

The concept of cognitive control has its origin in neuroscience, and refers to the cerebral processes that allow humans to perform a diverse and adaptive range of functions (including those for behaviour) in a dynamic and changing environment based on current objectives (Cocchi et al., 2013). Cognitive control is essential when an individual experiences a stressful event, as it allows them to countermand instinctive impulses and supports goal-orientated decision-making. However, the ability to remain calm and controlled in the face of increasing emotional and physical stress is a challenge for attending paramedics. When faced with increasing levels of

emotion and stress, there is a human tendency for an individual's cognitive capacity to be consumed, narrowing both their focus and their ability to rationalise and problem solve (Cantelon et al., 2019). The activation of the sympathetic nervous system (fight, flight, or freeze response) in these situations occurs automatically and impulsively, with minimal involvement of the individual's cognitive regulatory processes and the cortical areas of their brain. Yet it is these cerebral areas that are needed to assist in the modulation of emotional and reactive responses (Haugvaldstad & Husum, 2016). In light of the reality of humans' physiological response to stressful situations, it could be inferred that mitigation techniques requiring cognitive resourcing, such as self-defence techniques, may not be suitable for staff reacting to situations that arouse powerful emotions (Haugvaldstad & Husum, 2016). While training and education can provide knowledge and skills for controlling cognitive load, the aptitude to translate those skills into high anxiety situations requires focus and a conscious process of structured planning.

Experience

The third subtheme within the thematic category *paramedic effects* is the first that relates to personalised aspects of paramedic care. Personalised aspects comprise the personal or individual elements that paramedics perceive as affecting their scene management practices. The first of these elements is paramedic experience. Paramedic experience is the well developed ability to use high-level communication and interpersonal skills to know when and how to act (Campeau, 2011). Experience within prehospital care is a quality obtained through the countless hours of patient interaction and through exposure to all different types of traumatic, medical, and behavioural presentations. Experience is a quality that is highly valued within paramedic care due in part to the isolation and lack of oversight that typically exemplifies its practice. However, experience is a particularly topical subject within paramedic practice, as EMS organisations must continually contend with the issue of transitioning graduate paramedics into independent practitioners (Devenish, 2014). Graduate paramedics have only limited exposure to clinical experience during the context of their education and occupational transition. Most of their objective learning occurs "on the streets", often without the knowledge and guidance of experienced practitioners (Kennedy et al., 2015). The paramedics interviewed for this study believed that, on entering the paramedic workforce, new graduates' lack of exposure and thus experience placed

them at a distinct disadvantage in terms of how they would undertake scene and patient management in relation to the threat of OV.

> *The grads just have not had the exposure or the whole "It's not going to happen to me". You know, "I'm going to deal with it like that. I'm going to be aggressive and angry and use my words. I'm going to be strong." When they realise—and that's the attitude at the moment. I said, Actually, you've got to take a much softer tone in these situations. L37FA12U*

> *A homogeneous group of kids that come to us through university. Sixty percent female or greater these days, 30 % male. They're going to university. They generally come from middle to high income background with very little to have done with drugs, alcohol, mental health, or badness. They [are] really either naïve or have little experience as to how to deal with conflict. Most human beings don't like conflict, they're conflict averse. None of them have been in a fight. None of them have probably had bad things happen to them. H55MC30U*

Such is the perceived importance of experience to paramedic practice that it is recognised as a critical aspect of scene management practices, from learning how to "read" the scene and participants, to learning what techniques and strategies to utilise in each situation (Gold & Eisenberg, 2009). This was particularly evident in paramedics' appreciation of experience in the management of violent or aggressive patients.

> *As I say, good judgement comes from experience, experience comes from bad judgement… I hate to say this but sometimes it's only through experience, and through getting it wrong and surviving it, that you get better at deciding how you do things. H55MC30U*

> *A bit more of it was more experience and having done it before and having been in situations like this before. N53MC35R*

> *I think at this point in my career, …I've got more of an idea of smelling a situation that has potential to go wrong, than somebody who's new to the job… I think I've learnt from being in scenes, that all of a sudden I've gone, Shit, this could go wrong, or having patients turn dynamically, or become very dynamic and change. A49MA15R*

> *You can't impart wisdom on people, you have to learn it. H32MC11R*

However, despite the perceived importance of experience to paramedic scene management and in managing violent patients, its benefits in incidents of paramedic OV appeared to be somewhat inconsistent. The paramedics interviewed for this thesis had an average work experience profile of over 15 years, with the most experienced paramedic in the sample having 40 years of on-road practice. Although the exact impact of a paramedic's experience on their specific OV incident is unknown, their previously acquired knowledge or proficiency was unable to effectively mitigate against their incident of violence and aggression. The reputed value of expertise highlights a considerable problem with the concept of experience in terms of its actual ability to influence or mitigate the manifestation of prehospital OV. This problem is known as the characteristic of self-assuredness, which refers to a paramedic's belief that they can manage a situation of potential hostility based on their acquired knowledge and capability. The potential influence of self-assuredness on paramedic OV can be considerable.

Self-assuredness

The role of experience and its association with paramedic OV can be problematic. Although learned experiences and knowledge are invaluable within the prehospital environment, including in the management of aggressive and violent patient behaviour, their application is vulnerable to distortion; this may happen when an individual's understanding of their experience creates a misleading form of self-assuredness. The thematic category of self-assuredness refers to the misplaced confidence of a paramedic in managing a patient without fear of hostility due to their perceived ability and experience in similar situations. The vulnerability of paramedics to this type of internal influence was acknowledged throughout the interview process.

> *We were just working through this very familiar job. We weren't trying to escalate anything. We weren't trying to start something. It—we were just trying to get through it. We've gone through all this before. It was a very similar scenario that we've done a hundred times. S35MA10U*

> *Put my mug up there and say, This is a guy, who has been in the job for 15 years, he was a former soldier. He knew the ropes and it surprised him. N52MA17U*

> *He'd calmed down, so I just relaxed because I was kind of like just holding his hand, trying to calm him down, sort of thing. It was working, my partner had the radio on, trying to keep him calm and that was all working. Then when he calmed right down it was like Okay, I can relax now and the second I relaxed he gave a big swing and got me in the face. N46MA19U*

> *We had kind of really—probably even from the start in hindsight had let our guard down because we just thought it would be one of these easy jobs to get in and get out. Y41FA17U*

Although there are many factors that can increase the risk of self-assuredness, including an individual's personal attributes, at the core of the trait is the influence of a paramedic's previous decision-making history and a process known as inductive reasoning (Taleb, 2007) Simply described, the problem of inductive knowledge is it seeks to understand the future given the knowledge of the past, for example, "Every dog I've seen was friendly, therefore, most dogs are probably friendly". The concern with this perspective is that it is self-reinforcing up until the point that its logic fails and the expertise from the past is proved to be inappropriate and misleading. It is this distortion of a paramedic's internal data that provides an ideal environment for a Black Swan event, which by definition tends to occur outside of recognised knowledge and expectations (Taleb, 2007; see section 6.3.1). Indeed, Weick and Sutcliffe (2007, p. 52) acknowledge this very principle while addressing the problem of complacency in their discussion of mindfulness:

> Success narrows perceptions, changes attitudes, reinforces a singular way of doing business, breeds overconfidence in the adequacy of current practices, and reduces acceptance of opposing points of view.

In the context of paramedic practice, such incidents occur when most of a paramedic's patient interactions, even those of heightened tension, occur without confrontation. With incidents of OV occurring in an estimated 5% of a paramedic's work tasking (Mock et al., 1998), it is not uncommon for some paramedics to experience a prolonged work period without exposure to OV. With each safe patient

interaction, the probability of a paramedic becoming self-assured when dealing with patients, even in heightened situations, is increased.

Fatigue

The preceding discussion of the data has established paramedics' perceptions of the impact of their own cognitive and learned behaviours on the development of patient-initiated hostility. While these other elements of paramedic effects present as indirect and often understated features of influence, there are ramifications on the paramedic and their performance that are far more obvious. One of the most readily identifiable of these determinations is the physical and mental effects of fatigue on paramedic decision-making and behavioural processes. The participants of this study highlighted the challenges of maintaining concentration and engaging with patients when they were affected by the consequences of fatigue. Paramedics acknowledged that they recognised tiredness as a salient influence on their ability to mitigate aggressive or violent patient behaviour.

> *I honestly believe that that was a significant—had a significant impact in my judgement and my decision-making in that job... It made it almost worse that we got this particular job so late. It definitely had a big effect being so tired already—big effect on my judgement." Y41FA17U*

> *You know, you are always tired on nightshifts, and you really have to dig deep sometimes. Take some really big breaths and go, Okay, I've got to get this out. L37FA12U*

> *Of course, it was coming towards the end of a nightshift, it was an overtime shift. I was tired, probably don't have as much of a heightened sense of awareness as I would at other times. E28FA07U*

> *I do know that within myself I do struggle at 3:00 am in the morning. E41MA15U*

In contrast to previous themes of experience or self-assuredness, fatigue is a factor than can affect any paramedic, regardless and independent of their education, training, or proficiency. Fatigue is a common issue within paramedic practice, as the work is characterised by its 24 hour, 7 days a week rostering that ensures emergency medical care is constantly available to those in need. Paramedic shifts typically run as either day, afternoon, or night rostering, with most being between 10 and 12 hours

long, excluding shift extensions, which can potentially add hours to a rostered finish time. The pressure of emergency work demands can place additional stress on individuals to maintain performance, particularly if this demand is compounded by repeated fatigue, hunger, poor diet, and lack of exercise. The impact of fatigue is seen as particularly significant; research within both paramedicine and nursing has repeatedly identified the neuro-behavioural performance deficiencies associated with the impact of long shifts, including increased risk of occupational injuries and errors (Geiger-Brown et al., 2012; Myers et al., 2017; Toyokuni et al., 2020). Although the impact of fatigue has far-reaching consequences for all elements of paramedic care, including the skills required for emergency driving and drug calculations, its influence on risk mitigation interventions and strategies can be just as important.

Partner Dynamics

Acknowledgement of the role of fatigue, and to a lesser extent, hunger, diet, and exercise, towards patient and scene management highlights the individual influences that are involved in these processes. However, most paramedic work does not occur in isolation but rather in collaboration with another paramedic. It is this partnership that introduces another layer of complexity to scene and patient management. This secondary theme in the category of *paramedic effects* reflects on the social relationships that exist between paramedic coworkers and references the relational workings of operational paramedic practice in a two-person ambulance crew. These coworkers operate intimately to perform the assessment, treatment, and transport of ill and injured patients. This model of paramedic care is typically utilised throughout all Australian EMS organisations. While collaboration between paramedics is predominantly congruous and effective, paramedics identified failings in this relationship as contributing to the development of violent and aggressive patient behaviour.

> *So, there was already this negative relationship and negative vibe from the very beginning just between my partner and myself. I just felt that didn't help through the rest of the night and that situation of occupational violence that I had with the patient strangling me and my partner walked away. L37FA12U*

> *If it had been me, I would not have left him, but [my partner] left me. I'm not blaming him; I don't know what led up to that situation R52MA27R.*

> *Probably in hindsight because you are led by your partner at times. My partner was out of the car pretty quickly and over to where the patient was, way before I'd gotten out of the car and told [dispatch], and done this and done that, and come around. It would normally be nice to turn up with both of us standing there and having a trained eye on the patient and stuff like that. H55MC30U*

The data notably indicated that paramedics regarded the nature of their work-partner relationship as a component of influence within paramedic OV. The SCTPSM specifically acknowledges this relationship through the process of *collateral monitoring*, however, the model focusses on the role of the partnership in terms of a performance, rather than a protective, characteristic (Campeau, 2007). Regardless of its association to the paramedic theory of practice, the relationship that a paramedic and their work partner have is unique in healthcare. No other healthcare practitioners rely on a colleague for assistance, cooperation, and safety like paramedics (Furin et al., 2015). The prominence of this paramedic–paramedic relationship arises out of the dynamic nature of the prehospital scene and the difficulties of a single paramedic in monitoring the interconnected elements of the patient, their illness or injury, the environment, and its affiliated actors, including family, friends, and bystanders (Campeau, 2007). Such is the influence of this relationship that participants' accounts indicate that any deterioration can result in a potential compromise to their personal safety and wellbeing.

Psychological Injury

To this point, the themes derived from the data have provided direct context for the role of the paramedic and the escalation of patient-initiated hostility. These themes have demonstrated how actions, thoughts, biases, proficiencies, and lifestyle influence paramedics and patient interaction. However, the final secondary theme concerning the influence of the paramedic is not so explicit. The premise of psychological injury references the effect of post-traumatic damages on paramedic attitude, behaviour, and consequently their scene management practices. The characteristic of psychological injury as a facet of *paramedic effects* is complicated given that it requires that a paramedic has already sustained damages as a result of aggressive or violent

behaviour. Nevertheless, the post-incident effects of such exposure can dramatically influence a paramedic's psychological wellbeing and therefore their ability to engage and interact effectively during patient care (Lawn et al., 2019). The paramedics interviewed for this study presented profound evidence of the post-traumatic effects of aggressive and violent patient behaviour on their continuing personal performance.

> *So afterwards it was—you get that nervousness still… Like the first one I went to afterwards and it was a hammer and an axe involved and I'm like, Whoa, you know. Just the thought of it, a lot more nervous than I was. D37MA13U*

> *That was probably 3 or 4 weeks later that I decided, no, you know what, I can't stop thinking about this job, I can't sleep, I'm quite distressed, more distressed than I thought I would be. N31FA11U*

> *[My partner] was only fairly new in the job. She felt a little bit nervous and a bit twitchy, she confessed to me, for about a year afterwards, and he never laid a hand on her. N52MA17U*

> *I think you realise how the exposure gets to you a bit. R25FA02R*

The health and safety of paramedics remains of critical importance, not only to the individual but to their family, friends, colleagues, and indeed their EMS organisation. This concern extends beyond the physical and traumatic injuries sustained and includes the physiological damage resulting from patient-initiated violence and aggression. As has been discussed, the psychological damage of paramedic OV is significant (see section 2.2); however, its continuing influence for both the paramedic and their scene and patient management highlights the critical role of post-incident support as a component of any OV mitigation system. Encompassing more than identification and intervention procedures, central to any effective OV mitigation system is the physiological and psychological care and support an organisation provides to its paramedics after an OV incident has occurred. This care may be medical attention, reporting, incident debriefing, informal and formal peer support, and psychiatric support services. Paramedics' post-incident observations of their OV incident depicted varied organisational responses to their application for such support services. While many of the participant paramedics reflected on positive elements of their EMS organisations' response to their incident, all but seven criticised

the performance of the organisation and management regarding aspects of inaction, insincerity, or a lack of extended care.

> *My assault wasn't reported to the management or [peer support]. Even when I did the witness statement, I told my [station officer], I've done a witness statement and the patient is going to be charged with assault of a paramedic. That again wasn't reported up the chain. D37MA13U*

> *I know from being a [station officer] that an [incident] report… only exist so the organisation has the appearance… of doing the right thing—of caring. But… in reality it's not supportive. S35MA10U*

> *When your [station officer] is treating you like you're a bad person, the occupational safety person's treating you like a bad person too, it's like, Okay, I get the message. H55MC30U*

> *We got no calls from even the [supervisor] that came, he never checked on us anytime afterwards. There was no contact from peer support. There was no contact from any management, even our own [station officer] never checked up on us or anything like that. N46MA19U*

Although all aspects of organisational care and support are important after an OV incident, the post-incident reflection of paramedics centred primarily on the importance of effective psychological support. Post-OV psychological support can take different forms, including informal discussions with colleagues and supervisors, and formalised peer support services with contextual psychological services, as required. Such psychological support services have long been recognised by EMS organisations and paramedics as an important resource to assist in the management and mental processing of traumatic and challenging scenes (Regehr & Millar, 2007). However, despite the benefits of peer support and psychological care, participants identified that its application in the support of paramedics who had experienced OV was problematic.

> *Not that I wasn't okay. It's just—[the peer support call] was just very brief, and it certainly wasn't at all probing into whether I was okay or not. If I said I was okay, that was something ticked off and that was fine. Y41FA17U*

> *We knew three people at that stage had told the peer support coordinator that we'd been assaulted, and she never made any attempt to get anybody to ring us or check up on us. N46MA19U*

> *You know, you'd always check up on a mate if they fell out of the truck and rolled and broke their ankle. You would always check on them. But at this point in time nobody knows why I'm off work. They just know I'm off work. N31FA11U*

> *Peer support wasn't contacted either. That should have been an immediate contact. I pressed—we've got a button on our [electronic report form] that you can choose to press if peer support needs to be notified, and I pressed that. L37FA12U*

The perceived ineffectiveness of existing OV mitigation systems to provide meaningful psychological care to paramedics after incidents of violence and aggression is a notable finding. Moreover, it is one that is consistent with other studies within the paramedic OV literature (Lawn et al., 2019; Regehr & Millar, 2007). Furthermore, paramedics' evident association between this limited care and post-OV psychological injuries was also significant. The problem of psychological injuries after incidents of violence and aggression was reflected upon by almost half of all paramedics interviewed for this study. Significantly, all the paramedics who disclosed an issue with a post-psychological impact of the OV incident identified issues with receiving inadequate levels of organisational and/or peer support care.

> *I think that it's affected me, I have started taking some antidepressants to manage things. It's like listening to a phone call, isn't it? Your call is important to us. We need people to tell you, other than a recorded thing, You are important to us, mate. We want to get you back on the road not because we want a bum on the seat, because you're important. R52MA27R*

> *I just felt a bit sad and bit unappreciated and lost a little bit of enthusiasm for the job. You know, the colours didn't seem as bright anymore. That maybe took a couple of months to work through. N52MA17U*

> *I know you can't force someone to talk about it but I think if I'd had that opportunity and saw that in the 48, 54, 72 hours or whatever after the fact, I might be in a different situation and different mind-*

set now. But they were trying to fix it a week to 2 weeks after and then my approach was very much a Go away. D37MA13U

The evident inadequacies of participant paramedics' post-event support presents a significant challenge for EMS organisations and their OV mitigation strategies. Although the idea of improved support for paramedics following such events appears rudimentary, its position as part of a strategic approach to OV mitigation appears more challenging. The very nature of psychological harm suggests that instead of its detachment or siloing in mitigation strategy, it requires prominence and interconnection. These characteristics feature conspicuously within the concept of mindfulness, and will be addressed in detail in the following chapter.

5.4 Summary

The results of this study highlight the dynamic and multifaceted nature of paramedic OV and the challenges that existing mitigation systems encounter in providing effective and meaningful support for paramedics affected by this phenomenon. Through the lens of the paramedic theory of practice (SCTPSM), the study findings present a distinctive portrayal of patient-initiated hostility and its mitigation practices. Paramedics' descriptions of OV processes expose the deficiencies of existing mitigation systems and what appears as an apparently system-wide misrepresentation of the nature and disposition of prehospital aggression and violence. As opposed to a simplistic representation of violent and aggressive behaviour, the experiences of the paramedics depict a wide array of intricate clinical presentations and patient interactions interconnecting them to the process of OV. It is this disconnect that underscores why existing OV mitigation systems seem to struggle to mitigate the phenomenon of violence and aggression against paramedics. Paramedic OV can represent different perpetrators (patients, family and friends, bystanders) with different and competing stimuli (injury, illness, pain, frustration, mental illness, and alcohol and drug intoxication). Paramedic OV can present in different forms (verbal, physical, sexual) with different motives and consequences (physical, psychological). It can occur in different locations (ambulance, street, house, hospital) and in any moment of paramedic–patient care (during assessment, transport, or hospital handover).

Despite the complexity of paramedic OV, the paramedic–patient relationship is a constant that pervades every single occurrence of violence or aggression. Paramedic OV is described by the participants of this study as a bilateral, dynamic activity that is subject to the transference of social processes between the paramedic and the patient. All components of paramedic OV analysed for this study show the embedded nature of social processes in paramedic scene management and patient care. It was this socialisation that led to the development of the dominant themes, *patient engagement* and *reaction*, and *paramedic actions* and *effects*.

Moreover, participants' acknowledgement of the importance of social processes in OV mitigation validates the role that the SCTPSM can have in OV mitigation practices. While not specifically developed for OV, the SCTPSM encompasses the social developments that occur during paramedic scene management, and thereby implicitly includes manifestations of prehospital aggression and violence. However, the five categories that comprise the SCTPSM were found to be insufficient for rationalising the entirety of the complex social processes between the paramedic and the patient during incidents of OV. Thus, the results of this thesis support an evolution of the current model through addition to the original categories of the SCTPSM.

Furthermore, even with the role of the paramedic, the patient, and their interaction forming part of a new understanding of paramedic OV development, some discernible details remain to be clarified. Foremost is that the development of OV is by-and-large not compatible with a facile portrayal of violence that is inflicted upon an attending paramedic by an intractable or irrational patient. Rather, the evidence supports that OV is complex, dynamic, and critically, congruent with the social processes of prehospital healthcare. Second, giving attention to the social processes of the paramedic–patient interaction shifts the focal point of mitigation practices away from a proactive or reactive framework and towards the active components of OV engagement. The active component of this engagement centres paramedic performance in the "now", mindfully turning paramedic awareness towards their actions and behaviour, and their effect on patient reaction. Last, despite the perceptible influences that contribute to OV, the constant spectre of patient unpredictability remains to threaten this position. This unpredictability, which is conceivably an example of Black Swan ideology, presents as a fundamental challenge to existing

paramedic OV mitigation practices and tenets. These trends and their impact on paramedic OV are discussed in greater detail in the following chapter.

Chapter 6: Discussion

The previous chapter has demonstrated the difficulties that exist in current paramedic OV mitigation systems and the critical role that paramedic–patient social interaction and behaviour play in this process. The findings not only drew upon the social features of the paramedic theory of practice but also identified the new concepts of activeness and unpredictability. With the awareness of these findings, the aim of this chapter is to position the OV experiences of paramedics within the existing literature. This chapter has four main areas of focus: (a) the role of the paramedic theory of practice, the SCTPSM, within the context of paramedic OV (section 6.1); (b) the paramedic–patient interaction and its association with OV (section 6.2); (c) the premise of unpredictability, risk management, and its connection to mitigation practices (section 6.3); and (d) the concept of mindfulness and its role in the active management of paramedic OV.

Insights from the study participants reveal that the existing paramedic theory of practice, the SCTPSM, is deficient in its validation of specific social processes, making the first component of this discussion a review of the SCTPSM. It is important to acknowledge at this point that while the objective of this study was not to test the SCTPSM, data highlight that the model has considerable limitations in accounting for the influence of paramedic–patient behaviour on scene management. The limitations of the SCTPSM regarding these behaviours during scene management therefore necessitate an adaptation of the model so that it can more accurately reflect the influence of the paramedic–patient interaction as part of its process. Furthermore, the evolution of the SCTPSM is necessary for linking the model to the ongoing discussion of paramedic OV in this thesis. The Model of Paramedic Scene Manipulation (see Figure **6.1**) is thus an updated version of SCTPSM that builds on the scene management portrayal described by Campeau (2007) through the addition of the process of correlative paramedic–patient interaction. It is this development of interaction that validates the data obtained through the interview process and provides further insight into the social processes that occur during paramedic scene management, emergency care, and the evolution of hostile patient behaviour.

The next area of focus, the paramedic–patient relationship, is the foundational basis for the discussion within this chapter. It is the social processes of the paramedic and the patient that ultimately define, direct, and determine the course of paramedic scene management. However, the perception of interpersonal relationships as a critical component of paramedic practice has not been extensively explored in the literature. Nevertheless, the interpersonal relationships that paramedics develop with patients are comparable to those expected in other systems within healthcare. Although the unique nature of the paramedic environment arguably infers that its interpersonal relationships have a potentially stronger influence in its practice, comparisons with nursing and psychiatric care can provide a comparable contextual sphere for this interaction. It is the context of this relationship within the paramedic milieu and its associated connection with OV that is examined in detail within this chapter.

The review of the paramedic–patient interaction process and its association with OV that is presented in this chapter is underpinned by an analysis of the dominant theme of unpredictability, which findings uncovered in participants' accounts of paramedic–patient interactions. Unpredictability is an area of significant concern for paramedic OV as it questions the usefulness and validity of established aspects of mitigation training such as situational awareness or body-language assessment. Prior to the results of this thesis, unpredictability was an unfamiliar concept within paramedic OV. However, unpredictability is a principle that has received significant attention in risk management literature in such fields as engineering and economics. This chapter builds on the concept of unpredictability and its connection with paramedic OV through the Black Swan principle identified throughout this thesis. Importantly, the concept of the Black Swan introduces risk management conventions into paramedic mitigation strategies, allowing these to embrace the idea of uncertainty and unpredictability. The discussion of risk management concludes with an explanation of how EMS systems can improve their capability at both anticipating and, critically, containing paramedic OV events. At this point, the concept of mindfulness is fully developed as an alternative strategy for the mitigation of acts of prehospital patient-initiated hostility.

6.1 The Model of Paramedic Scene Manipulation

The SCTPSM is a paramedic theory of practice that describes how practitioners can manage, adapt, and control the social and physical elements of an emergency scene to achieve their objective of patient care. The theory posits that while physical elements play an important role in the management of an emergency scene, scene management is essentially a social process of paramedic interaction with other individuals to facilitate patient care. However, despite the numerous references to social processes throughout the SCTPSM, the results of this study have demonstrated deficiencies for the application of this paramedic theory of practice. The most notable of these faults is the absence of specific reference to the influence of the paramedic, and indeed the patient, on scene management practices. The inadequacies of the SCTPSM are somewhat surprising given that Campeau (2007) utilises the insight of Haas and Shaffir (1978) to concede the importance of the paramedic–patient interaction for this practice. This albeit indirect acknowledgement recognises that paramedic scene management is a social process of participant interaction:

> The meaning of objects, their symbols, and our actions toward them evolve largely out of the context of our interactions with others. This interaction takes place in situations defined by the participants themselves. (Haas & Shaffir, 1978, p. 4)

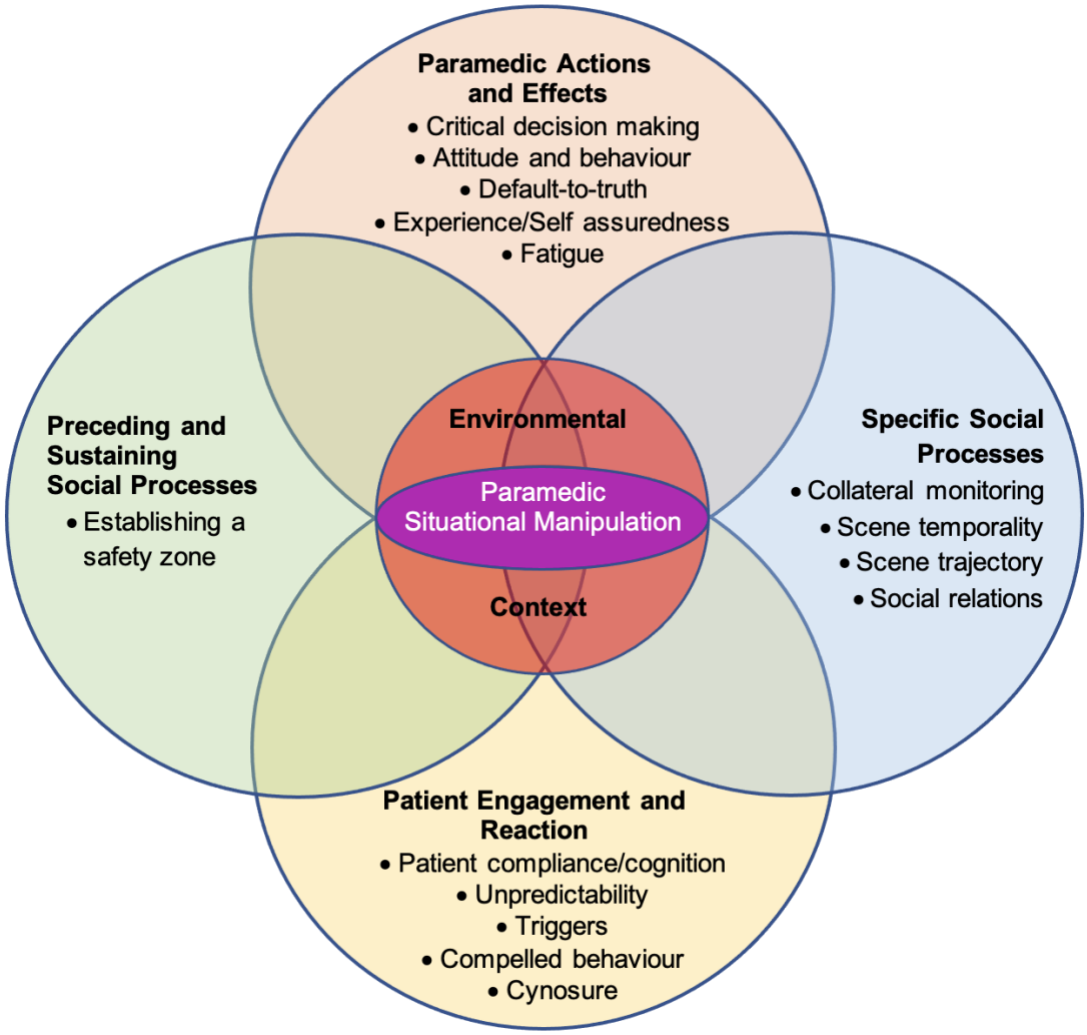
Importantly, Campeau (2007) develops upon the concept of engagement within this process as being dependent upon (not estranged from) the situational context of the communication (Polacek et al., 2015). The idea of context for the interaction is critical and will be discussed in detail later in this chapter as part of its association with paramedic OV (see section 6.2.2). However, instead of Campeau elaborating on the most critical component of prehospital patient care, the contextual paramedic–patient relationship, the SCTPSM is left remarkably wanting in the development of this notion. However, notwithstanding this lack of formal presentation of the paramedic–patient relationship in the model, Campeau's affirmation of the interaction process still helps support the specific role of patient engagement and reaction for scene management practices.

The SCTPSM's deficiencies in representing the paramedic, the patient, and their relationship have important connotations, not only for scene management but also for OV mitigation. These absent paramedic–patient influences form the basis of the

evolution of the SCTPSM, which occurs in order to better acknowledge and incorporate the pivotal role of the human impacts involved in paramedic scene management. The modified version of the paramedic theory of practice that emerged from the findings of this research has been titled the "Model of Paramedic Situational Manipulation" (MPSM; see Figure **6.1**). The MPSM incorporates the social adaptation of the paramedic and the patient while remaining consistent to the original theory of paramedic scene management.

Figure 6.1

The Model of Paramedic Situational Manipulation



Aside from its changed appearance, which better reflects the perpetual nature of scene management practices, the new model features the introduction of categories for the *paramedic* and the *patient*. These categories position themselves prominently in

the revised model; significantly, however, they do so through the influence all other elements of scene control, including the environmental context. The addition of paramedic–patient influences in the MPSM represents a new and important conceptual understanding for paramedic practice theory. While acknowledged extensively throughout the results of this thesis, the effects of these influences remain so far underdeveloped in the paramedic literature. However, within other healthcare literature, these influences have previously been demonstrated to affect the quality of care a patient receives, and they appear as a decisive component of hostile behaviour development (Nijman et al., 1999; Peplau, 1997). Later discussion of these paramedic–patient influences will draw from this wider healthcare evidence base (see section 6.2).

The other main alteration to the SCTSPM model is its restrained but necessary renaming. Although such a change may appear trivial, it is essential to both define and frame the new model's context. At the core of the paramedic–patient relationship lies the intricacy of human behaviour. By their very nature, humans are complex beings and their exploits can be influenced by a range of determinants, including attitudes, emotions, ethics, culture, and context. These influences can result in individuals behaving in markedly different ways in very similar situations. Thus, the intricacies of social interaction between two distinct individuals, the behavioural complexity of one individual and the comprehension and interpretative competence of the other, render human interaction one of the most complex human processes to understand and predict (Deutsch et al., 2016). Critically, these behavioural complexities exist separate from the additional considerations needed for patients with reduced cognitive function resulting from drug and alcohol intoxication, electrolyte imbalances, mental health emergencies, and cerebral trauma. Therefore, when Campeau (2007) discusses issues of paramedic "control" of the emergency scene and socially dynamic settings, it is essentially an illusion of control. The concept of patient regulation as part of the larger concept of scene control is one that is generally incongruent with the disposition of human behaviour. It is for this reason that the idea of "space-control" has been replaced with the contextual scene management understanding of *situational manipulation* in the model's title. It is only through the constant and ongoing manipulation of the specific social processes and the dynamic interplay of the

components that influence them that any management of the prehospital scene is achievable.

Furthermore, as acknowledged throughout this study, paramedic management of the scene does not cease at the point of patient contact. Scene management continues throughout the entire duration of patient interaction until the point of care transference. This transfer may occur at a hospital, a doctors' surgery, a mental-health facility, to another person (such as a guardian or the police), or, indeed, the patient may be released into their own care. Therefore, to reflect the complex and on-going adaptation of the "scene" towards achieving patient care, transport, and discharge, this potentially confusing term has also been removed from the model's title.

The adaptation of the SCTPSM paramedic theory of practice into the MPSM provides the foundation through which the study's thematic findings can be discussed. Although nominally, the MPSM can be applied to any setting where the paramedic is required to influence social and physical elements for the objective of patient management, it is the model's application for OV mitigation that is of most importance to this study. It is this purpose of the MPSM that will now be discussed in detail.

6.2 Paramedic–Patient Interaction

While acknowledgement of the paramedic–patient relationship as pivotal to prehospital scene management is important, it is essential that the basis of this philosophy is developed and supported through peer-reviewed literature (Senn, 2013). Although the impact of interpersonal relations and engagement has received minimal attention in the prehospital literature, the specialties of nursing and psychiatric care have long asserted the importance of this connection. However, the application of cross-speciality knowledge is contentious, and this study has repeatedly identified the same issue in relation to the non-specificity of paramedic OV interventions that are coopted for paramedic use from outside the profession. While this contrasting position is acknowledged, the existing deficiencies in the paramedic literature provide reasoning for the contextual utilisation of interdisciplinary ideas within this thesis. Even so, the application of these theories and principles will be referenced against relevant paramedic perspective and commentary to help ensure the prehospital reliability of this discussion.

The significance of the patient–client interaction as a strategic trigger for OV within healthcare is reflected in the data obtained through this study's interview process. The key themes identified and described in the results section of this paper demonstrate OV as the culmination of a breakdown in the social processes that exist between the paramedic and the patient. The themes *disengagement*, *cynosure*, and *escalation* are all manifestations of the processes that occurred during dysfunctional paramedic–patient interpersonal relations. That events typifying these negative themes were often preceded by the premise of initial patient compliance further highlights the notion of relational degeneration. Although the influences preceded the act of hostility, it was not until the interaction between the paramedic and the patient occurred that the violence eventuated. Therefore, it was the engagement and interaction between the participants that conceptualised these episodes of paramedic OV. In order to appreciate the association between OV and the paramedic–patient relationship, it is first necessary to understand this type of violence.

The nature of human violence and aggression is somewhat contentious and there are numerous theories that attempt to both define and rationalise the motives behind it (Anderson & Bushman, 2002; Haugvaldstad & Husum, 2016). Although it is not the intention of this paper to explore the subtleties of violent behaviour, it is important to acknowledge that violence and aggression is a complex phenomenon that comprises triggers, behaviours, and effects in excess of individual perpetrator characteristics (Gudde et al., 2015). Thus, for the purpose of suitable representation, it is accepted that aggression can be broadly documented through the dichotomous models of proactive and reactive aggression, where these designations reflect the basis of the initiation of hostility (Siegel & Victoroff, 2009).

Within the domain of OV, violence and aggression appear to predominantly evolve from an impulsive response to threats or fear that is driven by a reactive cognitive regulatory process (Duxbury & Whittington, 2005). This response, termed *reactive or affective aggression*, is associated with a fight or flight response and is initiated to avoid or eliminate danger (Haugvaldstad & Husum, 2016; Siegel & Victoroff, 2009). In contrast to affective aggression, predatory aggression is described as contributory, proactive, and premediated (Siegel & Victoroff, 2009). As the name suggests, affective aggression does not occur in isolation but is influenced by an individual's interaction with their environment, including personal threats to safety,

pride, and sense of justice (Haugvaldstad & Husum, 2016). Within healthcare, common triggers identified for the initiation of violent behaviour include pain and discomfort, physical restraint, involuntary detention, dehumanising behaviour, and, significantly, patient–client interaction (Arnetz et al., 2015; Gudde et al., 2015).

At this point, the influence of a patient's individual neurobiology, psychopathology, physical, and metabolic condition need to be acknowledged as factors in the initiation of violent or aggressive behaviour. Numerous drugs (e.g., alcohol and methamphetamines), psychiatric diseases, and cognitive dysfunction resulting from trauma or organic causes are well known to increase an individual's tendency towards pugnacious behaviour (Cornaggia et al., 2011; Duxbury & Whittington, 2005; Hahn et al., 2008). Alcohol intoxication, in particular, can induce a heightened awareness of environmental instigative cues and reduction in an individual's impulse control (Coomber et al., 2019). However, as the effects of these influences are not pervasive in all perpetrators, literature suggests that such conditions or presentations impel violence, or facilitate rather than originate it (Anderson & Bushman, 2002; Whittington & Richter, 2006). While observing this reality does not set aside the increased risk associated with these conditions and paramedic OV, the acknowledgement that processes influencing an individual's cognitive state are not the primary driver of violent behaviour is important. This recognition refocusses discussion of the development of antisocial conduct on the interaction and relationship between the perpetrator and the target of their actions (Whittington & Richter, 2006).

The notion of the paramedic–patient interaction is important, but notwithstanding the obvious connections of the relationship, what characterises it and what is its association with OV? Interaction denotes a range of mental and social experiences that are used to describe how the actions and behaviour of one individual are understood and reacted upon by another individual (Whittington & Richter, 2006). Importantly, these experiences are both psychological and social in nature, as individuals operate within their own subjective system, yet at the same time are influenced by the collective social system of their current environment (Whittington & Richter, 2006). In this sense, it is the constant interplay of action and reaction between the paramedic and the patient during scene management that provides the cornerstone for the development of hostile behaviour.

6.2.1 The Prehospital Care Relationship

This thesis has identified the paramedic–patient relationship as not only an essential component of scene management but as critical to the evolution of acts of violence and aggression. However, the basis of this relationship is formed in the complex setting of prehospital healthcare, and it is necessary that the paramedic–patient interaction is comprehended from this unique perspective. The notion of interpersonal relations as a key concept of healthcare has been recognised for almost 70 years within the nursing literature (Gastmans, 1998). This recognition is a consequence of the nature of nursing practice, where, much like paramedicine, most of the work (including history taking, assessment, and treatment) occurs during, and because of, patient interaction. One of the seminal authors on the subject, Hildegard Peplau (1997), introduced her theory of interpersonal relations to conceptualise this relationship. Situated within the domain of professional nursing practice, the theory postulated a framework that provides a context through which many of the problems that patients experience with nurses can be understood (Peplau, 1992). Peplau's (1992) interpersonal theory is based on the belief that interactions which occur between individuals can be observed, described, understood, and if harmful, altered.

Peplau (1997) developed her theory of interpersonal relations around the central premise of nursing practice, the nurse–patient relationship. Within healthcare, the nurse–patient relationship presents a unique category of interaction where, rather than a dominant or social affiliation, the interaction occurs as a joint undertaking of medical attention. The nurse–patient relationship thus comprises a bilateral connection between the patient and the practitioner and is utilised to identify the presenting problem, understand the problem within its construct, and appreciate, apply, and evaluate remedial measures. The sole objective of this relationship is to promote beneficial outcomes in patient healthcare (Peplau, 1992; Senn, 2013).

Peplau's (1997) theory of interpersonal relations utilises the practitioner–patient relationship as the core construct of its model, segmenting this connection into three distinct phases of interaction. The initial phase of this model is *orientation*, which establishes both the health-seeking behaviour of the patient, and the practitioner that is qualified to render assistance. It is during this phase that the practitioner collects data, registers initial assessments of the patient's immediate and potential needs, and identifies any latent psychological inclinations capable of influencing care (Forchuk,

1991; Senn, 2013). For the purposes of this thesis, these first-phase functions can be seen to correspond with the patient engagement theme of *patient cognition*, and the paramedic action themes of *critical decision-making* and *ethico-legal considerations*.

The second phase of Peplau's (1997) theory represents the *working* component of the concept; it is named because the majority of functional interaction occurs during this period, and consists of the dual primary functions, identification and exploitation. Identification ensures the patient begins to connect with the practitioner–patient encounter and starts to categorise the problems and sub-problems that need to be managed within the context of the relationship. After identification, exploitation marks progress towards beneficial health outcomes and the focus of the interaction as it evolves to patient action and reaction (Forchuk, 1991; Senn, 2013). Second-phase functions are seen to correspond with the *patient engagement* and *reaction* themes of *compliance*, *disengagemen*t, *violence triggers*, and *unpredictability*, and the *paramedic actions* and *effects* themes of *attitude and behaviour*, *default-to-truth*, *experience*, and *fatigue*. The final component of Peplau's interpersonal theory is the *termination* phase, which denotes the disengagement of the patient–practitioner relationship (Senn, 2013). The termination phase is paralleled in paramedic practice by either the handover of the patient to another healthcare professional (e.g., in a setting such as the ED) or the discharge of care.

Peplau's (1997) theory of interpersonal relations merges innately from its native nursing milieu into paramedic practice, as it is similarly conceptually centred on the phenomenon of practitioner–patient interaction. Its emphasis on interpersonal relations and verbal and nonverbal communication renders the theory useful in any area of healthcare where a lived experience approach may apply (Peplau, 1992). In light of this, in order to avoid further confusion when discussing the concept of interpersonal theory and its relationship to paramedic scene manipulation, from this point onwards, I will exchange Peplau's practitioner terminology of *nurse* with this study's *paramedic*.

Critically, the representation of Peplau's (1997) interpersonal theory as a bilateral association between the paramedic and the patient is reliant on the observations of the paramedic regarding their connections, patterns, and bonds within the relationship. Although the term "observation" might imply an outward

perspective, central to the notion of paramedic observation is the requirement for self-reflection. Peplau (1997, p. 162) herself states that:

> Participant observation requires [paramedics'] unflinching self-scrutiny and total honesty in assessment of their behaviour in interactions with patients. By observing and analysing their own behaviour, [paramedics] become more fully aware of the needs, intentions and messages they communicate to patients. The words and voice tones that [paramedics] use and the body language and other gestural messages which they convey are often noticed by patients.

Interpersonal theory describes, in essence, the relationship that establishes the necessary social framework between the paramedic and the patient (Peplau, 1997). It provides the foundation upon which an interactive, relational process can develop with unique therapeutic intent (Gastmans, 1998). It is this interaction that creates engagement; when effective, it confirms both self-worth and association with others, and supports self-esteem. Critically, it ideally provides patients with an opportunity to express the details of their health problems within a relationship that supplies the empathy, respect, and dignity they seek (Peplau, 1997). Furthermore, Peplau (1997) ascribes the very nature of healthcare to the essentiality of humanity, and observes that personal improvement takes place with and for the benefit of others (Gastmans, 1998). Such is the importance of this relationship for Peplau (1997) that the model places interpersonal relations at the centre of healthcare practice. With this statement in mind, and in consideration of this study's findings, it seems plausible that such relationships are and can be acknowledged as being just as integral in paramedic scene manipulation.

Interpersonal relationships, however, are vulnerable. Any interaction between participants is dependent on the constant interchange of expectations and perceptions of one party (i.e., the patient) with the tangible response behaviour of the other (i.e., the paramedic; Peplau, 1997). The nature of this interchange is particularly evident in the transfer of communication and body language; this was identified in the results section of this thesis through the paramedic theme of *attitude and behaviour*. Despite the importance this thesis attaches to the paramedic–patient interaction, it is useful to acknowledge that paramedics do not have the power to change the behaviour of their patients. The patient's behaviour will always remain within the domain of that individual (Peplau, 1992).

If behavioural change is to occur regarding OV, it must be impelled from the perspective of the patient, yet, importantly, as participants observed in their accounts, it is the behaviour of the paramedic that can and does function as the impetus for influencing this change. In relation to OV mitigation, therefore, it would seem crucial to advocate for paramedics to maintain control over the stimuli, messages, and cues that they present to a patient (Peplau, 1992). Paramedics observed in their accounts that patients were constantly defining their actions and behaviour, both verbal and nonverbal, and that this was often done unconsciously. Although such impetus forms part of their scene management practices and generally occurs without consequence, seemingly innocuous behaviour toward vulnerable patients, such as those under great stress, who are ill and/or experiencing psychiatric problems, can result in a misconstruction of motives and intentions with violent results (Hamrin et al., 2009; Peplau, 1997). This feature of patient behaviour was evident in participants' accounts, where a single word or action was enough to provoke a hostile patient reaction.

Behaviour is not the only destabilising influence for scene management. The debilitating role of illness and injury on the paramedic–patient relationship is considerable and can place substantial stress on patients, outside of the existing ailment itself. Patients experiencing illness are often required to manage concerns of developing suitable relationships with health professionals, managing pain and incapacitation, processing new environments, maintaining self-image, sustaining relationships with friends and family, and preparing for uncertainty (Moos & Schaefer, 1984). Perceived inequalities in social class, ethnicity, gender, and other social differences can further exacerbate this difficultly (Hamrin et al., 2009). The interpersonal needs of the patient, however, are often neglected by the healthcare worker in the urgency of diagnosis and treatment, thereby cultivating an atmosphere of anxiety and disconnection between the participants (Delaney et al., 2017; Peplau, 1997).

The concept of disconnectedness or disengagement is critical to the paramedic–patient relationship and is observable in the primary study theme of *patient engagement* (see section 5.2.1). The disconnection experienced by patients can be described as a temporary disruption of previously understood patterns of social integration, and patients who are anxious and stressed as a result of unfamiliar environments are particularly susceptible to this experience (Peplau, 1997). The

patterns of integration form through the links that are developed, securely and effectively, with known people (such as friends, family members, and coworkers); these provide the familiar bonds of connectedness (Peplau, 1997). Although codependent, the development of the paramedic–patient relationship is often over-reliant on the ability of the paramedic to penetrate the psychological and physical disconnection that can occur with patients. Without the ability to connect or engage with the patient, the capacity for communication transfer is compromised. Without effective communication, not only does the quality of the interpersonal relationship decrease, the likelihood that it will lead to deleterious outcomes increases (Polacek et al., 2015).

Both Peplau's (1997) interpersonal theory and the results of this study identify that the paramedic–patient interpersonal relationship is the most critical aspect of prehospital care. It is this relationship that establishes not only the basis for all verbal and nonverbal communication, but also the conduit through which the development of patient-initiated hostility typically occurs. Understanding the damaging role a dysfunctional paramedic–patient relationship can have on scene management practices is vital for OV mitigation; however, a deficient paramedic–patient interaction will not necessarily result in an act of aggression or violence. As the next section outlines, the environmental context of the paramedic–patient relationship provides the catalyst for this hostility.

6.2.2 Relationships, Context, and Violence

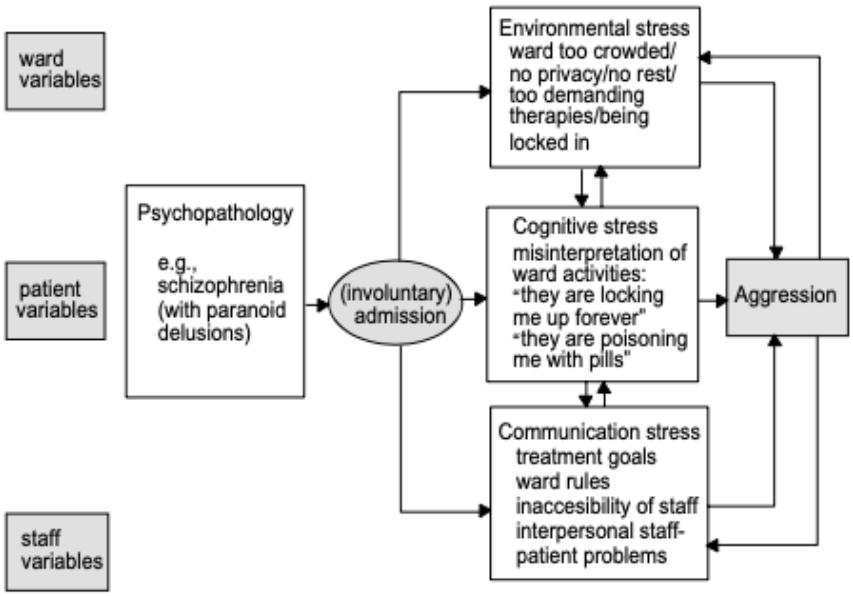
Despite its minimal attention in current paramedic OV mitigation practices, as a strategic determinant of patient-initiated hostility, the concept of paramedic–patient interaction is important—so much so that this interaction has even been described as the missing link in the perception, prediction, and management of violence in health settings (Whittington & Richter, 2006). Staff attitude, style of patient interaction, communication skills, role competence, and patent contact proficiency have been identified as more predictive of escalating patient violence than more conventional risk factors such as staff demography (Boyle et al., 2007; Furin et al., 2015; Hamrin et al., 2009). This perspective is further supported through contemporary criminology theory, which recognises the importance of reciprocal interaction as the most prominent trigger for violent crimes (Whittington & Richter, 2006). Nevertheless, it

is not only the interpersonal relationship that is responsible for violence initiation. It is the influence of this interaction within the context of the patient's illness/injury and the environment in which it is occurring that defines and dictates this engagement.

Existing literature acknowledges the role that the paramedic–patient relational context plays in acts of violence and aggression. A model of staff–patient–environment interaction and OV was first conceptualised by Nijman et al. (1999), through their work on aggression in psychiatric hospitals (see Figure **6.2**). While interpersonal relations had been identified as a precursor to violence prior to Nijman et al. (1999), these authors were influential in establishing the interplay of the three distinct variables in this process. The model of aggression developed by Nijman et al. (1999) integrates *the patient*, *the environment*, and *the staff* as essential incendiary variables in the development of aggression.

Figure 6.2

Model of Aggression in Psychiatric Hospitals



Note. From "A Tentative Model of Aggression on Inpatient Psychiatric Wards," by H. L. Nijman, J. M. à Campo, D. P. Ravelli, & H. L. Merckelbach, 1999, *Psychiatric Services*, *50*(6), p. 833 (https://doi.org/10.1176/ps.50.6.832). Copyright 1999 by Nijman et al.

While the variables of the patient, the environment (ward), and the staff influence the development of aggressive behaviour, the impact of these variables is also affected by key activities within this process, namely, cognitive stress,

environmental stress, and communication stress. First, the patient and their psychopathology, including cognitive distortion, substance abuse, and organic brain disease, provide the core element in this process. Correspondingly for the paramedical context, it is the patient and their medical or traumatic presentation that results in their interaction with the EMS system and paramedics (Nijman, 2002; Nijman et al., 1999). However, it is the second environmental activity, of hospitalisation (or, as in the case of paramedicine, the emergency scene) that inevitably introduces new situational stress on the patient (Nijman et al., 1999). This additional, environmental stress, produced by the unfamiliar, claustrophobic environment of the ward, scene, or ambulance, with its reduced privacy and invasive procedures, further exacerbates patient tension in these situations. This is the same stress that both Knor et al. (2020) and Pourshikhian et al. (2016) term "event shock" in their descriptions of the causal conditions of paramedic OV. The final activity, communication stress, presents as problematic interpersonal communication, issues relating to treatment, self-determination, and inconsistencies that become the fuse for aggressive behaviour (Nijman, 2002; Nijman et al., 1999). Within the context of healthcare, common interpersonal traits associated with OV include the practitioner's lack of empathy for the client's perspective; provision of inflexible care pathways; poor communication skills; and demeaning, insensitive, and unprofessional attitudes (Carlsson et al., 2004; Fagan-Pryor et al., 2003; Hamrin et al., 2009; Secker et al., 2004). Conversely, staff who experience less time pressure, are less influenced by social popularity, and who evaluate their own actions are less likely to become involved in violent encounters (Ray & Subich, 1998; Morrison, 1998).

The model of aggression (Nijman, 2002; Nijman et al., 1999) is meaningful, as it concedes the impact of the environment, interpersonal relations, and the treatment of patients as the impetus for OV, not just the patient themselves. The position of this model becomes extremely consequential within the paramedic OV discourse, particularly given the frequently hyperbolic and often insistent association of stereotypical risk factors such as alcohol or drug use associated with paramedic OV (Willacy, 2015). Importantly, while the model was developed around the initiation of OV within psychiatric hospitals, it provides not only an acute insight into prehospital aggression by those with mental illness but indeed the majority of patients requiring paramedic assessment and treatment. Although the reference to psychopathology as

part of the model is most commonly applied to behavioural dysfunction associated with mental illness, it can also apply to many types of social disorganisation including anxiety, stress, and trauma, and alcohol and drug-use disorders (Maddux & Winstead, 2015). It is these exact types of patients that present not only in large numbers in prehospital EMS scenes, but that are subsequently exposed and vulnerable to the same environmental, cognitive, and communication stresses acknowledged in the model of aggression (Nijman, 2002; Nijman et al., 1999).

6.2.3 Paramedic OV Disconnect

Despite the assertions made by study participants, the role of health practitioners and their influence in incidents of OV remains both contentious and unsupported by the wider peer-reviewed literature (Murray et al., 2020; Soheili et al., 2016; Thomas et al., 2020). The basis of this lack of support appears to lie in an apparent divide between how staff and patients generally perceive the causation of violent incidents (Arnetz et al., 2015; Hamrin et al., 2009; Hosseinikia et al., 2018). The literature consistently identifies that there is a propensity for healthcare organisations, staff, and patients to perceive acts of violent and aggressive behaviour from a contrasting perspective (Whittington & Richter, 2006). Whereas staff observed OV as a direct result of a patient's behaviour and cognitive function, patients were far more likely to identify poor communication and a lack of collaboration between staff as a precursor to violence (Duxbury & Whittington, 2005; Johnson & Delaney, 2006). The lack of shared understanding between the protagonists as to their individual contributions to the interpersonal aspects of OV events is concerning. Although the rationale for this disconnect is unclear (Hamrin et al., 2009), it may stem from the influence and perception of OV within healthcare organisational culture.

The position of patient-centred violence initiation is typically endorsed in health organisational culture through the way in which OV mitigation policy is distinguished and promoted. There is a tendency within health organisations, and indeed statutory bodies, whereby OV is solely attributed to patients, and intolerance of violent behaviour towards healthcare workers is promoted through OV health campaigns such as "No Excuse For Abuse" (Duxbury & Whittington, 2005). Further to this point, this thesis has already identified and discussed the patient-centric focus of paramedic OV mitigation programs and interventions (see Chapter 3). While I make no suggestion

that acts of OV should be accepted as routine behaviour within paramedic practice, there is precedence for taking a position that accepts that violence and aggression within healthcare are a shared problem to be solved together with patients rather than via strategies entrenched in blame and impugnation. In their commentary on the escalation of violence in mental health settings, Whittington and Richter (2006, p. 64) stress this point succinctly when they state:

> Emphasizing the violent individual alone can quickly lead to repression, therapeutic despair, and the search for silver bullets whereas emphasizing the violent interaction has the potential to positively empower both patients and staff.

Positioning acts of paramedic OV as a mutual process represents a considerable shift in the way that aggressive and violent behaviour is understood, predicted, and managed within EMS organisations. Yet, while novel to paramedic practice, this reasoning is consistent with the understandings emerging in an increasing body of wider empirical healthcare evidence (Haugvaldstad & Husum, 2016). This shift acknowledges that the hostility generated by a dysfunctional paramedic–patient interaction is frequently the result of diverse dynamics that include both individual and organisational influences. Factors such as professionalism, fatigue, an inability to compromise, cognitive deficits, job demands, and wait times for services are all cited in this regard (Cooper & Swanson, 2002; van der Velden et al., 2016). One such causal factor, known as "hostile attribution style", is of particular importance within paramedicine, as it reflects the tendency of individuals to misconstrue the actions and words of others as being either deleterious or threatening (Cooper & Swanson, 2002). This manner of misconception may be exacerbated when paramedics affected by workload, fatigue, or even issues with their partner, fail to reflect or deliberate upon the most appropriate personal resources or interaction style required for effective engagement with a particular patient (Cooper & Swanson, 2002). The results section of this thesis also identified the misconstruing of paramedic intent in the patient reaction theme of *unpredictability*.

The acknowledgement of a bilateral reasoning regarding paramedic OV does present a challenge to EMS organisations and paramedics. The recognition that paramedics' personal behaviour and interaction can foster aggression in patients can be confronting to staff, particularly as it encourages the self-reflection identified by

Peplau (1997) and concentrates the focus of mitigation strategies primarily on relationship interaction (Whittington & Richter, 2006). Indeed, the very essence of paramedic performance, that of scene control and scene safety, is often identified by patients as a potential provocateur for their aggressive and violent behaviour (Haugvaldstad & Husum, 2016). In an attempt to create order and social control, paramedics may utilise coercive measures such as restraint or chemical sedation. However, the use of such measures may create feelings of frustration, anger, and a perceived impression of mistreatment among patients (Haugvaldstad & Husum, 2016). Examples of this type of paramedic behaviour were observed in the results through the patient reaction theme of *compelled behaviour*.

The appreciation that aggressive and violent behaviour extends beyond a simple manifestation of hostility and is rather a dynamic symptom of issues that exist between the patient, the paramedic, and their current environment is important. Yet this positioning not only provides a contextual sphere for the threat and behaviour of OV, it also expands to offer a wider comprehension of why some individuals who engage in violent behaviour respond in this manner. Perhaps the most prominent aspect of this understanding is the realisation that anger is often a rational and reasonable response to a distressing and stressful situation. The expression of anger and aggression by a patient is not always a purely punitive act of disobedience, but rather may represent the undesirable end of a process through which these individuals are expressing their emotional and psychological experiences (Haugvaldstad & Husum, 2016; Pulsford et al., 2013). Although this kind of interactional process can present a confronting scenario for paramedics, those who manage their trepidation and remain involved with patients who are escalating are more likely to realise outcomes of decreased violence (Hamrin et al., 2009).

The movement of EMS OV mitigation strategies away from reactive strategies and towards interventions that increase paramedic awareness and improve their ability to respond to critical events may well herald a method of improved patient-centred care (Duxbury & Whittington, 2005). The literature is increasingly recognising the value of early intervention in situations where an escalation towards aggression is likely (Bowers et al., 2013; Gudde et al., 2015; Hamrin et al., 2009). Although these kinds of strategies are addressed in greater detail in the following discussion of paramedic OV, unpredictability, and risk management (see section 6.3), it is clear that

transformation will only occur if it is supported by an organisational-level commitment to culture change (Pelto-Piri et al., 2020). For paramedic leadership, this means mutually valuing the underlying importance of both patient and staff dignity and respect. This resulting cultural shift could provide not only a more equitably human-centred management regime, but could be the medium through which a potential decrease in the elements that aggravate interpersonal violence is made possible (Hamrin et al., 2009). Fundamental to this potential change in organisational focus is the ability of paramedics to support this through the process of social interaction. However, the social interaction understandings required for the shift are processes that remain often underappreciated and unarticulated within health professionals' skillsets owing to limitations in health education and training (Delaney et al., 2017; Polacek et al., 2015). Waylaid by the constant struggle to impart an ever-increasing skillset in an ever-restricted and congested curriculum, the development of "soft-skills" such as communication in health students (and thereby healthcare practitioners) is often conceded (Lucas et al., 2015).

The paramedic–patient relationship is not the only prominent obstacle within the OV mitigation discourse. Unpredictability represents another impediment towards violence mitigation, and study data uphold that a patient's aggression or violence toward paramedics may often appear as a sudden and unexpected deviation from an otherwise routine course. This behaviour was identified by paramedics in the primary theme, *patient reaction*. Despite the apparent outlier incidence of this behaviour, the OV literature does recognise it as a feature of patient conduct (Arnetz et al., 2015; Pelto-Piri et al., 2020). As an underlying element of paramedic OV, the possibility of patient unpredictability is concerning for mitigation strategies. The following section addresses this by transitioning the element of unpredictability towards the expertise of risk management.

6.3 Paramedic OV, Unpredictability, and Risk Management

While unpredictability was identified as a secondary theme under *patient reaction*, the repeated failure of paramedics to identify or foresee the imminent act of patient-initiated violence emerges throughout the data discourse. These failures occurred despite increased professional awareness, innovative mitigation interventions, and contemporary education and training, and did not appear to be

connected with paramedic age, experience, or gender. As opposed to blaming their own lack of recognition of the "impending" situation, paramedics most commonly attributed their failure to anticipate an act of violence to the unpredictable or erratic behaviour of the patient. This kind of post-event attribution is not limited to the prehospital environment. Rather, the unpredictable behaviour of violent patients is also acknowledged as problematic within other healthcare professions (Arnetz et al., 2015; Pelto-Piri et al., 2020). The lack of success of paramedics—and indeed their EMS mitigation programs and interventions—to effectively identify situations of increased risk of violence or aggression is compelling. While these failures can invariably be linked to behavioural preconceptions and training inadequacies, paramedic work embodies uncertainty, and, while the concept is largely absent from paramedic OV mitigation literature, it bears further discussion.

Many of the study paramedics identified uncertainty as an attribute of their OV incident, with remarks ranging from issues of irregular prehospital health presentations, including limited patient information, to unfamiliar environments and unpredictable patient behaviour. The prehospital milieu is pervaded with uncertainty (Campeau, 2007). Campeau (2007, p. 7) emphatically acknowledges this very detail when contextualising the nature of paramedic work and the justification behind the SCTPSM model:

> While characteristics of the practice context such as the discrete suspension of common rules of behaviour and a unique paramedic–patient relationship can be viewed as social adaptations to facilitate practice, no amount of adaptation is sufficient to predict or control the challenges presented by another key feature of the paramedic work context: perpetual uncertainty.

While uncertainty as a characteristic has largely gone unrecognised in the prehospital literature, it has undergone extensive consideration within the speciality of risk management. Risk management, in its simplest characterisation, is defined as the measures and activities undertaken to manage threats, and pertains to any action, event, or condition that affects a system and its ability to reach its objectives (Aven, 2015). Although the goals of risk management, such as increased safety and controlled costs, will vary between systems, organisations, and individuals, the primary reason for conducting risk analysis is to support decision-making (Aven, 2015). Situational decision-making that utilises risk analysis is typically characterised by both high risk

and multiple uncertainties where the prediction of outcomes is often difficult and challenging, much like the potentiality of patient-initiated hostility in paramedic practice (Aven, 2015).

While current risk management literature is largely focussed in the fields of engineering, geophysics, medicine, and finance, its understandings appear well positioned for rationalising incidents of paramedic OV. Certainly, there is reasonable existing appeal for OV mitigation systems to reference their program design around careful analysis of the context in which the violence occurs and employee-specific risk management (Hills & Joyce, 2013). In particular, the area of risk management uncertainty addresses the unknown in terms of the categories of either (or a combination of) randomness (aleatory) or a lack of fundamental knowledge (epistemic; Paté-Cornell, 2012). Both aleatory and epistemic uncertainty are common attributes of events that are rare and often destructive in nature, such as death associated with the medical care of patients undergoing anaesthesia, and as such can be readily applied to paramedic OV (Paté-Cornell, 1999).

6.3.1 The Black Swan Phenomenon

The premise of uncertainty in risk management provides the primer for a distinguishing theory within this field of study: The Black Swan phenomenon (Paté-Cornell, 2012). The concept of patient unpredictability emerged in the literature discussion of Pourshaikhian et al. (2016) and Knor et al. (2020), who observed the unpredictable behaviour of patients as a causal condition of paramedic OV; patient unpredictability also emerged as a significant theme during the results section of this thesis. The philosophy of the Black Swan has been identified to conceptualise the notion of patient unpredictability in this thesis because the three fundamental features of Black Swan events both cohere with and are highlighted in the characteristics of paramedic OV. These features, or attributes, are explained in the discussion that follows.

The Black Swan phenomenon was defined and rationalised by Nassim Taleb (2007) in his book, *The Black Swan: The Impact of the Highly Improbable*, as a means of explaining surprising events and outcomes in a risk framework model. The idea of the Black Swan conceptually references the once-held (European) "Old World belief" that all swans were white, and is an acknowledgement of the Latin phrase "*rara avis*

in terries nigroque simillima cyno" (a rare bird upon earth, and exceedingly like a black swan; Aven, 2013, p. 44). Dutch sailors' encounter with black swans in 1697 on the *Derbarl Yerrigan* (Swan River) in Western Australia not only disproved the belief that all swans were white, but provided concession to the notion of something rare (as per the Latin phrase), as well as to the idea of a perceived impossibility that might be later disproven (Aven, 2013).

Taleb (2007) proceeds to describe unexpected world events such as the rise and spread of the Internet or the terrorist attack on the World Trade Centre and the Pentagon on September 11, 2001 as examples of Black Swan events. Importantly however, Taleb (2007) emphasises that Black Swan events are the result of collective and individual epistemic limitations, and are not objective phenomenon. He clarifies this point when he explains that, for the events of September 11, 2001, the terrorist attacks were a Black Swan for the victims, but unquestionably not for the perpetrators.

Taleb (2007) establishes that for a phenomenon to be classified as a Black Swan event, it must display three fundamental attributes. First, it must present as an aberration outside the scope of normal expectations and experience. Second, the impact of a Black Swan event is severe. Third, despite its abnormality, explanations for its occurrence portray it as explainable and predictable *after the fact* (Taleb, 2007). When these attributes are applied to the premise of paramedic OV, it is clear that an argument exists for the classification of some hostile paramedic–patient encounters as Black Swan events.

First, as much as the evidence surrounding paramedic OV declares the prevalence of prehospital violence and aggression, these events still remain very much as outliers in routine EMS work. The vast majority of paramedic interactions with patients occur amicably, with assessment, treatment, transport, and discharge all occurring without incident. Second, although the impact of aggression and violence against paramedics varies considerably as to the type and nature of the aggressive act, the consequences of this exposure, including both physical and psychological effects, can be repelling. Moreover, as identified by the literature review and supported through the testimony of the study's participants, the repercussions of this damage extends beyond the individual level into the organisational sphere. Third, the attribute of retrospective distortion established by Taleb (2007) was actively demonstrated in the reflective practice of paramedics and their rationalisations of their OV incidents.

Although many of the paramedics interviewed for this thesis described that the act of violence caught them by surprise, there was a predisposition for them to consider their exposure to OV as more understandable and foreseeable after the fact.

While there is justification to categorise some incidents of paramedic OV as Black Swan events, it is certainly not the intention of this study to classify all episodes of paramedic violence and aggression as such. This thesis has outlined specific examples of paramedic OV where the hostile actions of the patient are the direct result of a provocation such as painful stimuli. Instead, applying the concept of a Black Swan event to paramedic OV is intended to highlight those OV events that proceed from the unpredictability and uncertainty of human behaviour. This being the case, the following discussion provides clarification of the relevance of risk management to paramedic OV.

Taleb's (2007) Black Swan phenomenon is not without its critics. Some academics are sceptical of Taleb's approach to probability, statistics, decision-making, and even his characterisation of the phenomenon (Aven, 2013; Mueller & Stewart, 2016). Although it is not the intent of this thesis to deliberate on the merits of these criticisms, this reproachful discourse has initiated the development and validation of the Black Swan phenomenon in a risk management context. One of the most prevalent authors on this subject, Terje Aven, has sought to build upon the works of Taleb through an increased scientific framework and refinement of the Black Swan phenomenon. Aven (2013) redefines the Black Swan phenomenon as a surprising and extreme event in relation to present knowledge, with this knowledge being viewed as a function of the context of the time and space of the individual(s) affected. For example, an incident of paramedic OV may present as a surprise to the paramedic but not to the perpetrator of violent or aggressive behaviour. Aven (2013, 2014) contends that it is this knowledge of the incident that ultimately differentiates the three main types of Black Swan events:

1. Events that were completely unknown to the scientific environment (e.g., an unknown side effect of a prescribed medication);
2. Events unknown from the perspective of the stakeholder, but known to others, (e.g., the September 11 terrorist attacks); and
3. Events that are known but considered so unlikely that they are ignored (e.g., the 2011 Japanese tsunami, which was so unprecedented that it overwhelmed

existing control and containment measures resulting in catastrophic destruction of infrastructure, including the Fukushima nuclear power plant).

The second type of Black Swan event references incidents that are not captured by relevant risk assessments, either because they are unknown or because of a lack of thorough consideration (Aven, 2018). It is this type of Black Swan event that embodies a large component of paramedic OV. An example appears in the account given by a paramedic interviewed for this study who was assaulted by a patient during a "routine" mental health presentation for self-harm ideation. The patient was at home with a parent present. The location of the residence was an affluent suburb with a high socioeconomic appearance. The police service had been notified and were in attendance. The paramedic admitted to being fatigued and expressed a feeling of impatience during the job due to it occurring after their rostered finish time. The patient presented calmly and was compliant and conversant with paramedic interaction. The paramedic did not identify or suspect any threat of violence from the patient. The patient was assessed by the paramedic as requiring an emergency psychological examination due to the threat of self-harm. The paramedic informed the patient that they were being placed on an involuntary examination order (EEA; see footnote 5) where they would be transported, against their will, if necessary, to a hospital for emergency assessment by a mental health professional. Without warning or escalation, the patient reacted with extreme violence, physically assaulting the attending paramedic.

This act of paramedic OV was the result of the interaction of a number of situations and activities, and came as a shock to the practitioner involved. It is its surprising nature that makes it a candidate for a Black Swan event, but this designation must be understood within the context of *who* and *when* (Aven, 2018). In this example, the combination of actions and influences included:

- Attitude and behaviour of the paramedic prior to the arrival on scene (represented through the theme of *paramedic actions: attitude and behaviour*).
- Erroneous assessment of the patient and their potential for violence (represented through the theme of *paramedic effects: default-to-truth/self-assuredness*).
- Failure to identify possible violence risk factors/triggers associated with the patient (represented through the theme of *patient reaction: violence triggers*).

- Personal influences, including biases such as fatigue, hunger, and haste (represented through the theme of *paramedic effects: fatigue*).
- Failure of the paramedic or their mitigation system to detect, recognise, or prevent the initiation of violence (represented through the theme of *patient reaction: escalating patient behaviour*).
- Unpredictable patient behaviour and reaction (represented through the theme of *patient reaction: unpredictability*).

This incident of paramedic OV can be classified as a Black Swan event because the paramedic had not foreseen, or had not been able to sufficiently consider, the sequence of events that would lead to the act of personal violence (Aven, 2018). The paramedic did not know about the patient's previous encounter with psychiatric services that had ultimately resulted in a loss of employment and a subsequent deep dislike of this care. Furthermore, the paramedic had no means of comprehending the association of this emotion by the patient with its primer for violent behaviour (the EEA). Consequently, the catalyst for this Black Swan event cannot only be attributed to its unforeseen nature, but to the lack of fundamental knowledge that resonates throughout paramedic practice (Paté-Cornell, 2012). This epistemic uncertainty exists because, without the relevant prior knowledge, there is little chance of predicting a patient's behaviour.

If a paramedic OV Black Swan event is categorised as such because it presents as a surprising event relevant to certain knowledge, then the key to managing these events would seem to lie in the reduction of uncertainties and the strengthening of such knowledge (Aven & Krohn, 2014). However, the acquisition of this knowledge is inherently unworkable. Taleb (2007) asserts to this very fact when he acknowledges that it is the unpredictability of Black Swan events that characterises them: If you could predict them, they would not be Black Swans. Instead, the mitigation of such events lies in reasonable preparation for their occurrence (Taleb, 2007), which can be made in the form of risk management reasoning. While this conclusion may appear challenging to current EMS OV risk assessment and management practices, it critically acknowledges the key concepts of knowledge and uncertainty (Aven, 2018). Campeau (2007, p. 67) unwittingly acknowledges this assertion toward paramedic OV mitigation in the SCTPSM when he states:

> Paramedics are faced with numerous unknowns in any call. In order to manage the call, they try to reduce the uncertainty associated with these unknown elements as much as possible. Since they cannot do so in terms of selecting patients with specific illnesses or injuries, they focus their efforts on the environment of the scene. They reduce uncertainty by taking control of the scene through active social relations.

Although Campeau's (2007) understanding here is focussed on scene management practices, it upholds the reality that paramedic practice requires the management of unpredictable events, drawing attention to an alternative approach for their mitigation. The acknowledged connection between paramedic practice and uncertainty not only contributes to the understanding of OV but supports the positioning of an "active" approach towards the mitigation of prehospital aggression. This approach is discussed in the following subsection through an influential philosophy that exists in the risk management literature for the management of the unexpected: the concept of mindfulness (Weick & Sutcliffe, 2006, 2007).

6.4 The Concept of Mindfulness

Study participants' perceptions of the ineffectiveness, rigidity, and reactiveness of existing OV mitigation systems highlight the inadequacies of the current paramedic OV philosophy. Certainly, the uncertainty of the prehospital milieu described throughout this thesis suggests that any inflexibility in existing OV strategy or discourse will be discordant with practice. Yet, as introduced during Chapter 3, a knowledge gap exists within OV mitigation that represents the very antithesis of current EMS education and training: that the patient *and* the paramedic both influence OV events. This gap exposes an underutilised area of OV mitigation, the social processes between the paramedic and the patient. Thus, instead of focussing on either proactive or reactive strategies, OV mitigation can target the active phase of paramedic–patient interaction. As opposed to any attempt to extend existing OV philosophies, systems, or interventions to satisfy this knowledge gap, this thesis identifies that the concept of mindfulness can potentially provide an affirming solution to this problem through the understandings of the risk management literature.

Despite its considerable reputation within the scholarly literature, the concept of mindfulness is not easily defined (Glomb et al., 2011). Literature utilises it to characterise any number of related cognitive paradigms, traits, practices, and

processes, such as meditation and attentiveness. Nevertheless, while such ambiguity within academia is generally unhelpful, this lack of clarity appears limited to superficial consternation regarding its disposition and characterisation (Glomb et al., 2011). Fundamentally, mindfulness can be defined as the process of momentary situational awareness of internal (introspective) and external (physical and social environment) stimuli, without the application of judgment, evaluation, or meaning (Glomb et al., 2011). Significantly, these internal and external influences represent the very elements of both Peplau's (1997) interpersonal theory and the model of aggression by Nijman et al. (1999) that have used to conceptualise the development of paramedic OV in this thesis. It is important to acknowledge that the situational awareness referred to in mindfulness is profoundly different from the awareness of risk typically utilised in paramedic OV mitigation. Situational awareness in a risk management context encompasses (Weick & Sutcliffe, 2007):

- an ongoing examination of existing expectations,
- continuous modification of expectations based on new experiences,
- willingness and ability to create new expectations based on unprecedented events,
- an appreciation of context and its role in the unexpected, and
- identification of alternate features of context that improve anticipation.

Ultimately, mindfulness in a risk management context emphasises the quality of attention for mitigating the vulnerability of individuals to errors caused when their concentration is distracted, unstable, or dominated by generalisations (Weick & Sutcliffe, 2007). It is these flaws that prejudice individuals to misconstrue, misunderstand, and misapply their knowledge to any challenge they encounter. Although highly sought by paramedics, the self-assuredness caused by experience is one of the most common forms of this kind of weakness, as study participants both identified and acknowledged. Experience pulls attention away from the present and any sentience for change, and harnesses conceptual thought rather than seeing the tangible, situational specifics (Weick & Sutcliffe, 2007).

The mindfulness concept attempts to establish a level of personal awareness for an individual's reliable reasoning and performance while they are dealing with events that are unexpected. Mindfulness embraces awareness and the ability to discern,

prepare, and adjust (Aven & Krohn, 2014; Weick & Sutcliffe, 2007). In their pioneering discussion on the concept of mindfulness, Weick and Sutcliffe (2007) establish the defining principles of mindful behaviour and the characteristics required for influencing unanticipated and unwanted events in dynamic and hazardous environments. Weick and Sutcliffe (2007) assert that unexpected events arise when our expectations—those held assumptions that a certain sequence of actions or behaviours are likely to happen—don't transpire. At the core of the issue are the routines, interpretations, norms, rules, roles, and training that are embedded in these assumptions, such as those developed during both contextual and theoretical paramedic education and training. While these conventions are generally beneficial for stability and efficiency, they ultimately disrupt resilient performance. Weick and Sutcliffe (2007) identify that the liabilities of expectation can be countered with practices that produce awareness of the biased minutiae that otherwise lead to inflexibility and failure. These practices of mindful engagement are constructed around two distinct principles of management, *anticipation* and *containment*, both of which aim to assist organisations and individuals to prepare for and preclude unexpected outcomes.

6.4.1 Anticipation

As opposed to merely "expecting the unexpected", safety necessitates a proactive approach whereby anticipation is utilised in evolving events (Delaney & Johnson, 2006). In risk management mindfulness, *anticipation* refers to the ability to conceive of an unconstrained outcome because of the presence of small disparities. These small disparities can be described as parts of the whole that can be seen through micro-context awareness, and can be divided into three distinct components: activity, environment, and self (Gouin-Vallerand et al., 2013). *Activity* refers to the task that is currently being undertaken by an individual, and their accompanying behaviour; the *environment* defines the physical and, importantly, the social setting in which the activity is occurring; and *self* describes the fundamental influences of the individual, including their inclinations, aptitude, and proficiencies (Gouin-Vallerand et al., 2013). The primary goal of these components is to provide current and relevant representation of an individual and the environment in which they are situated. The central role of the individual within these components provides both the focus of any activity and the modification of its situational context (Gouin-Vallerand et al., 2013).

Applied to the study findings, the application of micro-context awareness is discernible through the perceptions of participants identified in the primary patient themes of *reaction* and *engagement*. Post-event recognition by paramedics of the patient's *violence triggers* (activity) and *disengagement* (environment) represent a tangible connection to the micro-context elements described by Gouin-Vallerand et al. (2013). Furthermore, this awareness is also visible in the primary paramedic themes of *actions* and *effects* where the *attitude and behaviour* (activity), and the effect of their personal *experience* (self) are additionally acknowledged.

Importantly for paramedic OV, an individual engaged in micro-context awareness does not rely on their pre-existing systemic knowledge but rather focusses on the information available to the functional components (i.e., activity, environment, self; Gouin-Vallerand et al., 2013). Importantly, this behaviour, which is demonstrated through an individual's additional capacity to anticipate discrepancies, does not mean that they will perceive such discordance more efficiently. Rather, the benefit of mindfulness in this regard lies in the individual's ability to understand discrepancies with greater clarity and manage them more confidently (Weick & Sutcliffe, 2007). From a risk management perspective, the value of anticipatory practice lies in an individual's ability to discern the components of their micro-context awareness, particularly in a scenario where these become the markers of a larger, more destructive event. In essence, anticipation is an investment in the ultimate goal of preclusion. As a method of developing individuals' preparedness for unexpected events, the mindfulness concept of anticipation is further developed in three practices known as *preoccupation with failure*, *reluctance to simplify*, and *sensitivity to operations* (Weick & Sutcliffe, 2007). These are described in detail in the next three subsections.

Preoccupation with Failure

The most basic step of any risk assessment is identification of the events, deviations, and hazards that could constitute misadventure. This measure, known as *preoccupation with failure*, is the recognition and anticipation of small emerging deficiencies that might augur strategically significant adversity (Weick & Sutcliffe, 2007). In the example of paramedic OV, failure is ultimately the advent of violent or aggressive behaviour by the patient towards the paramedic. In this context, a mindful preoccupation with failure acknowledges the importance of *attentiveness* to the signals and learnings of failure. These signals may be subtle, such as a feeling that "something

just isn't right"; they may be innocuous, such as when work partners are not concordant; or they may be explicit, like the intoxicated or disengaged patient (Aven & Krohn, 2014; Weick & Sutcliffe, 2007). Warnings and signals are the critical information that is connected with the forward progression of an event and which signal that a risk incident might occur (Weick & Sutcliffe, 2007).

These "forewarnings" can provide a critical component of resistance to Black Swan events through an individual's attentiveness to the indicators that encourage reflection, adjustment, and interruption of their current actions in the midst of a regular event (Aven, 2018). However, even though the importance of such signals in the avoidance of negative outcomes is considerable, their interpretation can be challenging. In a setting of complex and dynamic scene stressors, it is easy to comprehend how paramedics can misinterpret these signals. This was demonstrated in the study findings in the theme of *critical decision-making*, when paramedics were exposed to hostile events based on their need for rapid appraisal and subsequent management of the prehospital scene and patient. The challenge lies in the balance between vigilance and sensitivity, so that an individual's response and reaction to warning signals is both appropriate and timely. Moreover, the right balance is dependent upon the understanding of risk, which can only be developed through knowledge that is obtained through the learning, understanding, and proficiency of the system in which it exists (see below). Crucially, this is a continuous process, as new and improved knowledge can invariably always be achieved (Aven, 2018). In the setting of paramedic OV, warnings and signals of risk go beyond the actions and behaviours of the patient and include paramedics' recognition of fatigue, inexperience and self-assuredness, attitude, and even haste. Fatigue, in particular, was acknowledged by study participants as often playing a decisive role in the evolution of paramedic OV.

A mindful preoccupation with failure enhances more than just in-the-moment detection; of equal importance is the connected act of incident reporting. Incident reporting is an important way of increasing personal knowledge and improving work performance through error discussion; dispersal of this data plays the additional macro role of educating the system itself (Weick & Sutcliffe, 2007). It is the promotion of openness, both between individuals and within organisations, that encourages others to be similarly open; sharing also endorses an appreciation that systems and

individuals are imperfect (Weick & Sutcliffe, 2007). Critical to any act of incident reporting is a culture that encourages transparency and rewards individuals who ask questions. Research indicates that organisations who promote a safety culture of incident reporting and discussion are more likely to experience improved safety outcomes, with fewer reported errors and associated incidents (Vogus & Sutcliffe, 2007). The culture required to sustain this kind of reporting system is addressed in the upcoming subsection, *deference to expertise*, in the element of *containment* (see section 6.4.2).

Reluctance to Simplify

Expectation is the internal portent of a predictable outcome and is effectively at the core of all deliberate actions. Expectation provides the basis for deliberate performance through personal experience of the usual societal conventions regarding the outcomes of action and reaction (i.e., what will happen if..,, or what others will do if…). While an individual may perhaps be able to conceive of more than a few outcomes for their current action from their previous experience, the nature of expectation simplifies these possibilities, guiding them away from opposing or contrary signals and the unexpected problems they foretell (Weick & Sutcliffe, 2007). It is this characteristic of expectation from which the principle of *reluctance to simplify* is construed. A mindful appreciation of this human tendency allows an individual to reject the obvious (simplification) and experience the situation for what it is.

Although most expectations are relatively accurate predictors of events due to both the repetitious nature of lived experiences and the generally dependable nature of human behaviour, they are also highly susceptible to acts of confirmation bias. The innate biases that exist within expectation foster the development of two fundamental problems. First, accumulating evidence is discounted when events are not developing as expected. Second, the validity of the established expectation is overestimated, and the observer is less likely to consider contradictory facts (Weick & Sutcliffe, 2007). An example of this type of behaviour was demonstrated in study findings in the *default-to-truth* theme. There was evidence that paramedics continued to ignore increasingly aggressive patient behaviour towards them, falsely believing in the positive intention of the patient. Importantly for the application of this principle to paramedic OV, the greater the stress of the situation, the greater the likelihood that

individuals in it will both search for confirming evidence and discard that which is inconsistent with their expectations (Weick & Sutcliffe, 2007).

The problem of confirmation bias extends to other forms of expectation, including the formation of plans, labels, and categories. Individuals forming plans based on expectations may seek only narrow confirmation of accuracy, while the use of labels and categories can predetermine meanings, actions, and consequences (Aven & Krohn, 2014; Weick & Sutcliffe, 2007). Plans, in particular, have a means of creating *mindlessness* within individuals via three leading traits. First, when they are built from assumptions and beliefs of the contextual environment, they exemplify the notion of expectation. It is these expectations that influence not only what individuals choose to perceive in making plans, but importantly what they choose to ignore and the interval to fault recognition (Weick & Sutcliffe, 2007). Second, the prescriptive nature of planning constrains individual functioning by precluding improvisation. Planning is assumed to help with insecurity through the specification of contingent actions to guide future behaviour. However, such actions may invoke a blindness in the individual engaged in them, as there is a tendency to restrict attention to expectations when following a prescribed pathway, effectively limiting the capability of the individual's existing skills and knowledge (Weick & Sutcliffe, 2007). Third, plans presume that high-quality consistent outcomes will be produced repeatedly if individuals imitate patterns of behaviour and performance that have previously been successful. This logic effectively excludes the notion of unpredictability (Weick & Sutcliffe, 2007).

An example of the process of simplification is constantly evident within EMS practice when paramedics enact a predetermined plan of patient management, either through dispatch priority labelling[6], patient presentation, or through experience-induced certainty of the situation (as referenced in the theme of *self-assuredness*). Although such planning for a patient's illness and injury is necessary to prepare a response in relation to the appropriate paramedical resources and skill, it does

[6] The Advanced Medical Priority Dispatch System (AMPDS) assigns a category to a patient request for assistance based on their presenting condition or reason for call. The AMPDS categories cover a range of event/response scenarios, from an immediate paramedic lights-and-sirens response to a life-threatening patient condition such as a heart attack, through to a delayed non-emergency ambulance response to low significance or low priority work such as non-suicidal psychiatric patients.

predispose paramedics to conform to their expectancy. The premise of expectation allows believing to be as good as seeing: When paramedics believe there is little prospect of violence, they have a tendency to only see those aspects of the scene and the patient that confirm this expectation (Weick & Sutcliffe, 2007).

The simplification that occurs with expectation also has a tendency to create an over-reliance on quantitative expressions of risk (such as the understanding that alcohol-affected individuals are more prone to violence) to determine hazard judgements, which distract observers from disproving evidence that anticipates the unexpected (Aven & Krohn, 2014; Weick & Sutcliffe, 2007). Such risk description may be based on previous patient interactions that indicate the risk profile is negligible for aggressive or violent behaviour, or simple pragmatism, such as the idea that paramedics are "protected" because they are there to help. The *reluctance to simplify* practice of mindfulness works to overcome such biases by encouraging the individual to visualise the scene beyond its social conventions, plans, and labels. In this manner, individuals are able to acknowledge the unforeseen and the potential for surprise that it may bring and create a more complete risk description that covers not only the possible but also the unpredictable (Aven & Krohn, 2014). Mindfulness thus aims to counteract simplification through a process of increased awareness to context, categories, and expectations because, as asserted by Weick and Sutcliffe (2007, p. 53),

> With closer attention to context comes more differentiation of worldviews and mind-sets. And with more differentiation comes a richer and more varied picture of potential consequences, which in turn suggests a richer and more varied set of precautions and early warning signs.

Counteracting confirmation bias is a challenge that requires individuals to understand that expectations are incomplete. Expectations are "pre-interpreted", in that such perspective is based on what an individual's collection of interpretations "allows" them to see (Patriotta, 2003). Reluctance to simplify requires individuals to doubt their expectations, particularly those that appear to be confirmed most often. An example of reluctance to simplify can be demonstrated through a typical paramedic–patient interaction. A paramedic assumes that a patient is pleased they have arrived on the scene, ready to treat and care for their illness or injury. However, paramedics also know that individuals can become frustrated by the perceived timeliness and expected quality of such care. If paramedics *expect* that a patient is grateful and responsive, but

nevertheless make an intentional effort to recognise signs of frustration or anger, they are resisting their own expectations. This mindful behaviour enables them to detect subtle signals of tension in their interaction that might indicate the potential for violence or aggression. Significantly for paramedic practice, teams (or ambulance units) composed of individuals with a broad range of experiences are more capable of responding to disparities in their environment and adapting to the changes that need to be made, suggesting that "two heads are better than one" when it comes to noticing aspects of the scene (Patriotta, 2003; van Erp et al., 2018; Weick & Sutcliffe, 2007).

Up to now this thesis has explained the practices of mindfulness that are utilised to anticipate unexpected events through the activities of *preoccupation with failure*, and *reluctance to simplify*. The last of these practices, *sensitivity to operations*, transitions the activity of anticipation from a specific focus into a broader, context specific application.

Sensitivity to Operations

This thesis has established that paramedic work is characterised by the unknown, unpredictable, and dynamic nature of the prehospital environment and the behaviour of the individuals within it. Attempts to regulate paramedic performance through knowledge that is quantitative, measurable, objective, and formal encourages practices that are inflexible to disruptive and unexpected events (Weick & Sutcliffe, 2007). The difficulties or limitations of this manner of practice are recognised within military organisations and their operations in unfamiliar environments, as Kramer (2007, p. 17) observes:

> If the environment is dynamically complex it is impossible to know and understand everything in advance, therefore you need to be able to doubt your existing insights.

In a mindful approach, *sensitivity to operations* is the antithesis of the usual practices of expectation. It centres around the realisation that current actions and interactions are evolving within complicated and ambiguous systems, and a prompt response to the unexpected is more achievable if individuals are paying attention to the activities of the present (Aven & Krohn, 2014). As opposed to the first two principles of anticipation, sensitivity to operations is not about the detection of inconsistencies, it is about the process itself. It is the recognition of the current actions of the individual, irrespective of the proposed intentions, designs, and plans (Aven &

Krohn, 2014; Weick & Sutcliffe, 2007). Through practices that are interpretive and questioning of the applicability of intentions, sensitivity to operations promotes the transformation of intentions into context-specific, meaningful actions. Sensitivity to operations aligns well with paramedic–patient interaction, since doubt, discovery, and on-the-spot interpretation are the primary traits of this approach (Weick & Sutcliffe, 2007).

One of the greatest threats to achieving a sensitivity to operations in this manner is a common component of paramedic work, that is, the tendency of routines to become mindless. As identified in the results during the discussion of *self-assuredness*, there is a tendency for paramedics to act automatically during routine patient interactions because the same kinds of patient care events have occurred without incident hundreds of times. The risk of automaticity in regard to such operations is that individuals can forget to question actions and processes. In contrast, when individuals operate mindfully, the routine is revised so that it corresponds with new or changed conditions, and is updated by new learning (Weick & Sutcliffe, 2007).

The mindfulness activities of anticipation represent only the first of two distinct principles of managing unexpected outcomes. The second of these principles, *containment*, supplements anticipatory activities with practices that aim to control and limit the felt exposure to negative outcomes. The next subsection addresses the principle of containment and the practices that it entails.

6.4.2 Containment

One of the primary objectives of paramedic OV mitigation is the early detection of hazards. However, as identified throughout this thesis, hazards, oversights, and the unexpected are often difficult to anticipate. It is effectively impossible to anticipate all the situations, circumstances, and environments that paramedics will confront in the course of their work. Consequently, it is therefore unworkable to develop procedures and strategies to govern every situation. In recognition of this, risk management upholds that unexpected events and conditions require the contrasting capabilities of stability and flexibility. Stability is the manner in which the unexpected is anticipated, including through engagement with attentiveness, awareness, and understanding, and the ability to translate these activities into context specific actions. Conversely,

flexibility is the manner in which the unexpected is subsequently contained, managed, and processed (Weick & Sutcliffe, 2007).

The principles of containment exist because there are limitations to foresight and anticipation: Precautions fail and unexpected events can deteriorate into an emergency. Containment contrasts with anticipation, as its aim is not the prevention of an unexpected event but rather the preclusion of unwanted outcomes afterwards. The principles of containment exist to ensure that when unexpected events occur—and they will occur due to the fallibility of human nature—that they are contained and the individual or organisation is able to reconcile the events thoughtfully. Containment is thus essential to the post-incident emotional and physical recovery of paramedics who experience OV incidents. This decisive aspect of OV mitigation was evident in the *psychological injury* theme of this thesis, which demonstrated that this kind of organisational support is inseparably linked to paramedics' resilience and recovery. The recovery process needs to be fully connected into a holistic OV mitigation strategy, and the following discussion will highlight this by expounding the notion of containment as a critical component of any paramedic OV mitigation response. The characteristics of containment that operate under the risk management model of mindfulness are *commitment to resilience* and *deference to expertise* (Weick & Sutcliffe, 2007; Weiss et al., 2012).

Commitment to Resilience

Within the mindfulness model, coping with the unexpected—or maintaining a commitment to resilience—relies on a mentality that diverges appreciably from that required for the actions of anticipation. This mentality applies in situations where errors have already occurred and the focus for their management switches from one of prediction to that of limitation; this activity reflects the concept of resilience. Resilience is a means of control in which a system maintains function and structure during periods of internal and external fluctuations (Weick & Sutcliffe, 2007). Although resilience may take many different forms, depending on its context, as part of risk management it is a protective strategy that rests on the cornerstone of individual effort and effective training (Aven, 2015; Aven & Krohn, 2014; Weick & Sutcliffe, 2007). In this regard, Weick and Sutcliffe (2007) identify that systemic commitment to resilience involves three primary capabilities: (a) the ability to accommodate stress and sustain performance despite the presence of adversity, (b) the ability to recover

from unexpected events, and (c) the ability to learn and improve from past resilient actions.

Although the risk management literature references systems (people, organisational, and ecological) as components of paramedic OV risk mitigation, resilience requires that the focus of these systems is primarily on the individual (Itzhaki et al., 2015). As the discussion in Chapter 2 of this thesis upholds, the individual paramedic primarily sustains the weight of OV consequences. As acknowledged by Haugvaldstad et al. (2016, p. 132):

> It is crucial to be aware of the strong emotions that may occur in response to patient aggression, as these reactions may have long lasting effects on the staff and influence their management of the situation.

Individual practitioner resilience is critical in the aftermath of OV, not only so that paramedics have built-in, beneficial initial coping mechanisms but also because resilience is valuable in ensuing the long-term health and wellbeing of the practitioner (Itzhaki et al., 2015) and the system in which they work. As van Erp et al. (2015) demonstrate, resilience both increases a paramedic's cognitive processing skills during conflict, and assists them to deal more effectively with its detrimental effects.

Resilience forms an essential component of risk mitigation against the backdrop of the inevitability of OV. Human attention instinctively and inordinately focusses on threats and imperfections; as these threats exists predominantly within the realms of the past and the future, an individual's attention can easily become immersed within these psychological timeframes. This focus is clearly evident in the proactive and reactive strategies of OV mitigation systems, the hypervigilance of which predispose individuals to excessive thinking, poor thought suppression, and avoidant responses (Sood et al., 2011). Resilience training, however, guides individuals away from disproportionate attention to the hostile event, delays judgement, and provides cognitive space for a greater consideration of the immediacy of their current environment. Furthermore, this training helps to redirect individuals' interpretation away from fixed prejudices and towards a more flexible outlook by highlighting skills such as forgiveness, gratitude, compassion, acceptance, and higher meaning (Sood et al., 2011). Undertaken appropriately, the act of post-traumatic growth can result in individuals experiencing positive psychological change through enhanced self-

esteem, improved life perspective, meaningful personal relationships, and the addition of new coping skills (Itzhaki et al., 2015).

Despite the importance of resilience in mindful practices and its role in the mitigation of uncertainty, it appears to perform a very ad hoc role within current EMS systems. Although many EMS organisations appear to have structures in place to support paramedics post OV, it appears from the results that the consistency and effectiveness of this care can be deficient. This was a key premise of the theme of *psychological injury.* Post-event care for paramedics was described as being encumbered by overly bureaucratic reporting processes, including frequent inaction following the event and the mismanagement of safety reports (Lawn et al., 2019). It appeared that substandard OV policies and procedures facilitated this inertia; indeed, participant accounts suggest that if policies or procedures did exist, they were often misinterpreted or inadequately implemented (Lawn et al., 2019). This mismanagement had meaningful consequences for the paramedics who had been affected by OV. Participants expressed a lack of confidence in the support system after they experienced deficient validation and acknowledgement by their EMS organisation; they also identified both under-reporting of OV incidents and the associated development of psychological injury and mental illness (Lawn et al., 2019). Critically, paramedics' health and mental wellbeing was demonstrably more affected by stress, lack of resilience, and the post-traumatic fallout of their OV events than they were by the act of verbal or physical violence itself (Itzhaki et al., 2015).

While current paramedic OV mitigation systems show limited inclination towards resilient practices, this may be unsurprising given the bias of these systems and interventions towards the acute phase of the violent or aggressive incident. While proactive measures such as situational awareness form a critical element of OV mitigation interventions, the role of post-care support and understanding appear to be understated and devalued within this process (Lawn et al., 2019). Although the insufficiencies of the tangible support systems and structures in participants' accounts are examples of this, the fundamental deficiencies in the process of post-care support seemed to also suggest limited education and training for those in supervisory positions regarding the support of individuals with psychological injuries. These failures typically presented as deficiencies in communication, or even direct isolation practices (Lawn et al., 2019). Significantly, numerous studies have identified the

universal failure of supervisory managers to recognise, understand, or even respond to the distress of individuals affected by critical incidents (Hugelius et al., 2014; Lawn et al., 2019; Regehr & Millar, 2007). This kind of organisational and managerial response not only prevents and discourages active help seeking, it also promotes an environment of distrust and apathy towards the organisation (Lawn et al., 2019).

Deference to Expertise

The final characteristic of the concept of mindfulness, and the second for the principle of containment, is the tenet of *deference to expertise*. Mindfulness requires that when managing and controlling the unexpected, processes are grounded in the ability to provide the most appropriate response (Aven & Krohn, 2014). This process, known as deference to expertise, refers to the ability of an institution or an individual to migrate and push decisions around in search of the right knowledge and skill required to regulate an unexpected event. This flexible process guides decision-making towards experts whose knowledge and skills are better positioned to manage the situation and stabilising practitioner attention on it (Weick & Sutcliffe, 2006, 2007). When applied to the regulation of patient-initiated violence and aggression against paramedics, deference to expertise distinguishes that a paramedic's expertise creates a contrasting position that is both a limitation and a strength of their decision-making process. These opposing realities were identified during the patient theme of *unpredictability* and the paramedic theme of *psychological injury*, and are developed further during this discussion.

Expertise is a collection of knowledge, experience, learning, and awareness that is rarely represented in a single individual (Weick & Sutcliffe, 2007). Rather, a collection of expertise represents an informal arrangement that allows the rapid and flexible sharing of skills to manage incidents, such as those that are difficult to anticipate but dissipate as soon as the crisis is over (for instance, a paramedic may be physically or verbally assaulted, but once the paramedic completes the task, the initial incident is finished). Deference to expertise is thus a premise for seeking assistance when an individual (or system) reaches the limits of their knowledge and are no longer capable of actively controlling the trajectory of their unexpected event.

The collection of expertise allows an individual to utilise a strategy of improved skill and understanding to manage inevitable uncertainty and imperfect knowledge (Weick & Sutcliffe, 2007). However, the utilisation of such expertise is undoubtedly

more difficult for paramedics who often work in isolated and insular environments. Nevertheless, avenues for expertise do exist, including work partners (when thriving), other emergency services such as the police, and even individuals with whom the patient may have a more insightful relationship, such as family or close friends. Furthermore, some EMS organisations allow deference to expertise in the form of access to psychological professionals that can help manage a patient's mental health emergency (Clinical Excellence Queensland, 2020).

The notion of deference to expertise, as part of the containment of unexpected events, also promotes the ideal of transparency, and encourages individuals to make the knowledge about the system conspicuous and widely known. Transparency not only increases awareness of the event but allows for others within the same system to identify similar flaws and potential management approaches (Weick & Sutcliffe, 2007). In the case of paramedic OV, this represents a twofold approach. The primary element of transparency applies to the reaction of the paramedic involved in the act of OV. This introspective accountability acknowledges the psychological injury of the individual paramedic, as referenced under the primary theme of *paramedic effects* (section 5.3.2), and emphasises the unique role the paramedic must play in the process of their own post-incident care and support, as well as the need for these processes to be adaptable. Each paramedic is different, and each will have a different reaction to an act of violence or aggression, no matter how immaterial this reaction may appear to others (Gómez-Gutiérrez et al., 2016). It is from this perspective that the paramedic becomes the expert in their own containment process, and it is their expertise that the organisation must utilise towards an appropriate means of support. Without question, this will incorporate elements of peer and managerial assistance, but instead of a rigid progression of care, the process is flexible and adaptable enough to fit the individual needs of the paramedic

The second element of transparency involves the identification and reporting of incidents of violent and aggressive behaviour. Although the act of reporting has already been discussed during the anticipation phase of mindfulness, its utility for the principle of containment is to ensure that the system is effectively represented. As opposed to a report that appears to mean nothing and achieves even less, deference to expertise promotes the idea that an individual's input is a contribution rather than an individual act. This act is used to produce outcomes by valuing and showing deference

to the knowledge and expertise that resides with those at the vanguard (Weick & Sutcliffe, 2007). Unfortunately, as was reflected in the accounts of paramedics interviewed for this thesis, this process appeared to be wanting in their EMS organisations. Not only did paramedics report neglect after their OV incidents, they also appeared confused as to "what to do after the event" or what it meant in an organisational sense when an event had occurred. Certainly, current reporting within EMS organisations appears to be poorly managed, with participant descriptions identifying the process as overly bureaucratic and frequently inert (Hugelius et al., 2014; Victorian Auditor-General, 2015). When juxtaposed with the context of poor supervisory practices and post-incident care, under-reporting of these incidents would appear to be effectively derived from deficiencies in the validation and acknowledgement given to paramedics about their OV incidents and their subsequent lack of confidence in the EMS organisational support systems provided (Lawn et al., 2019). These systems, however, are a product of a flawed organisational culture that determinedly maintains a patient-centred focus on OV mitigation. The importance of EMS culture towards paramedic OV containment and mitigation is succinctly explained by Weick and Sutcliffe (2007, p. 77) when they state:

> A culture that is less mindful and more deferential to hierarchy is less informed by frontline experience and expertise and is more informed by inputs that are colored by hierarchical dynamics such as uncertainty absorption and withholding bad news.

Significantly, it these same organisational shortcomings that impact not only the ability of the system to respond to uncertainty, but also negatively impact the wellbeing of paramedics, perhaps even more so than the very nature of the work itself (Lawn et al., 2019).

Uncertainty presents as a significant challenge for paramedic OV mitigation practices, as the very essence of human behaviour renders conventional approaches to patient-initiated hostility both reactive and inflexible. However, through the process known as mindfulness, risk management provides an alternate means to conceptualise, identify, understand, and manage this danger. The mindfulness model identifies five characteristics across two distinct categories that aim to both anticipate and contain event uncertainty and its consequences. The potential of a mindfulness approach to paramedic OV mitigation lies not only in its ability to reframe the discourse of patient-

initiated hostility but also in its reinforcing of the importance of resilience and transparency as part of this process.

6.5 Summary

The results of this study provide unique insight into the phenomenon of paramedic OV. It is clear that the reality is far more complicated than simplistic portrayals of paramedic OV as indiscriminate acts of violent or aggressive behaviour against prehospital health workers. Moreover, this complexity must be understood in the context of the dynamic management of the patient and the competing interests of their environment, which can both promote and impede the paramedic objectives of care, transport, and discharge. Although Campeau (2007) attempts to describe and define this management of the prehospital milieu through the SCTPSM, his theory does not adequately portray the paramedic–patient relationship and its correlation with paramedical objectives. The evolution of this model into the MPSM not only integrates this relationship into a framework of paramedic practice but resituates and includes all actions of the practitioner, both preceding and up to the point of care discharge. Specifically, the MSPM incorporates the categories of *paramedic actions* and *effects*, and *patient engagement* and *reaction*, that were both identified within the results section of this study as fundamental to the activities of prehospital healthcare. However, while the MSPM identifies specific subcategories within the paramedic and patient classifications, it is the interaction between the paramedic and the patient that emerges as the connection between prehospital care and OV.

The notion of paramedic–patient interaction as a formative influence on patient-directed aggressive or violent behaviour is an adjustment to much of the current conversation concerning paramedic OV. Nonetheless, such adaptation is well grounded within the literature, which both validates and promotes this conclusion. First, through her theory of interpersonal relations, Peplau (1997) identifies how the relationship between the health practitioner and the patient is the bridge upon which patients' problems with healthcare can be understood and transformed. Instrumental to this understanding is a comprehension that exceeds a unilateral patient focus and instead invokes a fearless appreciation by the paramedic of their own social fortes and deficiencies. However unreasonably, it is the paramedic who must assume the responsibility for this relationship and oppose the disconnect that precedes a

deterioration in the quality of this interaction. This conclusion is not a mechanism of victim blaming the paramedic but is rather a perspective that attempts to conceptualise why patients, some without a history of violent behaviour, choose to act or react with hostile intent.

The importance of viewing the relationship between the paramedic and the patient as foundational in the escalation of violent and aggressive behaviour was recognised by Nijman et al. (1999), through their model of patient aggression. Significantly, in addition to the practitioner–patient relationship and their individual influences on it, Nijman et al. (1999) distinguish the function of the environment as providing decisive context in the emergence of aggressive fervour. These authors' model of patient aggression is profound in the sense that it does not apportion exclusive responsibility for the violent act to the disease or injury itself, but rather situates the spur for this behaviour in the processes that attend care, including the treatment, the setting, and the interpersonal relations. However, this multifaceted position tends to find little support in the literature that describes health practitioners who have been exposed to such violent acts.

Despite the recognition of the role of the paramedic, the patient, and the environment in the initiation of OV, any application of mitigation practices to manage these factors and their contribution to violent acts remains vulnerable to the constant risk of unpredictability. Unpredictability is pervasive within paramedicine, not only in terms of the dynamic character of the prehospital milieu, but in the erratic nature of patient behaviour and the fallibility of paramedic conduct and performance. Although this volatility is largely ignored within the paramedic literature, it is not afforded this luxury in occupations such as engineering and finance, where its consequences are recognised as being potentially severe, expensive, and widespread.

However, unpredictability does not imply a complete loss of control and command. Rather, the domain of risk management provides unique insight and understanding into this portent through a contextual application (or lack thereof) of aleatory or epistemic knowledge. Through risk management, incidents of paramedic OV can be categorised as the kind of rare occurrence known as Black Swan events, that is, as surprising events relevant to one's knowledge. The utilisation of the Black Swan phenomenon classifies an event as pertaining to the three specific traits of aberration, severity, and elucidation. This categorisation is important, as it provides

an alternate lens through which to perceive the occurrence of violent or aggressive acts, one that acknowledges that the unpredictable, the unforeseen, and the unexpected do happen, and will occur despite the best intentions, training, and management. Fundamentally though, this perception provides clarification, drawing focus on the reduction of uncertainty through the strengthening of education and knowledge.

The development of knowledge against the backdrop of uncertainty is challenging, particularly when contending with the fallibility and volatility of human behaviour. Yet it is in this space that the concept of mindfulness has a unique but highly critical role to play in the mitigation of paramedic OV. The mindfulness concept, conceived within Eastern philosophy and developed into strategies of risk management, provides a neoteric interpretation of the regulation of the unforeseen and its potential surprises. Mindfulness provides a means for individuals to attentively focus on the elements that belong to a clear and detailed understanding of emerging threats, including those that impede this understanding (Weick & Sutcliffe, 2007). For mindfulness to be effective, small breakdowns or failures need to be identified (preoccupation with failure), and their uniqueness retained, rather being than squandered through their intersection with predefined classifications or experience (reluctance to simplify). Furthermore, individuals require attentiveness in their ongoing processes if they are going to have any chance of discerning subtle changes that could be symptoms of imminent failure (sensitivity to operations). Attentiveness is also critical for the foundation of pathways to recovery (commitment to resilience), the knowledge of how and when to implement this information, and, critically, the dissemination of this knowledge (deference to expertise; Aven & Krohn, 2014; Weick & Sutcliffe, 2007).

Although the concept of mindfulness provides a platform for the management of the unexpected, it is very much dependent upon individuals applying the principles and processes to their work environment. Day after day, job after job, interaction after interaction, commitment to the management of the risks of uncertainty requires paramedics to focus on the signals, deviations, and probabilities of performance. Without question, the execution of these skills is influenced by the demands of emergency shift work, including elements of fatigue, hunger, and pressure. However, when the unexpected occurs—and it will occur—the concept of mindfulness

acknowledges that, just as important as the anticipation of failure are the notions of immediacy, containment, support, and recovery.

This dialogue of the results of this thesis has identified key concepts and methodologies of paramedic–patient interaction, OV, and the sporadic unpredictably of these events. An amended model of the SCTSPM was developed for the purpose of providing an evidence-based foundation for the implementation of these findings. The following chapter concludes this thesis. In doing so, it offers a practical application of these findings for EMS organisations, in addition to a critical discourse regarding the significance and limitations of this study.

Chapter 7: Conclusions

Chapter 7 provides a revision of the research aims and questions and summarises the study through a closing discussion of the phenomenon that is paramedic OV. The chapter also provides a discussion of recommendations, suggested future investigations, research significance, and the limitations that have been identified through this research process.

7.1 Review of the Research Aims and Questions

This thesis sought to advance the evidence base of paramedic OV through analysis, review, and investigation of patient-initiated violence and aggression within the prehospital milieu. In order to review the efficacy of these objectives in this regard, the next two subsections address the research aims and questions that were outlined in Chapter 1.

7.1.1 Research Aim

The primary aim of this study was to gain an improved understanding of paramedic OV mitigation through an examination of the key concepts and theory that underlie this phenomenon. Examination of paramedic OV occurred through the lens of a paramedic theory of practice known as the SCTPSM (Campeau, 2007). The study was able to fulfil its aim by establishing two primary themes of paramedic OV. The first of these was the critical role of the paramedic–patient relationship in the development of aggressive or violent patient behaviour. The second was the notion of the unpredictability and uncertainty that encompasses these same acts. Although the SCTPSM was beneficial in the identification of these themes, the model was amended to better reflect the interaction of the paramedic and the patient within this process.

7.1.2 Research Questions

Two research questions, initially presented in Chapter 1, guided the research process of this study. The first question (RQ 1) examined:

> *How effective are existing paramedic OV systems and strategies in providing OV management, support, and mitigation?*

While reflected upon and discussed throughout this study, this question was ultimately answered by the continued failure of OV mitigation interventions to identify or prevent occurrences of aggressive or violent patient behaviour. In this regard, participants reported that the patient-centric, reactive approach that dominates paramedic mitigation practices and interventions was a key contributor to the failure of these programs to moderate incidents of hostility in the field. Occupational violence mitigation practices were identified as too rigid and structured in their recognition of patient-initiated violence, and as failing to give due acknowledgment to the fundamental role of the paramedic in the process. The inflexibility of these programs appeared to arise from a persistent outward focus of patient threat identification and management. Furthermore, the failure of existing OV mitigation systems was conceded as a pervasive, systemic problem, inclusive of organisational, institutional, and societal deficiencies, rather than a limitation of individual interventions or practices.

The second research question (RQ 2) explored:

> *How can paramedic practice theory contribute to the overall understanding and mitigation of paramedic OV?*

The paramedic theory of practice, Campeau's SCTPSM (2007), was instrumental in the comprehension of paramedic OV through its description of social processes and their relationship to scene management practices. The SCTPSM, which was the only paramedic practice theory identified in the literature, established that the actions of paramedics towards patient care occur because of and (effectively) only through the necessary social processes that take place between these individuals. The association and categorisation of the thoughts and behaviours of paramedics during these processes provided critical insights into the paramedic operational environment. Through the lens of the SCTPSM, core categories were developed that further defined the actions and influences of the paramedic and the patient during incidents of violence and aggression. One the most critical applications of the paramedic theory of practice in this regard was its role in the identification of the unpredictability and ultimately the inevitability of OV. The recognition of this principle not only questioned established aspects of mitigation training, it also allowed the introduction of new concepts from the field of risk management.

Notwithstanding the utility of the SCTPSM in this process, the model was found to be deficient in its description of the unique role of the paramedic–patient relationship within its scene management principles. The insufficiencies of the SCTPSM resulted in the necessary evolution of the model into the MPSM, which more accurately represents the paramedic–patient interaction and its influence on all other components of prehospital scene management. The next section summarises in greater detail how the two research questions were applied throughout this thesis, and how the understanding and conceptualisation of these issues were enacted for the paramedic context.

7.2 Summary Discourse

This thesis has addressed the insidious problem of paramedic OV through an in-depth examination of the systems, processes, and perceptions of those exposed to these detrimental acts. This timely study was necessitated by the ongoing exposure of paramedics to acts of aggression and violence despite the presence of increased awareness, education, training, and, indeed, funding. The study sought to identify the complexities of paramedic OV mitigation and address why those who have been tasked with the prehospital care of the ill or injured are commonly exposed to acts of hostility.

Despite simplistic conjecture, the reality of paramedic OV is often far more intricate and problematic than the media portrayal of a vulnerable paramedic being besieged by a vicious and sadistic perpetrator. Even so, the complex and dynamic phenomenon that is paramedic OV presents as the very antithesis of the prehospital care of the ill and injured. Acts of violence and aggression are not only initiated by those identified for care, but also by family, friends, and even non-associated bystanders in the prehospital scene. Each of these individuals or groups appear with their own characteristics of social development, culture, religion, education, and socioeconomic background, and each can present with their own motivation for initiating aggression, including frustration, injury, illness, and/or pain. The myriad complexity and variability of scene participants' characteristics extends also to the setting of OV, with paramedics exposed wherever the patient scene manifests, including in houses, streets, and places of work; in the ambulance; and even in the hospital or care facility. Furthermore, paramedic OV can occur at any stage of the

paramedic–patient interaction: during the patient care process or patient transportation, or while paramedics are engaged in the discharge of their patient care responsibilities. Even the very act of paramedic OV is inconsistent, with exploits of violence or aggression presenting as verbal, physical, or even sexual assault.

The consequences of paramedic OV have been demonstrated to cause physical injury and psychological damage, both of which can extend their influence far beyond the scope of the initial confrontation. Such effects have been well documented and recognised by individuals, organisations, and academics alike. Emergency medical service organisations have responded to the threat OV presents and have spent significant periods of time and considerable resources in pursuit of protecting and supporting their staff. Although the commitment of these organisations has been well intended, the management of acts of hostility has proven difficult, with OV strategies and interventions often unfit for purpose and frequently ineffective. This is evidenced by the continued high levels of paramedic exposure to incidents of OV.

In light of this continuance, the current approach to paramedic OV mitigation by EMS organisations, statutory bodies, and educational institutions appears to be flawed. Current OV mitigation strategies focus heavily on the proactive and reactive phases of hostility mitigation, disregarding the active period of patient interaction. Yet it is this active phase that accentuates the paramedic–patient relationship and the subsequent communication, understanding, and empathy it promotes. This study identified the absence of consideration of the social interaction between the paramedic and the patient as an opportunity on which to potentially construct more effective mitigation programs. Instead of adopting pre-existing notions of OV against paramedics, this study utilised an approach that acknowledged the implicit social activities of paramedic practice in the management of the prehospital environment and patient care. The theory of practice harnessed in this regard, the SCTPSM, provided a valuable contextual lens for the examination and establishment of the social practices that paramedics utilise for scene management practices.

Acknowledgement of the social processes involved in paramedic OV represents a notable shift in the primary representation of violent and aggressive patient behaviour. Not only does it shift the emphasis away from individual culpability, it also proposes the notion that the bilateral, interactive paramedic–patient relationship is part of this process. This study has repeatedly highlighted the essential nature of the

connections established between the paramedic and the patient, as it is these social frameworks that facilitate the treatment relationship. Importantly, the study also identified that the deterioration of these frameworks was a precursor to the initiation of violent or aggressive behaviour. However, notwithstanding the importance of this association, the paramedic–patient relationship provides only a limited perspective on the development of aggressive behaviour. Critically, the implications of the relationship for paramedic OV must be comprehended within the context of the environment in which the violence occurs. Although the behaviour and interaction of the paramedic and patient may initiate hostility, it is the situational stress that provides the catalyst for violent acts.

Despite the initial acumen of the SCTPSM for the understanding of paramedic OV, the model was observed to be deficient in its explicit acknowledgment and recognition of the roles of the paramedic and the patient. For this reason, the study proposed an evolution of the SCTPSM, to better reflect the pivotal role of this interaction within the environmental context of scene management practices. This interaction was reflected in the thematic categories of *patient engagement* and *reaction* and *paramedic actions* and *effects*, which were the impetus for the development of the MPSM. The MPSM represents the reformation and merging of these categories into the SCTPSM and articulates a change in focus from *scene control* to *scene manipulation*. While subtle, this change was crucial to better representing the illusion of control that underlies prehospital scene management.

The notion of control (or lack thereof) within paramedic care was identified as a dominant theme throughout the interviews conducted with the participants of this study. This theme was predominantly recognised through the categories of *patient cognition* and *unpredictability*, which were identified by paramedics as key elements in their failure to prevent the escalation of patient hostility. As part of the broader concept of uncertainty, one of the greatest challenges to paramedic OV mitigation is the lack of control the prehospital scene continually presents to paramedics. Although uncertainty encompasses all elements of paramedic work, it is the human elements that provide the sternest test for these practices. It is almost impossible for paramedics to know how a patient will act in a situation when their behaviour is influenced by a multitude of unknowable elements such as pre-existing attitudes, experiences, emotions, culture, and context. Even more discouraging in this regard is that this

uncertainty exists in all situations, even before consideration is added for elements that can further influence patients' cognitive control, such as drug and alcohol use and psychiatric illness.

While the unpredictable nature of patient behaviour exemplifies the issue of uncertainty, it still represents only a singular component of a larger, more deceptive problem. Uncertainty is endemic within paramedic practice due to the significant array of variables that exist concerning the environment, the patient, the paramedic, and their interaction. From unfamiliar workspaces, unknown patients, and indeed the very nature of paramedic work, the list of confounders is considerable. Such is the influence of these features that they form a pattern of inevitability which all but precludes the complete prevention of violent and aggressive behaviour. Certainly, this study has even highlighted the paradox of paramedic work where appropriate care of some patients (e.g., psychiatric emergencies) can directly provoke a violent reaction through the coercive and forceful control of their movement. Although the concept of uncertainty and inevitability may appear to render a degree of futility to the effort of OV mitigation practices, its acknowledgment can in fact provide alternate insights and perspectives into the phenomenon.

This study identified the discipline of risk management as a means through which a new approach to paramedic OV could be understood and formulated. Instead of resisting the idea of uncertainty, risk management accepts the unknown and recognises that mitigation of adverse events lies in both the minimisation of uncertainty and the strengthening of correlated knowledge. It is clear from the preceding discussion that knowledge which can be seen as effective in reducing uncertainty must be distinctive and specific to the occupational setting. In this regard, this study identified the concept of mindfulness for its adroit manipulation of unexpected events in dynamic environments through its encouragement of situational "presence". Centred around the principles of awareness, both personal and environmental, the concept of mindfulness can be used by paramedics to augment their ability to discern, prepare for, and adjust to uncertain events. This occurs as a result of operational mindfulness practices such as preoccupation with failure, sensitivity to operations, and deference to expertise.

One of the fundamental features of the application of risk management strategies towards undesirable events is the recognition that it is effectively impossible to foresee

all possible situations that a paramedic may encounter. In this regard, the perception of unpredictability changes the practice of OV risk management from one of prevention to one of limitation. Importantly, this change is not an assertion of operational failure but rather an opportunity to regain control of a situation in which a critical failure has already occurred. The additional distinction of containment in this process is extremely important. Instead of the inattention that is often applied to the post-incident care and support of OV affected paramedics, containment positions this assistance as a critical element of OV mitigation practices. The commitment to resilience it brings not only helps the organisation and individual to learn and improve, it also assists in the paramedic's capacity to recover from these traumatic events by drawing them, as situational OV experts, into a more transparent and flexible recovery process. Mindful reflection practices are arguably pivotal to this post-traumatic growth and development of resilience.

Although the burden for risk management at a scene is undoubtedly carried by the attending paramedic, its application for OV mitigation is inherently consistent with the premise of paramedic OV and the fundamental characteristics of the phenomenon. The single constant that exists between all the unpredictability, all the uncertainty, and all the variability that exists in paramedic OV is *the paramedic*. Moreover, despite all the OV mitigation practices and procedures that can be employed, the one specific element that paramedics have the most control over when engaging and interacting with patients is their own behaviour. This role of the individual is perhaps best reinforced by Taleb (2007, p. 297), when he describes the management of the unexpected: "You are exposed to the improbable only if you let it control you. You always control what you do; so make this your end". While ultimately, this assertion may provide an important preface for the mitigation principles of paramedic OV, it does not miraculously solve the issue of prehospital violence and aggression. The genuine challenge that remains for both EMS organisations and tertiary educational institutions alike is to assist staff in the development of these social and behavioural skills.

7.3 Recommendations

This thesis has identified the importance of the social practices that pertain to the development of aggressive or violent paramedic–patient behaviour. Both the

SCTPSM and its evolution into the MPSM are important to the understanding of paramedic OV, as these models position the structure of paramedic practice forthrightly within the realm of sociology. As opposed to continuing to consider paramedicine in its current classification as a pure health science, it may be more appropriate to reconsider it as symbiotic with social sciences, which directly acknowledge human behaviour, interaction, and the processes that sustain these practices. This consideration would be an important shift in terms of not only how paramedicine is understood but ultimately how it is defined and educated. Furthermore, in light of the emergent preeminence of social practices, it would seem to follow that if the discourse surrounding the characteristics of paramedic practice has evolved, then the way that mitigation programs promote and conceptualise their practices must also change. In this regard, this study recommends attention to three main areas: OV mitigation policy, education and training, and post-incident support.

7.3.1 OV Mitigation Policy

The first recommendation from this thesis, and one that influences all aspects of paramedic OV education and research, regulation, management, and operation, is the definition of paramedic OV. This aspect has been a point of notable discourse numerous times throughout this study and is paramount to establishing both a framework and a reporting structure for OV mitigation. Without an accepted and supported definition of paramedic OV, those exposed to its effects and those attempting its mitigation will continue to experience confusion. This recommended definition for paramedic OV was asserted in Chapter 1 of this thesis:

> The external abuse, threat, or assault of an employee in the context of their work that involves a clear or implied challenge to the individual's personal health, safety, or well-being (Beech & Leather, 2006; World Health Organization, 2002).

Further to this recommendation for a clear definition, and conceivably the most contentious point, is the need for acknowledgement from EMS organisations that paramedic OV is often both unpredictable and inevitable. Although this statement may appear fatalistic, it reflects the real nature of paramedic practice and the potential for exposure that individuals working within it continually experience. Critically, though, this understanding must be organisationally led, as any shift to policy and action

implied by it can only be undertaken with the approval and support of associated EMS professional associations and institutions. Asserting the unavoidability OV may appear trivial when compared to the larger issues of paramedic safety. However, such an understanding, drawn from the field, can help to better define and determine the goals and objectives of organisational policy. Moreover, it becomes a charter for deeper understanding and change, not only on an organisational level but also for the operational paramedics involved. The primary benefits of this acknowledgment toward paramedic OV policy would be threefold.

Foremost, despite initial reactions, a statement of the inevitability of OV does not suggest the futility of applying education and resources to the phenomenon; rather, it empowers EMS organisations, educational institutions, and paramedics alike to more effectively prepare for its occurrence. The next subsection (7.3.2) addresses the education and training of paramedics in an environment where unpredictability and inevitably have been accepted, marking a fundamentally alternate approach to mitigation practices. Second, the very recognition that acts of violence and aggression cannot always be prevented compels an organisation to both better resource and establish its post-incident support systems. Rather than these being an ancillary component of OV mitigation practices, assistance to paramedics after deleterious acts of violence requires prominence. Although this care may take different forms, depending upon the requirements of the paramedic, it needs to extend beyond initial perfunctory supervisory action and include both informal and formal peer and managerial responses. This recommendation will be discussed in greater detail in section 7.3.3.

Last, and potentially most importantly, the acknowledgment by EMS organisations of the inevitability of OV assists in the removal of any stigma associated with exposure to it. Exposure to OV is well documented to negatively affect both the mindset and outlook of those involved. Although the very act of violence holds foremost culpability for these experiences, declarations of zero tolerance that promote, even subversively, the notion that OV is preventable can infer unrealistic and prejudicial expectations upon paramedics. These expectations can manifest as feelings of distrust, intolerance, and even blame among those affected (Holmes, 2006).

7.3.2 Education and Training

This study has identified the need for paramedic OV mitigation to shift aspects of both its understanding and its strategy in order to provide a more thoughtful and integrated foundation for both organisational advocacy and practice at the front line. In this regard, any basic paramedic OV mitigation policy or practice is underpinned by the education and training provided to both undergraduate students and qualified paramedics alike. While this study's recommendations do contrast with existing OV policy, the study does not suggest that all other mitigation programs should be disregarded. While results identify that there are certainly deficiencies with current programs and practices, these may be a result of the way that these interventions have been applied to the paramedic milieu, rather than a failure of the specific practices themselves. In light of this, the study suggests that further research be undertaken in this area, and that attention should be applied to areas where an organisation (and indeed, its employees) can achieve the greatest impact towards OV mitigation. In place of practices that are either ubiquitous or self-appealing, consideration should instead be applied to interventions that target the single most controllable aspect of paramedic OV, *the paramedic*.

This thesis has identified areas of consideration for future education and training practices that focus on not only the development of the paramedic social skillset but also paramedics' ability to understand and anticipate patients who have the propensity for violent or aggressive behaviour. These practice suggestions, which are contained under the broader classification of *mindfulness*, represent a strategic change to the manner in which paramedic OV is perceived and educated. As opposed to methods that represent either a proactive or reactive approach, mindfulness focusses an individual's attention on their present events and experiences. However, the attention applied during mindfulness is greater than a simple application of awareness. Mindfulness signifies a simultaneous approach of intention, concentration, and attitude, which, when applied appropriately, can lead to a significant shift in an individual's perspective (Shapiro et al., 2006). Critically, this awareness occurs not only on a macro level but also through the discernment of the components of micro-context appreciation (activity, environment, and self). The ideology of mindfulness enables the paramedic to both position and engage the patient within the immediate context of their shared environment. Somewhat prophetically, this method of

individual engagement was identified by Hass and Shaffir (1978, p. 9) over 40 years ago:

> We are able to understand others because we can imagine how they feel and think. We do this by empathizing with others, by symbolically assuming their point of view. Because we can see social situations from the perspective of others we are able to anticipate lines of action, and act in ways we think will be most appropriate or most successful.

Importantly, the concepts of mindfulness allow for a deliberate transition away from the current philosophies of paramedic OV mitigation. This shift begins with the appreciation that (a) paramedics, like most individuals, are adept at recognising signs of inherent danger, and (b) existing paramedic OV mitigation strategies are generally unreliable and often ineffective (Drew et al., 2021). If this position can be supported by EMS organisations, and paramedics remain defended in their decision to either not enter or withdraw from unsafe environs, then mindfulness allows for a profound refocussing of training proficiencies. In the place of OV-specific tuition, education could be focussed on the development of personal, social, and communicative skills. In the same way that civil engineers construct a bridge to withstand the forces and elements it will be exposed to prior to its erection, so too paramedics can be developed and supported in preparation for the interactional elements of adverse social engagement. Instead of schooling paramedics in the consequences of failure, as most mitigation policies do, paramedics can instead be prepared by programs that enhance their capability to understand, empathise, and engage. The benefit of such development is its extension beyond that of any potential conflict, towards the strengthening of all elements of paramedic–patient contact.

However, it is complicated to establish OV mitigation practices around the premise of paramedic actions, behaviours, and decision-making constructs. While it appears logical that such education would be incorporated within the teaching syllabus of tertiary paramedic schooling, this is not simple to enact. Tertiary institutions' current omission of these aspects of practice is simply a reflection of the continuing pressure on these establishments to produce graduates that are fit for purpose. With a crowded curriculum of anatomy, physiology, pathophysiology, and practical skills, there is little scope for the inclusion of sociological subject matter. It is similarly problematic for EMS organisations to undertake these additional training

responsibilities, as these agencies will always have limited time and funding to dedicate to mitigation interventions. Moreover, the ability of these organisations to effectively develop, deliver, assess, and re-evaluate the content of such education to potentially thousands of employees is limited by many realities.

It is clear that paramedic development is complicated, and that it will come at a cost. Yet while difficulties remain with enacting the education and training that will improve the social skillset of all levels of paramedics, the value of this learning is undeniable. The importance of the paramedic–patient interpersonal relationship described throughout this thesis and its association with OV highlights the value of interpersonal relationships and awareness as core skills of paramedic practice. However, the tutelage of social proficiencies is both an ongoing and evolving process. Established in the novice practitioner and evolved through personal growth and experience to integrate sophisticated concepts of patient-centred care and evaluation, growth in this area requires engagement in an education shift that necessitates agreement and commitment from EMS organisations, tertiary educational institutes, and professional institutions alike.

Finally, as has been acknowledged throughout this thesis, it is critical that any future education and training practices are not only appraised by paramedics but are evaluated by a rigorous peer-review process. This position is particularly relevant given that many of the practices and philosophies identified by and discussed within this paper originate outside of the paramedic milieu. Although this thesis has taken care to appropriately connect the associated literature back to the relevant evidence, without a rigorous, systematic evaluation process, any intervention may unwittingly fail to address any of the many complexities that comprise the paramedic environment.

7.3.3 Post-Incident Support

The final key area of recommendation identified by this study pertains to the application of post-incident OV support. In contrast to previous recommendations, this thesis finds little reservation as to the deficiency of current EMS organisation practice in this regard. Both the overall research and the results of this study have critically recognised the limitations of formal and informal support mechanisms for paramedics after their exposure to incidents of occupational hostility. Unsurprisingly, these

deficiencies in paramedic OV support significantly influence the development of paramedic psychological distress.

However, much like paramedic OV itself, the notion of what comprises effective psychological support for paramedics exposed to incidents of patient-initiated violence remains complex and inconsistent. Although it is inevitable that some paramedics will develop mental health problems following exposure, others will continue to perform highly and may even develop positive emotional experiences (Austin et al., 2018; Brooks et al., 2020). The development of these psychological problems appears to be determined by the individual and their personal psychological resilience, including their support network, training, experience, and perceived competence (Brooks et al., 2020).

It is this dilemma that highlights the critical role that the individual paramedic must play in both the application and intensity of their processes of psychological care. Instead of a one-size-fits-all approach to post-incident support, a tailored application that is both flexible and adaptable to the needs of the individual paramedic would ensure better mental health outcomes (Forbes et al., 2019). Furthermore, it is imperative to both the paramedic and the organisation that psychological care begins with the appropriate support of supervisors and managers. Not only is this support acknowledged as offering protective qualities against the development of psychological effects (Brooks et al., 2020), it both acknowledges the event for the paramedic and initiates their connection to organisational care.

This issue of post-incident OV support is only one example of the ongoing organisational requirement that comprises the education and provision of paramedic mental health. Concerns pertaining to the psychological health of paramedics have received important and systematic discussion throughout both the peer-reviewed and grey literature. This dialogue has evolved out of necessity, due to the significant levels of paramedic mental health concerns, including depression, anxiety, and PTSD, which are estimated to be double that of other healthcare professionals (Lawn et al., 2019). The operational stresses of paramedic work, experiences of trauma, organisational influences, and indeed the exposure to acts of verbal and physical aggression are recognised as crucial in the development of these psychological injuries.

The psychological support of paramedics requires increased recognition, education, and backing, and not just from an EMS organisational level. It is necessary that this support extends beyond perfunctory acts of incident care and becomes a continuous requirement for paramedics through all stages of their career, including initial training, work transition and retirement. Furthermore, it is critical that the prerequisite for psychological support extends beyond just paramedic care and includes the education and training of staff in both supervisory and counselling roles.

The recommendations provided in this thesis detail the importance of integrating social theory into both the understanding of paramedic practice and its role in the development of patient-initiated hostility. The three areas identified as critical to this implementation were OV mitigation policy, education and training, and post-incident support. Each of these describes a distinct area of paramedic practice, and each represents a sector of current fundamental fallacy in paramedic OV thinking; as such, these highlight the threefold necessity for education, instruction, and support.

7.4 Future Research

This study provides a unique insight into the perceptions of paramedics and the acts of patient-initiated violence and aggression perpetrated against them. While it has illuminated the prominence of the paramedic–patient–environment relationship in the mechanics of the OV phenomenon, it has also identified other aspects of paramedic OV that merit further investigation. In particular, these comprise the notions of pre- and post-incident education, treatment, and support services.

It is evident that the direction of future research within this space will embrace the evolution of paramedicine from a purely emergency focus to one that better represents the primary healthcare emphasis of most modern EMS organisations. This evolution has at its core an ideology that champions the paramedic–patient relationship, utilising it as the foundation from which all bilateral decision-making processes are undertaken. Future research should concentrate on the development and support of these interactional skills.

In particular, this study recommends that future research examining paramedic OV should consider these focus areas and questions:

1. How effective are existing OV interventions that have been adapted for the prehospital milieu in the mitigation of patient hostility?
2. What is the role of isolation in paramedic OV, and what are the implications of using single paramedic operators for mitigation practices?
3. How effective are OV interventions that focus on a paramedic's social skills, including their ability to introspectively engage with their own personal biases and limitations?
4. How can EMS organisations better support the critical decision-making of paramedics, particularly during times of high stress and anxiety?
5. What alternative care and support pathways can be established for patients who are considered an imminent risk for OV, particularly with regard to better supporting the principle of Partnership within the *Australian Charter of Healthcare Rights*?
6. How can paramedics and their allied support agencies (such as the police) better align their patient care objectives to improve the health outcomes of vulnerable individuals?
7. What is the association between a deficiency of post-OV support services and the development of paramedic psychological injuries, including PTSD?
8. How can EMS organisations better support the post-OV needs and wellbeing of paramedics exposed to patient aggression or violence?
9. What role do tertiary educational institutions have in the development of graduate paramedics' social and communication skills?
10. What is the role of tertiary educational institutions in changing the focus of paramedical prehospital care to better reflect the needs of contemporary paramedics and EMS organisations?

7.5 Significance

This research has undertaken a critical examination of the phenomenon of paramedic OV through the lens of a paramedic theory of practice. The examination is unique because, instead of placing culpability for violent and aggressive acts on the perpetrator, the study examines these acts through the context in which they occur. The context of the prehospital milieu has been described extensively throughout this thesis as being distinctive within emergency healthcare practice. To date, no other

studies have examined the subject of paramedic OV utilising this occupation-specific approach to OV mitigation understanding.

The examination of paramedic OV by this thesis appropriated an existing paramedic theory of practice, and through the evidence of study findings, adapted the model to more accurately reflect the fundamental elements of EMS processes. The updated model of paramedic scene management, titled the MPSM, contributes to the existing education and discourse of how paramedics think, operate, and perform during acts of prehospital care. The addition of the paramedic and the patient to the MPSM model emphasises the importance of these elements in both defining and determining scene management practices, including the development of hostile patient behaviour. Crucially, recognition of the function of the paramedic–patient interaction within the process of scene control contributes the potential for mitigation principles that uphold this new ideology. Furthermore, the volatility of this dynamic relationship establishes the basis of OV inevitability and its discernment through risk management principles.

The results of this research provide remarkable insight into the phenomenon of paramedic OV. The notion of the role of unpredictability and uncertainty in OV shift awareness towards a stronger appreciation of the role of post-incident support in mitigation practices, heralding an important focal change in the understanding of mitigation generally. Current contradictory policies connect the preventable to the reactive, maintaining a logic that centres acts of hostility on the perpetrator of violent or aggressive behaviour and using this as the basis for OV mitigation interventions. However, coupled with the notion of uncertainty, recognition of the influence that paramedics have towards all elements of prehospital care, including OV, compels mitigation strategies to consider practices that move beyond current paramedical knowledge and skills. Central to this shift is developing paramedics' ability to engage the patient attentively and extend into this interaction refined skills of communication, empathy, understanding, and thoughtfulness; as well as providing paramedics with a means of identifying those patients who may tend towards violence, these skills add to the proficiencies of their prehospital healthcare.

Although the information presented in this thesis may primarily benefit EMS organisations, it has the potential to extend into all categories of the paramedic profession, including professional associations, statutory bodies, tertiary educational

institutions, and, indeed, individual paramedics. The information provides new insight into paramedic practice, the development of violent and aggressive patient behaviour, the consequences of hostile behaviour, and the vulnerability of current mitigation practices to failure. The benefit of this knowledge may assist all aspects of the paramedical profession to better comprehend the phenomenon of paramedic OV and relay that knowledge into improved practice, education, training, and policy development.

7.6 Limitations

This study has several limitations that predominantly pertain to the study design and the participant recruitment and demographics. Foremost, although it was the initial intention of this study to engage paramedics from within the three largest Australian EMS organisations, failure to obtain authorisation from the NSWAS resulted in recruitment being restricted to only two, the QAS and AVic, with paramedics from Queensland comprising the majority of the participants. It is therefore possible that a study utilising paramedics from alternate geographical locations and EMS organisations would generate different deductions. This is all the more relevant given the variations of mitigation interventions and approaches that exist across different organisations and across the scope of individual paramedic practice. However, this limitation does not distract from the significance of the experiences of the participants who took part in this study.

The selection of participants for this study required paramedics to have experienced an act of violence or aggression that was directed at them during the context of their work. Although this criterion was necessary so that the interviews could scrutinise the perceptions of paramedics regarding OV and their mitigation procedures and interventions, it is also a potential constraint. Examination of OV incidents where mitigation systems and interventions have failed does not facilitate the analysis of near-misses or potential events in which such procedures may have prevented the escalation of violent behaviour. Ultimately, the data that was obtained may have been vulnerable to my assumptions regarding the management and prevention of paramedic OV. The utilisation of one-on-one semi-structured interviews as the method of data collection may have also resulted in the distortion of some the described data. Participants may have overstated elements of their experience in an

attempt to make their account more favourable for inclusion. Alternatively, participants may have also altered aspects of their accounts to defend themselves against the suggestion of any potential unethical or unprofessional behaviour on their behalf.

Finally, despite my efforts to minimise errors, including engaging the assistance of a librarian to guide search criteria, there is the possibility that some research articles were missed during the literature search. The lack of literature consistency in describing paramedicine and the environment paramedics operate in, including prehospital, out-of-hospital, and EMS systems, increases this possibility. The possibility that articles were missed is further compounded by the fact that the search strategy limited the results to English language papers.

7.7 Final summary

The frequency and severity of paramedic OV highlights the necessity of OV mitigation. Occupational violence mitigation interventions are approaches to violence prevention that aim to equip staff with the right knowledge, skills, and work environment to help reduce the threat of violence. However, both the literature and the study results offer only limited support for the effectiveness of these interventions. Central to the failure of existing paramedic OV mitigation systems are the education, interventions, and policy developed from allied but characteristically unrelated occupations and environments. The challenge for the development of paramedic OV mitigation systems lies in their ability to both control and manipulate the complexities of the environment that defines the unstructured, community-based occupation of paramedicine.

The SCTPSM is a paramedic-based philosophy that defines the critical role which paramedics undertake in controlling the emergency scene, and the social and physical elements that this entails. The utilisation of the SCTPSM within this thesis provided not only a unique application of paramedic behavioural theory, but an integrated framework through which the phenomenon of paramedic OV could be explained. Furthermore, this framework supplied the lens for review of the data, through which themes relevant to paramedic OV mitigation were identified and developed.

The developed MPSM and the findings that were created from the results of this study will contribute to the compendium of paramedic OV and may provide benefit in the development of education, mitigation training, and policy implementation. Finally, the experiences of the paramedics interviewed for this study may provide further insight for individuals, EMS organisations, tertiary institutions, and researchers wishing to further their knowledge of the phenomenon of paramedic OV and its mitigation.

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Appendices

Appendix A

Systematic Review

Systematic review

Paramedic occupational violence mitigation: a comprehensive systematic review of emergency service worker prevention strategies and experiences for use in prehospital care

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ABSTRACT

Occupational violence is a significant issue within the context of prehospital healthcare with the majority of paramedics reporting some form of abuse, intimidation, physical or sexual assault during their career. Though the paramedic literature acknowledges the severity of this issue, there is limited literature examining occupational violence mitigation strategies. Despite this, the operational and environmental similarities that exist between paramedics and other emergency service workers such as the police and firefighters, provide an opportunity to review relatable occupational violence mitigation strategies and experiences.

This review used Joanna Briggs Institute guidance for systematic reviews of both qualitative evidence and effectiveness. Studies included in this review incorporated those published in English from 1990 to January 2020. Two qualitative studies met the criteria for review. From these, a total of 22 findings were extracted and combined to form four categories from which two syntheses were developed. Twenty-four quantitative studies, encompassing six unique fields, met the criteria for review.

Mitigation strategies for emergency service worker occupational violence are not easily defined. They are dynamic, multilayered and encompass a variety of complex social, medical and psychological influences. In spite of this, there are clear benefits to their application in regard to the approaches and training of violence mitigation. The paramedic environment would benefit from strategies that are flexible to the ongoing needs of the workers and the specific cultural, environmental and social factors that encompass the paramedic organisation.

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INTRODUCTION

Occupational violence (OV) can be characterised as any external abuse, threat or assault of an employee in the context of their work and involves a clear or implied challenge to the employee's personal health, safety or well-being.[1 2] OV is a significant issue within the context of emergency medical service (EMS) healthcare with as many as 90% of paramedics reporting some form of abuse, intimidation, physical or sexual assault during the course of their work.[3–5]

OV mitigation strategies are approaches to education, training and operations that aim to equip staff with the right knowledge, skills and equipment to help reduce the threat of violence. However, the array of risk factors that predispose paramedics to an increased threat of violence is a challenge for OV mitigation strategies within EMS systems. These risk factors include; working with volatile patients, operating in mobile workplaces, isolation from co-workers, the transportation of patients and late at night or early morning work hours.[6]

Though there is a significant body of work about the structure, objectives and content of OV mitigation strategies, there is limited supporting evidence to validate the efficacy of such practice.[7] This is reflected in the dearth of peer-reviewed literature on OV mitigation strategies and their effectiveness within paramedic practice.[8] While there exists some literature on OV mitigation strategies for healthcare workers,[7] the majority of these studies are centred on the acute hospital setting.[9] These reviews, though of some interest, are limited in their usefulness due to the emphasis on the hospital environment. By contrast to the hospital setting, paramedics operate in an environment which is dynamic, inconsistent, and with vulnerability exacerbated by the isolation that does not exist within other healthcare professions.[10–12]

The environmental context in which paramedics operate is unique within healthcare and plays a significant role in both defining and dictating decision-making processes and social interactions.[13] Though unique to healthcare, paramedics are not alone in operating in such dynamic environments. Paramedics share this space and cooperate in alliance with both police and firefighters under the broader heading of emergency service workers (ESW). Emergency service work is often physically demanding and punctuated by periods of high-level stress, activity and in locations that are both varied and chaotic. ESW protect public health and safety, at the same time exposing themselves to personal danger through frequent contact with the public during periods of heightened emotions and frustrations.[12] Importantly, like paramedics, all ESW are at an increased risk of exposure to OV during the course of their work.[12 14–16] While there are important differences between the ESW professions regarding the nature of their work,[12] it is their similarities and distinctive environmental relationship that provides the opportunity to examine the effectiveness of their specific OV mitigation strategies. It is anticipated through a broader examination of the ESW OV literature, effective mitigation strategies can be identified for

Key messages

What is already known about this subject?

- Paramedic occupational violence is a serious problem confronting emergency medical services as they aim to equip staff with appropriate mitigation knowledge, skills and equipment.
- There is limited supporting evidence to support the structure, objectives and content of existing paramedic occupational violence mitigation strategies.
- The operational and environmental similarities that exist between paramedics and other emergency service workers such as the police and firefighters, provide an opportunity to review relatable occupational violence mitigation strategies and experiences.

What are the new findings?

- The qualitative studies provided evidence regarding occupational violence mitigation programmes and training, and what emergency service workers perceive is necessary to reduce incidents of violence and aggression.
- The quantitative studies provided evidence on an array of occupational violence mitigation interventions including conflicting evidence on the use of body-worn cameras and rates of assault; varying rates of effectiveness of chemical sedation and complications among different pharmacological agents; decreasing performance of participants self-defence skills under high-pressure situations; perceptions of social cues to imminent violence; and improvements in either training procedures or programmes that could influence the way that mitigation strategies are viewed, developed and taught.

How might this impact on policy or clinical practice in the foreseeable future?

- Occupational violence mitigation strategies encompass a variety of complex social, medical and psychological influences.
- Occupational violence mitigation strategies that are developed for paramedics need to be tailored to the specific cultural, environmental and social factors that encompass the emergency medical service organisation.
- Occupational violence mitigation strategies need to be adaptable and flexible to the ongoing needs of paramedics with comprehensive and ongoing evaluation of their impact.

the purpose of translating this practice or education into the paramedic environment.

REVIEW QUESTION/OBJECTIVE

The objective of this review was to synthesise the quantitative (QN) and qualitative (QL) data regarding OV mitigation strategies and their effects towards ESW. The resulting conclusions and recommendations will prove useful for paramedic occupational safety and training development.

S1	TI police OR officer* OR prehospital OR emergency medical service* OR EMS OR paramedic OR ambulance OR firefighter OR public service
S2	TI (assault* OR aggression OR agitation OR violen* OR conflict OR self-defen$e OR disturbance OR danger* OR threat) NOT TI (domestic violence OR domestic abuse OR intimate partner violence)
S3	TI training OR performance OR assessment OR evaluation OR quantifying OR perceptions OR intervention* OR study OR effect* OR use OR trial OR result
S4	S1 AND S2 AND S3

Figure 1 Search strategy PsycINFO, Medline, ERIC and CINAHL.

METHODS

This multimethod systematic review was undertaken using guidance from the Joanna Briggs Institute (JBI) approach[17] for systematic reviews of both QL evidence and effectiveness.

Inclusion/exclusion criteria

The review considered any ESW, of any age or gender, who interacts with the public during the context of their work. This included:

- Paramedics, ambulance officers, Emergency Medical Technicians (EMT) and EMS personnel. Paramedic is typically the recognised term for a prehospital emergency healthcare worker, however other terms such as EMT may be used.
- Police.
- Firefighters and rescuers.

The review excluded any studies that involved working in a controlled environment (eg, hospital), or those pertaining to aeromedical operations. It also excluded studies which involved the specific use of firearms, conducted electrical weapons (eg, Taser) and lachrymatory agents (eg, pepper spray), as these interventions were considered inconsistent with the ethical and professional practice of paramedics.

Type of interventions

The QN component of this review considered any studies examining strategies delivered to ESW to mitigate occurrences of OV. Interventions included but was not limited to; physical restraint, chemical sedation, behaviour management and audiovisual recording equipment.

Comparators

This review included studies that compared an intervention to other interventions, placebo or control products. The authors placed no limits on the comparator types.

Type of outcomes

This review considered QN studies that included the following outcome measures:

- Incidence of OV.
- Incidence of OV resulting in psychological or physical injury or impairment.
- Individual knowledge and skills relating to OV mitigation.
- OV mitigation and control measures such as effectiveness of self-defence skills.

Context

The QL component of this review included any studies that explored the perceptions and experiences of ESW on OV mitigation and associated prevention strategies.

SEARCH STRATEGY

The search strategy aimed to find both published and unpublished studies. An initial limited search of CINAHL and PubMed was undertaken followed by analysis of the text words contained in the title and abstract, and of the index terms used to describe the article. The reference list of all studies selected for critical appraisal were also screened for additional studies. The search strategy examined only English language studies published between 1990 and 2020. This extended timeframe was selected to capture the earliest identified paramedic literature on OV.[18]

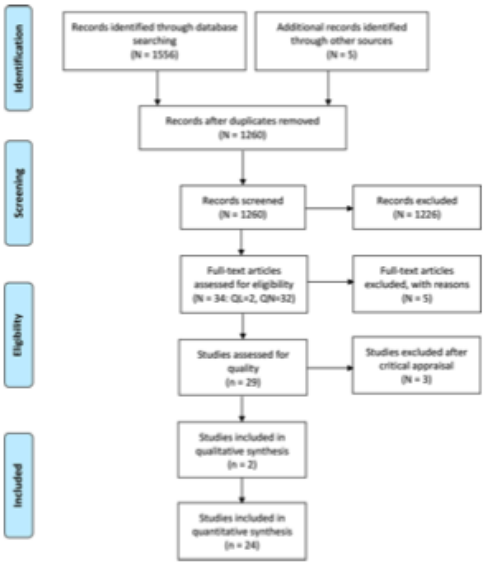

Figure 2 Flow chart of search and study selection process.

The detailed search strategy for PsycINFO, MEDLINE, ERIC, CINAHL, is listed in figure 1, however, a complete search strategy can be found in online supplemental appendix 1.

STUDY SELECTION AND ASSESSMENT OF METHODOLOGICAL QUALITY

Following the search, all identified citations were collated with titles and abstracts screened and evaluated by two independent reviewers. Studies that met the inclusion criteria were retrieved in full and assessed in detail. Full-text studies that did not meet the inclusion criteria were excluded. Studies were critically appraised by two independent reviewers for methodological quality using standardised critical appraisal instruments.[17] Any disagreements that arose between the reviewers were resolved through a discussion and there was no requirement for mediation with a third reviewer. A comprehensive search of the literature revealed a total of 1561 potentially relevant articles including 301 duplicates. Figure 2, by means of a Preferred Reporting Items for Systematic Reviews and Meta-Analyses[19] flow diagram, outlines the stages of identification and retrieval of studies for inclusion in this systematic review for which there were 26 (24 QN and 2 QL) studies.

QN and QL data were extracted from included papers by the primary reviewer using the standardised data extractions tool available in JBI SUMARI.[17] QL research findings were combined using the JBI SUMARI[17] QL synthesis tool to generate themes and statements from which a comprehensive set of findings were produced. A meta-analysis of QN studies was not possible in this review due to the significant clinical and methodological heterogeneity which existed. Consequently, QN studies were combined into a narrative synthesis for evidence presentation. The primary reviewer analysed and integrated the results of QL and QN studies, which was then assessed and refined by the remaining reviewers. There were no discrepancies highlighted during this process and therefore no requirement for further mediation.

RESULTS

Characteristics of included studies

Two QL studies involving 1178[20] and 10[15] participants, respectively, were included for methodological assessment and review. There were 24 QN studies that met inclusion criteria for this review. These studies included 14 (n=6642) examining police OV mitigation strategies,[21–34] and 10 (n=2306) examining paramedics.[35–44] No studies on either firefighters or rescue professionals were identified.

Table 1 Qualitative recommendations

Qualitative recommendations (grade B recommendation, low ConQual rating)	
1.	EMS systems need to ensure a system wide commitment and response to OV including all levels of operational, supervisory, administrative and dispatch practices.
2.	Alignment of OV classification more closely with that of law enforcement and judicial philosophies. Removal of unrealistic and unworkable expectations such as 'zero tolerance'.
3.	EMS OV mitigation systems need to be tailored to the specific cultural, environmental, and social factors that encompass the EMS organisation. EMS interventions need to be constructed from peer-reviewed literature that is developed purposely for the paramedic environment.
4.	EMS mitigation systems need to be rigorously evaluated to ensure that interventions are purposeful, safe and relevant to both the paramedics and for the environment in which they work.

EMS, emergency medical service; OV, occupational violence.

Table 2 Quantitative recommendations

Quantitative recommendations (grade B recommendation, very low certainty of evidence)	
1.	A tiered approach to chemical sedation process depending on the nature and disposition of the patient presentation, including antipsychotics and rapid acting anaesthetics.
2.	Appropriate management and control techniques to safely and effectively physically restrain an agitated or violent patient for chemical sedation.
3.	Greater emphasis on reflex-based self-defence skills which are more appropriate to the general levels of initial and ongoing paramedic training. All self-defence training should incorporate an all- inclusive approach to self-defence performance including posture, communication and control.
4.	Where possible all OV mitigation training should incorporate higher levels of stress and anxiety to replicate realistic real-life scenarios.
5.	OV mitigation training should include features of conflict resolution which focuses on not only de-escalation strategies but recognition of the role of the paramedic team in this process. Paramedic process in conflict resolution should include elements of perspective taking, mutual performance monitoring and adaptability.
6.	Development of mental health intervention strategies, including specialised paramedic training, to provide treatment, support and guidance to individuals experiencing a psychiatric emergency.

OV, occupational violence.

Results synthesis of QL research findings

The two QL studies investigated paramedics who had been assaulted in the context of their work. A total of 23 findings were extracted from the included studies and assessed for credibility using the JBI levels of credibility and definitions.[45] Each finding was assessed as either Unequivocal (accompanied by an absolute explanation), Equivocal (accompanied by an indistinct explanation) or Unsupported (not supported by the data).[45] Of the 23 findings, 19 (83%) received a finding of Unequivocal (U), and four (17%) a finding of Equivocal (E). No findings of an Unsupported description were recorded. The findings were then placed into four distinct categories before being aggregated into two synthesised findings. A full list of findings are listed in online supplemental appendix 2. To assist in the confidence of these synthesised findings, they were then evaluated using the ConQual approach,[45] which provides an appraisal level based on the criteria of dependability, credibility and the type of research. Based on this methodology, the reviewers assigned an overall score of 'low' in regard to the level of confidence in both synthesised findings.[45]

Synthesised finding 1: organisational, societal and judicial commitment

This finding was derived from the following two categories and their supportive findings and illustrations.

Category 1.1: law enforcement and judicial mitigation interventions

EMS OV mitigation strategies cannot function in isolation, they require the support and assistance of ancillary services and systems, including law enforcement, security services and the judicial system. The following findings describe how paramedics perceive their interactions with these services and systems can affect OV mitigation strategies.

Finding 1: OV definition, intent and the law (U).[15]
Finding 2: Law enforcement positive (E).[20]
Finding 3: Law enforcement negative (U).[20]
Finding 4: Ineffective hospital security services (U).[20]
Finding 5: Poor judicial support of legal deterrents (U).[15]
Finding 6: Ineffective judicial support (U).[20]
Finding 7: OV Intent and reporting (U).[15]

Category 1.2: EMS OV mitigation systems

Just as EMS OV mitigation systems require the support of ancillary services and systems, of equal importance is the support and commitment from within the organisation. The following findings illustrate how paramedics perceive organisational support and commitment, and how it affects not only OV mitigation interventions but the attitudes of paramedics towards OV.

Finding 1: Ineffective system wide support (U).[20]
Finding 2: Absence of organisational commitment to OV training (U).[15]
Finding 3: Lack of organisational support to OV systems (U).[15]
Finding 4: Organisational Disconnect (U).[15]

Synthesised finding 2: occupation specific OV strategies and training

This finding was derived from the following two categories and their supportive findings and illustrations.

Category 2.1: OV mitigation training

OV mitigation strategies and training need to include an array of knowledge, skills and awareness to manage the many different types and presentations of violence and aggression. The findings illustrated below establish how paramedics reason their exposure to OV occurred, and subsequently how their OV mitigation training, or lack thereof, failed.

Finding 1: body language and communication Skills (U).[20]
Finding 2: community expectation (paramedics as heroes) (U).[20]
Finding 3: identification of problem demographic areas (U).[20]
Finding 4: inadequate OV training (de-escalation techniques) (E).[20]
Finding 5: poor or inappropriate OV training (U).[20]
Finding 6: inadequate OV training (situational awareness) (U).[20]
Finding 7: inadequate OV training (personal positioning) (U).[20]
Finding 8: inadequate OV training (lack of recognition) (U).[15]

Category 2.2: OV equipment mitigation interventions

With limited available evidence-based paramedic OV mitigation interventions and strategies, the composition of the specific skills and training forming such programmes is often left to the discretion of the EMS provider. The findings listed below describe some of the skills, training and interventions that paramedics believe could or should be implemented by their EMS provider as a way of mitigating incidents of OV.

Finding 1: physical restraints (U).[20]
Finding 2: chemical restraints (U).[20]
Finding 3: protective instruments (deterrents) (E).[20]
Finding 4: protective instruments (armaments) (E).[20]

RESULTS OF QN FINDINGS

A meta-analysis was not possible on the included QN studies due largely in part to their heterogeneity and lack of appropriate data for statistical amalgamation. The 24 QN studies were analysed against the type of OV strategy and then combined into a narrative synthesis against their measured outcomes. The OV mitigation strategies included:

- Body-Worn Cameras (BCW).[32–34]
- Chemical sedation.[35–40 43 44]
- OV training approaches.[21 25 26 42]

- Body language assessment.[22–24]
- Self-defence skills.[27–31]
- Physical restraint.[41]

The evidence apprising the results of the QN studies was considered to determine a level of confidence for each outcome. This assessment was informed by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.[46] With the exception of BCW which was ranked as 'moderate', all other QN outcomes received a ranking of 'very low'.

Body-worn cameras

Three studies[32–34] examined the use of BWC on the incidence of assaults against police officers by citizens. The intervention of BWC worn by police on the incidence of assault and aggression provided contradictory results. The studies by Ariel *et al*[33] and Barela[34] were able to provide evidence that the overall rate of assaults against police decreased during the study period. However the studies by Ariel *et al*[32] and Ariel *et al*[33] established the probability of a police officer being assaulted while wearing a BWC was significantly higher ($p<0.001$). The results of the Ariel *et al*[32] and Ariel *et al*[33] studies should be placed within the context of significant heterogeneity between trial locations, with some sites recording a decrease in the rate of assaults against police.

Chemical sedation

Eight studies[35–40 43 44] examined the effectiveness of chemical interventions for cases of prehospital violence, agitation or behavioural disturbance. The studies examined the pharmacological agents of ketamine,[35–37 39 44] midazolam,[38 40 44] droperidol[38 43] and haloperidol[36 43 44] for the sedation and control of the violent individual. All pharmacological agents were effective at inducing sedation with ranges between 90%[35] to 96%[39] for ketamine, 86%[38] for midazolam, 90%–96%[43 38] for droperidol, and between 65%–87%[36 43] for haloperidol. In terms of sedation, ketamine achieved effective sedation considerably faster than the other pharmacological agents at 2 min[39] to 5 min,[36] when compared with midazolam at 30 min,[38] droperidol at 22 min[38] and haloperidol at 17 min[36]

Complications or adverse outcomes associated with the administration of the pharmacological agent ranged from between 6%[39] and 49%[36] for ketamine, 0%[40] and 23%[38] for midazolam, 3%[43] and 7%[38] for droperidol and 4%[43] and 5%[36] for haloperidol. Assaults or injuries to paramedics occurred in 15.8%[44] of cases with ketamine sedation, 3%–6%[38 40] with midazolam and 4%[38] with droperidol. No information was available for haloperidol sedation. Inadequate information was provided by the authors as to when the injuries occurred that is, before, during, or after chemical sedation to enable appropriate appraisal.

Self-defence skills

Four studies[27–29 31] examined the ability of ESW to protect themselves from a physical attack, and one study[30] assessed the perceptions of ESW on their preparation and performance of self-defence skills. The studies by Renden *et al*[28] and Nieuwenhuys *et al*[27] demonstrated that the performance of participants' arrest and self-defence skills (ASDS) decreased significantly under high-anxiety or high-pressure simulations. The follow-up study by Renden *et al*[29] established that increased training was beneficial to ASDS, however, performance still deteriorated in high-anxiety conditions. Renden *et al*[31] also provided evidence to the benefits of a reflex-based training programme incorporating elements of interpersonal skill, as a valid approach to ASDS strategy. Regarding ESW perception of their ASDS, Renden *et al*[30] identified that the amount and type of training is an important issue, and that the execution of these skills in an occupational context is generally very different to their application in training.

Body language assessment

There were three studies[22–24] examining the role of non-verbal communication in predicting acts of physical violence against ESW. The results from these studies identified remarkably similar perceptions of social cues to imminent violence. These perceptions were identified not only from Police Officers, some of whom had been exposed to acts of violence, but also in non-law enforcement control groups.

OV training approaches

Four studies[21 25 26 42] examined ESW OV mitigation training through concepts of decision making, processing strategies, resource enhancement and specialised training. The studies were each able to demonstrate improvements in either training procedures or programmes that could influence the way that EMS organisations view, develop and instruct their OV mitigation strategies. The study by Helsen *et al*[21] established the role of high-fidelity training simulations in improving the effectiveness of training interventions. Teller *et al*[25] demonstrated the benefits of a specialised training programme for management of mental health patients by police and paramedics with improvements noted in both patient compliance and increased transport to mental health facilities. Williot and Blanchette[26] verified the role of emotional processing strategies in the improved detection of threatening cues, and van Erp *et al*[42] provided evidence to confirm that enhancing personal resources can result in improvements in attitudes, actions and emotions when dealing with bystander conflict.

Physical restraint

One study[41] was identified that examined the act of physical restraint by ESW and examined the risks of such practice through the relationship between physical restraint, patient injury, and assaults. Assaults on paramedics occurred in 27% (77/271) of cases, with physical restraint noted to be ineffective 77% (209/271) of the time due primarily to continued resistance of the patient (118/271).

DISCUSSION

QL findings

The first synthesised finding focused on the characterisation of OV, and the contrast of this portrayal when compared with aspects of law enforcement and judicial administration. Though OV is well defined, its application to common law offences is more complex, particularly if the perpetrator is experiencing medical, traumatic or psychological impairment.[47] Despite the issues with law enforcement and the legal system, the involvement of police is generally seen to have a positive role in the prevention of paramedic OV. Difficulties however, can occur between paramedics and police in their contrasting objectives in managing patient or offender outcomes. While there can be no single approach to the management of a potentially violent or aggressive patient, the congruence of treatment goals between allied agencies would appear only to benefit OV mitigation strategies.[25]

The other main category of this QL synthesis pertains to the support, communication and commitment from within the organisation to EMS OV mitigation systems. These elements of organisational responsibility provide some of the most important characteristics of any OV system and are readily recognised by participants in these systems.[48 49] The commitment demonstrated by EMS organisations needs to encompass all elements of OV mitigation including robust programme evaluation, structured reporting procedures, investigation and support mechanisms for victims, and a system-wide preventative approach including all elements of supervisory, operational and dispatch practices.

The second synthesised findings demonstrate a perception of inappropriate OV training, skills and interventions. Though individually these findings appear to be related to specific interventions, in reality it is a symptom of a larger scale problem characterised by a lack of course evaluation and systematic high calibre research.[50 51] The available literature within healthcare identifies that weaknesses of OV mitigation systems are often the result of a lack of adaptation to the specific needs of the participants and for the environment in which they work.[7 51] Furthermore, it is essential that any elements of an OV mitigation system are exposed to a thorough and ongoing evaluation process to ensure relevant, safe and effective interventions.[7 50] However, despite the importance of such evaluations, evidence of this practice is extremely limited.[52]

QN findings

The QN component of this review was focused on education or training interventions designed to minimise the incidence or severity of ESW OV.

Body-worn cameras

The use of BWC is a relatively new concept for ESW OV mitigation. The theoretical basis for their use centres around the principle that monitoring behaviour changes behaviour and is underpinned by the social theory of self-awareness.[53] This theory is based on the premise that an individual, knowing with sufficient certainty that their behaviour is being observed, will alter various social processes. However, this theory while theoretically sound, is problematic within EMS systems because many patients responsible for OV are affected by drug/alcohol intoxication or have medical illnesses or injuries which reduce their cognitive processing abilities. This is similar in principle to the failure of closed-circuit television systems to prevent law-breaking, where individuals are generally unaware they are being filmed.[32]

Chemical sedation

The pharmacodynamics of the drugs used in the chemical sedation of violent patients is complex. The evidence from this review suggests that application of droperidol provides one of the most effective and safe means of providing sedation to the combative or agitated individual. However, the average time to sedation of 22 min, is over four times as long as the average time to sedation in the ketamine group. This is an area of concern, because the longer that ESW are tasked with restraining the violent patient, the higher the risk of assault and injury. Despite this, the real risk of significant complications associated with ketamine use remains.[36] Ultimately, there may be no single, optimal pharmacological agent for use by paramedics in sedating the violent patient. EMS providers need to undertake a flexible approach to chemical sedation and provide sedation guidelines that reflect the medical requirements of certain patient populations and indeed the resources and environment that these interactions occur.

Self-defence skills

The ability to defend and tactically withdraw from a violent encounter is recognised as a strategic component of OV mitigation strategies.[53] One of the problems associated with such a strategy is that it assumes participants will act and behave consistently under certain stressful conditions. Humans though, are not inclined to act homogenously in such situations and responses can range from fight, flight to freeze.[54] There is no certain way to predict how an individual will react in a given situation and reactions are often instantaneous and instinctive, propelled from deep within subconscious brain circuits.[54] Furthermore, the stress, anxiety and resulting physiological responses such as increased heart rate and breathing, can further inhibit an individual's performance in such situations.[54] Though genetic predisposition and environment can play a role in how an individual will respond in these situations, regulation of these largely automated reactions is possible through both preparation and training.[54]

These findings are significant to paramedics who are taught self-defence skills through their respective EMS organisations. It suggests that it may be beneficial to not only increase the amount of training time that is delivered to their employees, but that training should also encompass higher levels of stress and anxiety to replicate realistic real-life situations.[30] However, the economic and operational restraints of such training is not practical for most EMS organisations. What is more pragmatic to EMS organisations and their workers is training that reflects a generalised lack of self-defence skill and incorporates inherent instinctive reflexes and interpersonal skills as part of any OV mitigation strategy.

Body-language assessment

The ability of paramedics to recognise potentially aggressive situations and act before verbal or physical violence occurs, is a critical element of OV mitigation. The results of studies that examined these behaviours, identified remarkably similar perceptions of social cues to imminent violence. The fact that these behaviours were identified regardless of previous exposure to personal violence or specific training, may indicate that reactions to these behaviours are not learnt but rather are instinctual. Notwithstanding, it has been reported that the police officers were more sensitive to these behavioural cues,[23] suggesting that training or experience may help to enhance instinctual reactions.

OV training approaches

The systems, programmes and techniques contained within these studies provide a diverse approach to OV mitigation. Notably, the study by Teller *et al*[25] examined the issue of OV mitigation not from a reactive approach, but rather from a pre-emptive methodology of mental health management. Mental health emergencies are a global health issue and one of the most common factors in paramedic OV.[55] However, despite the frequency of mental health emergencies, many paramedics acknowledge that they lack the appropriate education and skills to provide the necessary care to these patients.[56]

Conversely, the study by van Erp *et al*[42] is important as its OV mitigation strategy is based on the premise of conflict resolution through the enhancement of personal and job resources for paramedics. Such resources are very important in OV mitigation strategies because it acknowledges the personal influence

of paramedic behaviour in the conflict process. One area of personal influence identified by the study[42] was the capacity of an individual to acknowledge another person's outlook and to assess their thoughts and motives accurately. This perspective is extremely important in conflict resolution because not only does it provide insight into the possible behavioural strategies of others but it also decreases the likelihood that individuals will act on their negative emotions.[42]

Physical restraint

The use of physical restraints by ESW is accompanied by risks not only to the patient, but to the personnel who apply the restraint as well.[41] Such risks in conjunction with the increasing prevalence of chemical sedation, has appeared to of decreased the use of physical restraint by ESW to control the violent individual. Though the research reports limited effectiveness on the use physical restraint, the true benefits of its use may not lie in isolated practice but rather in combination with pharmacological interventions.[40 41]

Integration of QL and QN components

Integration of the QL and QN components of this review is problematic due largely to heterogeneity of the included studies. The QL component of this review focused on the insights of ESW to OV mitigation strategies, whereas the QN component concentrated on specific OV interventions. Nevertheless, it is apparent from the QL and QN assessments that a disconnect exists between existing ESW OV mitigation literature and the perceptions of ESW to suitable OV mitigation strategies.

Limitations of this review

There are several limitations of this review. Most notably, a meta-analysis was not possible on the QN studies due to the level of methodological heterogeneity that existed. Additionally, the QL review though able to provide pertinent findings into OV mitigation experiences, is affected by the limited number of studies providing strength to these conclusions. While, the reviewers made all efforts to minimise errors, including the assistance of a librarian to guide search criteria, there is the possibility that some research articles were missed during the literature search. Lastly, most studies related to ESW OV mitigation originated in the USA. While these studies are invaluable in terms of providing an insight into OV mitigation, this emphasis may limit the generalisation of the findings.

CONCLUSION

As demonstrated by the type, nature and variety of studies evaluated, the mitigation of ESW OV is not easily characterised. It is often a dynamic, multilayered process, encompassing not only an array of perpetrators, but complex social, medical and psychological influences. Strategies and systems that are developed need to be tailored to the specific cultural, environmental and social factors that encompass the EMS organisation with comprehensive and ongoing evaluation of their impact. The ability to be adaptable and flexible to the ongoing needs of the workers and their environment, is a keystone to effective OV mitigation practice. Ultimately, regardless of the interventions provided to paramedics to mitigate OV, they need to be supported not only by the organisation, but law enforcement, judicial systems and society alike.

IMPLICATIONS OF PRACTICE

The findings of this review can usefully guide and inform paramedic OV mitigation education, training and practice. The QL recommendations listed in table 1, are generated from synthesised findings and are based on the ConQual approach[45] and the JBI grades of recommendation.[57] The QN recommendations listed in table 2, are provided with a level of confidence based on the GRADE approach to study evaluation,[58] and the JBI grades of recommendation.[57]

SUMMARY STATEMENT

No funding has been received to undertake this review. All authors associated with this review have contributed to its development, furthermore the authors have no conflicts of interest to report. The data that supports the findings of this review is available at the locations cited in the reference section.

Contributors All authors associated with this review have contributed to its development through design, analysis and/or writing. Furthermore, all authors have read and approved this manuscript for submission.

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Appendix B

Search Strategy CINAHL via EBSCOhost

. S1: MW (violen* OR assault OR attack OR aggression OR anger OR angry OR hostil* OR bully) NOT MW domestic violence

. S2: MW occupation* OR profession* OR work* OR job OR employment OR vocation

. S3: S1 and S2

. S4: MW prevent* OR mitigat* OR control OR education OR training OR development* OR inservice OR learn* OR teach* OR preparation OR program* OR system* OR manag*

. S5: S3 and S4

. S6: MW study OR effective* OR evaluat* OR assessment OR appraisal OR intervention OR reduc* OR improve*

. S7: S5 and S6

. S8: MW emergency service* OR paramedic* OR ems OR emergency medical service OR emt OR emergency medical technician OR prehospital OR pre-hospital OR ambulance

. S9: S7and S8

Appendix C

Research Participation Flyer

PARTICIPATE IN RESEARCH

Information for Prospective Participants

Occupational violence against paramedics:

An analysis of mitigation systems and the role of behaviour theory in prevention strategies

Research team contacts

Principal Researcher:	Mr Peter Drew	PhD student
Associate Researchers:	Professor Vivienne Tippett	Principal Supervisor
	Dr Scott Devenish	Associate Supervisor

School of Clinical Science, Faculty of Health
Queensland University of Technology (QUT)

What is the purpose of the research?

The purpose of this research is to explore the concept of paramedic Occupational Violence (OV) by questioning 1. How effective are existing OV systems and strategies in providing OV support and mitigation, and 2. How can a paramedic specific theory of practice contribute to the understanding and mitigation of OV.

Are you looking for people like me?

The research team is looking for paramedics who have been exposed within the previous three years to an OV incident during the context of their work, and who have also undertaken and completed their ambulance service training regarding OV mitigation.

What will you ask me to do?

Your participation will involve a one-on-one interview of approximately 1 hour in duration at a time and location of your convenience.

Are there any risks for me in taking part?

The research team has identified the following possible risks in relation to participating in this study:

- The potential to expose participants to re-experiencing events that are both unpleasant and painful.
- Participants may experience apprehension over examination of their performance in relation to the OV event.
- Participants may be concerned about identifying behaviour that does not comply with good practice.

It should be noted that if you do agree to participate you can withdraw from participation in the research project without comment or penalty.

Are there any benefits for me in taking part?

It is expected that this research project will not benefit you immediately. However, participation in this study will help build an increased understanding of the key elements of paramedic OV through which new processes all aimed at the minimisation of paramedic OV can be developed.

Will I be compensated for my time?

To recognise your contribution should you choose to participate, the research team is offering you a $40 Coles Myer gift voucher upon completion on the interview.

I am interested – what should I do next?

You can contact the researcher listed below for details of the next step:

Peter Drew **peter.drew@hdr.qut.edu.au**

You will be provided with further information to ensure that your decision and consent to participate is fully informed.

Thank You!

QUT Ethics Approval Number: 1800000763

Appendix D

Research Information Sheet

PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT
– Interview –

Occupational violence against paramedics:
An analysis of mitigation systems and the role of behaviour theory in prevention strategies

QUT Ethics Approval Number 1800000763

RESEARCH TEAM

Principal Researcher:	Mr Peter Drew	PhD student
Associate Researchers:	Professor Vivienne Tippett	Principal Supervisor
	Dr Scott Devenish	Associate Supervisor

School of Clinical Sciences, Faculty of Health
Queensland University of Technology (QUT)

DESCRIPTION

This research project is being undertaken as part of a PhD study for Peter Drew.

The purpose of this project is to explore the idea of paramedic Occupational Violence (OV) by questioning how effective existing OV systems and strategies are in decreasing incidents of OV and the provision of paramedic support. Additionally, this project will examine how paramedic specific concepts can contribute to the understanding and moderation of this OV.

You are invited to participate in this research project because you are a paramedic who has been exposed to OV in the context of their paramedical duties and has also undertaken and completed their ambulance service OV prevention training. To reduce the risk of bias regarding recency and recall of events, participants will preferably have experienced the OV event within the previous year, however incidents occurring up to 3 years previously will be considered.

PARTICIPATION

Your participation will involve an audio recorded interview, at an agreed time and location that will take approximately 1 hour of your time.

Questions will include:

- Were you able to utilise any elements of your training in the OV incident? If so, are you able to recall what they were? and their effectiveness?
- What de-escalation techniques (if any) were undertaken in order to try and defuse the situation prior to the OV incident?
- Did you have any warning or sense of danger prior to the OV incident? If so, can you recall any of these?

Your participation in this research project is entirely voluntary. If you do agree to participate you can withdraw from the research project, including any time during or after the interview, without comment or penalty. You can contact the researcher any time before the interview day, if any changes happen in your schedule or you wish to withdraw from the study.

You can withdraw from the study after the interview by contacting the researcher and providing your unique code. Following this, all data obtained from you will be destroyed. However, once aggregated data analysis and interpretation commence, it will not be feasible to withdraw your data after this point.

Your decision to participate or not participate will in no way impact upon your current or future relationships with QUT, your organisation, managers or colleagues.

EXPECTED BENEFITS

It is expected that this research project will not benefit you immediately. However, participation in this study will help build an increased understanding of the key elements of paramedic OV through which new processes all aimed at the minimisation of paramedic OV can be developed.

To recognise your contribution should you choose to participate, the research team is offering you a $40 Coles/Myer gift voucher upon completion on the interview.

You can also contact the researchers after the completion of the study and request a copy of any publications derived from this study. Please note that the provision of personal feedback will not be possible as the data will be reported in a non-identifiable and aggregated form.

RISKS

There are minimal risks associated with your participation in this research project. These include:

- The use of in-depth interviews has the potential to re-experience and unpack potentially traumatic events. Such approaches can expose you to reliving events that are unpleasant, painful and invoke feelings of fear, anger, shame, or other powerful emotions. It should be highlighted that your participation in this study is entirely voluntarily and you are able to withdraw from the study at any time before, during, or after your participation. To minimise the risk associated with this, the interviews to be undertaken as part of this research will be open-ended to allow you to respond to the level and depth that you feel most comfortable. You will be monitored during the interview process for any signs of distress including tears, shaking, nervousness, inability to communicate with the researchers, nausea, restlessness, irritability or withdrawal. In the event of any evidence of distress, the interview will be stopped, and the following steps will occur:

    1. A short break from the interview will be offered.
    2. Cessation of the interview may be necessary, and you will be invited to speak with someone from your relevant ambulance care and support service.
    3. You may choose to withdraw from further involvement in the research process.

- You may also experience apprehension over examination of your performance in relation to the relived OV event as the questioning of this study is designed to unpack the event and have you reflect upon your words and actions. The research team is able to assure you regarding the strict levels of confidentiality regarding the study's data collection, analysis and storage, with no identifiable data regarding the participants utilised. All participants will be protected through means of a unique professional code with no identifiable data collected

- You may be concerned regarding the possibility that the interview may identify behaviours that do not comply either, ethically or professionally, with the requirements of good practice. Even in this case, your confidentiality will be fully preserved and no identifiable data will be reported about your practice. Though confidentiality of all participants will be fully preserved, under the unlikely event that an investigation is required regarding unethical practice that has resulted in serious patient harm, re-identification of data relating to the event may occur.

Should this research project cause you discomfort, please contact the relevant ambulance organisational care and support services, which include both peer support, chaplaincy programs and counselling services, in the event that the interview invokes discomfort or distress. The relevant care services include:

QAS	Priority One	**1800 805 980**
NSWAS	Employee Assistance Program	**1300 360 364**
AV	Victorian Ambulance Counselling Unit	**1800 626 377**

PRIVACY AND CONFIDENTIALITY

Any data collected as part of this research project will be stored securely as per QUT's Management of research data policy. All comments and responses will be treated confidentially unless required by law, or regulatory or monitoring bodies, such as the ethics committee.

Your name will not be required in any of the responses and a unique professional identifier code to ensure confidentiality and differentiation from other participants will be developed. Your unique identifier code will be created using the following formula:

Last letter of last name *+* ***Age*** *+* ***Gender*** *(M for male, F for female, N for non-binary) +* ***professional title*** *(C for Critical Care Paramedic, A for Advanced Care Paramedic, S for Student Paramedic) +* ***years of experience*** *+* ***geographical location*** *(U for urban, R for Rural)*

As an example, a 34-year-old female, Critical Care Paramedic of 15 years' experience who works in an urban environment with a last name of Jones, would be provided with the unique identifier code of S34FC15U.

As the research project involves an audio recording:

- You will have the opportunity to verify your comments and responses prior to final inclusion.
- The recording will be destroyed 5 years after the last publication.
- The recording will not be used for any other purpose.
- Only the named researchers will have access to the recording.
- It is not possible to participate in the research project without being recorded.

Every effort will be made to ensure that the data you provide cannot be traced back to you in reports, publications and other forms of presentation. For example, we will only include the relevant part of a quote, we will not use any names, or names will be changed, and/or details such as dates and specific circumstances will be excluded. Nevertheless, while unlikely, it is possible that if you are quoted directly your identity may become known.

The research project is presently unfunded, however current funding applications exist. Regardless, no funding body will have access to personally identifying information about you that may be obtained during the research project.

Please note that non-identifiable data from this research project may be used as comparative data in future research projects or stored on an open access database for secondary analysis.

CONSENT TO PARTICIPATE

We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate.

QUESTIONS / FURTHER INFORMATION ABOUT THE RESEARCH PROJECT

If you have any questions or require further information, please contact one of the listed researchers:

Peter Drew peter.drew@hdr.qut.edu.au
Vivienne Tippett vivienne.tippett@qut.edu.au

CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE RESEARCH PROJECT

QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the research project you may contact the QUT Research Ethics Advisory Team on 07 3138 5123 or email humanethics@qut.edu.au. The QUT Research Ethics Advisory Team is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.

THANK YOU FOR HELPING WITH THIS RESEARCH PROJECT.
PLEASE KEEP THIS SHEET FOR YOUR INFORMATION.

Appendix E

Research Consent Form

CONSENT FORM FOR QUT RESEARCH PROJECT
– Interview –

Occupational violence against paramedics:
An analysis of mitigation systems and the role of behaviour theory in prevention strategies

QUT Ethics Approval Number 1800000763

RESEARCH TEAM CONTACTS

Peter Drew peter.drew@hdr.qut.edu.au
Vivienne Tippett vivienne.tippett@qut.edu.au

STATEMENT OF CONSENT

By signing below, you are indicating that you:

- Have read and understood the information document regarding this research project.
- Have had any questions answered to your satisfaction.
- Understand that if you have any additional questions you can contact the research team.
- Understand that you are free to withdraw without comment or penalty.
- Understand that if you have concerns about the ethical conduct of the research project you can contact the Research Ethics Advisory Team on 07 3138 5123 or email humanethics@qut.edu.au.
- Understand that the research project will include an audio recording.
- Understand that non-identifiable data from this project may be used as comparative data in future research projects.
- Agree to participate in the research project.

Name _____

Signature _____

Date _____

PLEASE RETURN THE SIGNED CONSENT FORM TO THE RESEARCHER.

Appendix F

In-Depth Semi-Structured Interview Guide

Demographic questions:

- How long have you worked as a paramedic?
- Can you provide a brief description of your work environment? E.g. Metro/rural, high density, low socio-economic.

OV incident specific questions, with reference to Campeau's SCTPSM:

- Can you tell me about the OV incident? Was it a patient's home, street, ambulance? Time of day? Reason for call e.g. assault, illness, drug/alcohol intoxication?

Establishing a safety zone

- How would you describe the initial scene assessment and management of the OV incident?
- Were there any safety concerns prior to arrival on scene?
- Do you believe there was any misinformation (e.g. dispatch) regarding the perpetrator, scene or scene safety?
- Do you believe there were any elements of safety compromised in order to undertake patient care?

Reducing uncertainty through social relations

- Were the police present at the OV incident? If so, how was the communication and management plan between agencies prior to the OV incident?
- Was the perpetrator(s) identified as a potential threat prior to the OV incident?
- What de-escalation techniques (if any) were undertaken in order to try and defuse the situation prior to the OV incident?
- Do you believe there were any internal contributing factors such as stress, fatigue, or hunger that led to the OV incident?
- Do you believe there were any external contributing factors such as the presence of bystanders or the police that may have led to the OV incident?

Controlling the trajectory of the scene

- Do you believe that attempting to distract the perpetrator(s) through techniques such as temporary removal from scene, or involvement in a patient care capacity could have made a difference to the OV incident?
- Do you believe that any physical environment manipulation to create a barrier e.g. equipment location or patient care location i.e. airway seat in ambulance, could have prevented the OV incident?

Temporality of the scene

- Did you have any feeling of pressure to minimise scene time, either because of the injuries/illness to the patient or from external sources such as dispatch, prior to the OV incident? If so, do you think this influenced your management of the scene and the people within?

Collateral monitoring

- Did you have any warning or sense of danger prior to the OV incident? If so, can you recall any of these?
- Do you believe that isolation i.e. single response paramedic or distraction i.e. task focus, played a role in the OV incident?
- If the OV incident occurred as part of a two-person response, do you believe the second officer could have played a greater role in preventing the OV incident?

OV mitigation prevention programs:

- What was your general impression of your organisation's OV prevention training program? Can you recall any of your specific training?

- Were you able to utilise any elements of your training in the OV incident? If so, are you able to recall what they were? and their effectiveness?
- Do you believe that your OV mitigation program has assisted you in the prevention of OV?
- How easy was it to report the incident of OV?
- How supportive do you believe is your organisation in terms of OV support and management?
- Are your aware of your organisations OV policies or procedures? If yes, can you please explain to the best of your ability what the policy entails?

Closing question:

- Is there anything else you would like to add or clarify before we finish this interview?

Appendix G

Queensland Ambulance Service Ethics Approval

Queensland Government

Queensland Ambulance Service

Department of **Health**

Ref: 18/01428
Mincor: 05323-2018

14 DEC 2018

Mr Peter Drew
PhD Candidate - QUT
Critical Care Paramedic
Queensland Ambulance Service

Email: Peter.Drew@hdr.qut.edu.au

Dear Mr Drew

Thank you for your correspondence received on 11 October 2018, regarding a request to utilise Queensland Ambulance Service (QAS) staff and data for the purposes of a study titled Occupational violence against paramedics: An analysis of mitigation systems and the role of behaviour theory in prevention strategies.

As per your application, the QAS encourages your efforts to explore how paramedic specific concepts can contribute to the understanding and moderation of occupational violence and the effectiveness of occupational violence strategies.

Your application was considered and endorsed by the QAS Research and Innovation Committee. Therefore, I am pleased to grant approval for you to conduct your research.

To facilitate your request, please contact Ms Sue Taylor, Acting Senior Project Officer, Information Support, Research and Evaluation Unit, QAS, on telephone 3022 1931 or email QAS.Research@ambulance.qld.gov.au, who will be pleased to assist.

Yours sincerely

Dee Taylor-Dutton ASM
Acting Commissioner

Office of the Commissioner
Emergency Services Complex
Level 3 Block A
Cnr Park and Kedron Park Roads Kedron
GPO Box 1425 Brisbane
Queensland 4001 Australia
Telephone +61 7 3635 3271
Facsimile +61 7 3247 8267
Website www.ambulance.qld.gov.au
ABN 89 519 542 578

Appendix H

Ambulance Victoria Ethics Approval

AmbulanceVictoria

375 Manningham Road
Doncaster VIC 3108
PO Box 2000 Doncaster VIC 3108
T 03 9840 3500
ABN 50 373 327 705 004

21 JANUARY 2019 File Ref: R18-039

Mr Peter Drew
School of Clinical Science
Queensland University of Technology
149 Victoria Park Rd
KELVIN GROVE QLD 4059

Dear Peter,

Re: Research Proposal "Occupational Violence against paramedics: An analysis of mitigating systems and the role of behaviour theory in prevention strategies" dated 13/12/2018.

I am pleased to inform you that Ambulance Victoria (AV) has approved participation in the above study, subject to:

- Return of Confidentiality Deed

The researchers will need to sign a confidentiality agreement (attached) and return via email to the AV Research Governance Manager prior to obtaining any AV data.

Note, that any changes to the original application will require submission of a protocol amendment to the AV Research Committee for consideration. Please ensure that AV is informed of any protocol changes as soon as possible.

As a component of the ongoing communication processes, AV requires annual progress reports and a final report on completion of the study. You will be emailed the progress report approximately four weeks prior to the due date. Progress reports are required to be submitted by email.

We look forward to working with you on this important project.

Yours sincerely

Prof Steve Bernard
Medical Director
Ambulance Victoria