Burnout in Frontline Ambulance Workers

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This thesis is submitted in partial fulfilment of the requirements for the degree of Doctorate in Clinical Psychology

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<tbody>
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<td>ACT</td>
<td>Acceptance and Commitment Therapy</td>
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<tr>
<td>AS</td>
<td>Ambulance Service</td>
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<tr>
<td>AW</td>
<td>Ambulance Worker</td>
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<tr>
<td>BPS</td>
<td>British Psychological Society</td>
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<tr>
<td>BSc</td>
<td>Bachelor of Science</td>
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<tr>
<td>COPE</td>
<td>Coping Orientations to Problems Experienced</td>
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<tr>
<td>CP</td>
<td>Clinical Psychologist</td>
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<tr>
<td>DClinPsy</td>
<td>Doctorate in Clinical Psychology</td>
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<tr>
<td>DP</td>
<td>Depersonalisation</td>
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<tr>
<td>EE</td>
<td>Emotional Exhaustion</td>
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<tr>
<td>EEAS</td>
<td>East of England Ambulance Service</td>
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<tr>
<td>EMAS</td>
<td>East Midlands Ambulance Service</td>
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<tr>
<td>EMS</td>
<td>Emergency Medical Service</td>
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<td>EMT</td>
<td>Emergency Medical Technician</td>
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<tr>
<td>HART</td>
<td>Hazardous Area Response Team</td>
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<td>HRA</td>
<td>Health Research Authority</td>
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<td>HSE</td>
<td>Health and Safety Executive</td>
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<td>JD-R</td>
<td>Job Demands-Resources Model</td>
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<td>MBI</td>
<td>Maslach Burnout Inventory</td>
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<tr>
<td>MBI-GS</td>
<td>Maslach Burnout Inventory-General Survey</td>
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<td>MBI-HSS</td>
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<tr>
<td>NHS</td>
<td>National Health Service</td>
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<td>OS</td>
<td>Online Surveys</td>
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<td>PA</td>
<td>Personal Accomplishment</td>
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<td>Acronym</td>
<td>Description</td>
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<tr>
<td>PRISMA</td>
<td>Preferred Reporting Items for Systematic Reviews and Meta-Analyses</td>
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<tr>
<td>RRV</td>
<td>Rapid Response Vehicle</td>
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<tr>
<td>SCAS</td>
<td>South Central Ambulance Service</td>
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<td>SWAS</td>
<td>South Western Ambulance Service</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>USA</td>
<td>United States of America</td>
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<tr>
<td>WPV</td>
<td>Workplace Violence</td>
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Lastly, to Mark, my boulder, who’s love, patience and faith in me have never faltered. I could not have done this without you.
Declaration

This thesis has not been submitted for any other degree or to any other institution. This thesis was conducted under the academic supervision of Dr Tom Patterson (Programme Director and Clinical Psychologist, Coventry University) and Dr Carolyn Gordon (Clinical Psychologist and Academic Tutor, Coventry University) who were involved from the initial formulation of the research idea and design. The statistical analysis was conducted with the support of Dr Magda Marczak (Lecturer in Clinical Psychology and Research Tutor, Coventry University). Apart from the collaborations stated, all of the material presented in this thesis is my own work.
Summary

This thesis focusses on the issue of burnout in frontline ambulance workers. The first chapter presents a systematic review of quantitative research conducted with frontline ambulance workers, using the Maslach Burnout Inventory to identify the prevalence of burnout and factors associated with it. Fifteen papers were included in the review. A wide range of factors were identified and organised into five overarching concepts. Four of these were understood to be potential predictors of burnout: job demands, job resources, personal resources and individual factors. One factor group represented outcomes of burnout. The majority of studies used correlational analysis however, thus causality could not be asserted. Prevalence rates of burnout were estimated based on six of the studies included in the review, but could not be established definitively due to differences across studies in the use of the Maslach Burnout Inventory. The review raised further questions about the methodology typically used to assess burnout in ambulance workers.

Chapter two presents a quantitative research study focused on the relationship between workplace violence, coping styles and burnout in frontline ambulance workers. Participants were recruited from four National Health Service Ambulance Trusts and their responses to questionnaire measures were compared. The findings revealed high levels of workplace violence and burnout symptomology. Dysfunctional coping styles mediated the relationship between workplace violence and both the emotional exhaustion and depersonalisation aspects of burnout. Findings were inconclusive regarding the utility of problem-focused and emotion-focused coping in the violence-burnout relationship. Results are discussed, and clinical and research implications are identified.

The third chapter is the author’s reflective account of conducting this research. The reflection presents an evaluation of the author’s identity as both a researcher and clinician and the conflicts that arose during the research process. The relative strengths of different research methodologies are considered as part of this chapter.

Overall word count: 19,490
Chapter One

Literature Review

Factors Associated with Burnout in Ambulance Workers: a Narrative Review

Written in preparation for submission to the British Paramedic Journal (See Appendix A for author guidelines).

Total chapter word count: 8,499
1.0 Abstract

**Objective:** Burnout is an important area of concern for ambulance services and has been linked to a range of problematic individual and systemic issues in healthcare professionals. A number of studies have investigated factors which present a risk for burnout development in ambulance staff. Despite this, there has yet to be a review of the literature. This is needed in order to understand the specific reasons why burnout occurs in ambulance workers. This in turn can inform theoretical knowledge and interventions.

**Method:** A literature search was conducted with PsycINFO, Medline, Web of Science and CINAHL. Fifteen studies were identified which met the inclusion criteria of being quantitative studies involving frontline ambulance workers, using the Maslach Burnout Inventory to measure burnout, and aiming to investigate associated factors.

**Results:** The review highlighted a disparity in how the Maslach Burnout Inventory is being used across studies, thus a burnout prevalence rate estimate was based on a subset of the studies only. Potential risk factors for burnout were identified across the studies and organised into the key concepts: job demands, job resources, personal resources and individual factors. Potential outcomes were also identified.

**Conclusion:** The findings highlight the complexity of the relationships between various risk factors and burnout. A lack of consistency in the design and conceptual focus of studies, alongside a dearth of studies which can adequately infer causality or that examined interactions between factors, are key methodological limitations in the existing literature. Future research should address these limitations in order to better understand burnout in ambulance workers.

**Key Words:** Burnout, risk factors, prevalence.
1.1 Introduction

1.1.1 Frontline Ambulance Workers

Emergency pre-hospital healthcare services are often the first point of patient contact with the wider care system and thus play a key role within healthcare organisations (Sasser et al., 2005). In the UK, the emergency healthcare service is referred to as the ambulance service (AS) and thus the term frontline ambulance workers (AW) will be used to refer to this population in the current review. The configuration of AS's and the terminology used to refer to them varies across countries (Al-Shaqqi, 2010). Within AS's based on the Franco-German model, physicians often attend emergency incidents and people are more likely to be treated on scene, whilst in services that take an Anglo-American approach, paramedics and/or emergency medical technicians (EMTs) take the clinical lead. Traditionally, the latter approach favoured taking patients into hospital (Al-Shaqqi) but more recently, paramedics in the United Kingdom (UK) have enhanced their skills to enable them, where appropriate, to assess, treat and discharge on scene (Black & Davies, 2005). Although a highly skilled and specialist workforce, the AW role inevitably involves a risk to staff of experiencing psychological distress.

1.1.2 Well-being Within the Ambulance Service

Work within the AS is inevitably unpredictable and high-pressured. It requires AW to attend various clinical situations, making quick and often life-saving decisions in unfamiliar environments, sometimes with little information (Sterud et al., 2006). Alongside this, they are regularly working with severely unwell and distressed patients (Mahony, 2001). AW face additional occupational stressors including long and anti-social working hours, increasing demand for their service, management targets and little social support (Mildenhall, 2012). It has been suggested that the accumulation of these various stressors places significant emotional and physical demands on AW (van der Ploeg & Kleber, 2003).
Much of the existing research literature has focused on mental health concerns, such as post-traumatic stress and anxiety, associated with the nature of the distressing incidents AW attend; for a review see Petrie et al. (2018). However, the chronic nature of stressors encountered in their role is important to consider and has been linked to burnout (The Larrey Society, 2015).

1.1.3 Burnout

Burnout has long been associated with those who work in roles which require sustained and intense emotional contact with others, such as healthcare (Maslach & Leiter, 2016). In the classic conceptualisation, burnout comprises three elements: emotional exhaustion (EE), depersonalisation (DP), and reduced personal accomplishment (PA). EE refers to a worker’s diminished emotional and physical resources, resulting in a reduced ability to engage with those who use their service. In order to manage these high levels of exhaustion, workers may develop cynical attitudes towards service users, referred to as DP processes. Reduced PA refers to feelings of lack of achievement and the tendency to underestimate one’s own ability at work; its development is linked to EE and DP (Maslach et al., 1997).

1.1.4 The Maslach Burnout Inventory (MBI)

The MBI is the most widely used measure of burnout by researchers (Schaufeli & Enzmann, 1998). It adopts the three-factor conceptualisation introduced by Maslach and Jackson (1981), with burnout referring to high EE, high DP and reduced PA.

EE is the most commonly reported aspect of burnout by individuals (Maslach et al., 2001), consequently some researchers have argued that the other constructs are an unnecessary part of the definition (Shirom, 1989). As a result, tools such as the Copenhagen Burnout Inventory (Kristensen et al., 2005), which measure
exhaustion exclusively, have been developed and some researchers have simply used the EE subscale of the MBI as an indicator of burnout. However, although EE captures the experience of stress associated with working in human services, it does not assess the inter-relational aspect of burnout, which is a critical element of the conceptualisation (Maslach et al., 2001). Some researchers have taken a two-factor approach, for example Halbesleben and Demerouti (2005), who developed the Oldenburg Burnout Inventory which includes EE and DP only. These authors argue that PA is a personality trait rather than a component of burnout. Despite these alternative approaches, the three-factor conceptualisation of the MBI has been corroborated by various researchers (e.g. Bria et al., 2014; Poghosyan et al., 2009; Bakker et al., 2003).

A number of different versions of the MBI have been developed, for use in various occupational settings. The Maslach Burnout Inventory-Human Services Survey (MBI-HSS) is intended for use with those who work directly with people, such as healthcare workers (Maslach et al., 1996). The Maslach Burnout Inventory-General Survey (MBI-GS) was developed for use with other occupational groups, not considered ‘human-services’. This scale has three subscales that parallel those of the MBI-HSS: EE, Cynicism, and Efficacy, and is based on the same conceptual understanding (Schaufeli et al., 1996).

The present review will focus on burnout as operationally defined by the MBI only, the rationale for this being the widely accepted definition it provides as well as the predominance of its use within the literature. In addition, reviewing research that shares an agreed operational definition of burnout allows for better direct comparison of studies.

1.1.5 Models of Burnout Development

In addition to the existence of multiple measures, different models which aim to understand how specific risk factors lead to the development of burnout have been proposed. Arguably the most established is the job demands-resources model (JD-
R, Bakker & Demerouti, 2014; see Figure 1.1). The early JD-R suggested that two processes may be responsible for the development of burnout. Firstly, long-term excessive job demands, from which employees do not recover, may eventually lead to EE. Secondly, job resources, such as physical, psychological, social or organisational assets of the job influence employee motivation, thereby buffering the impact of job demands on exhaustion. Reduced work engagement and motivation (akin to DP) acts as a self-protective strategy to prevent further exhaustion if job resources are low. Personal resources have since been included in the model and refer to individuals’ sense of their ability to control and impact their environment successfully. Research has indicated that these enable individuals to utilise job resources and consequently sustain motivation (Xanthopoulou et al., 2007).

**Figure 1.1**

*The Job Demands-Resources Model (Bakker & Demerouti, 2014)*
Another frequently cited model is the Areas of Worklife model (Leiter & Maslach, 2003). It comprises six distinct dimensions of work settings that have been found to correlate with burnout: workload, control, reward, community, fairness, and values. The model proposes that burnout develops in response to a job-person mismatch in these six key areas.

These models can be flexibly applied to different settings. The specific risk factors which are pertinent for understanding individual levels of burnout will inevitably depend on the unique working environment and job role.

1.1.6 Burnout in the Ambulance Service

Estimates of AW burnout rates vary considerably. In one UK study, rates of burnout were found to be: 26% for high EE, 36% for low PA, and 22% for high DP (Alexander & Klein, 2001). A more recent study conducted in South Africa identified that up to 30% of paramedics suffer the effects of burnout (Stassen et al., 2013). When compared with prevalence rates in the general working population in western countries, which range from 13% (Norlund et al., 2010) to 17.9% (Lindblom et al., 2006), these figures alone are a cause for concern. Furthermore, although research focusing on the systemic consequences of burnout in AW is limited, a recent study identified that burnout increased the chances of ‘intent to quit’ and sickness absence rates in a large sample of EMTs and paramedics (Crowe et al., 2018). These outcomes have been linked to increased healthcare costs in other (non-AW) healthcare sectors (Borritz et al., 2006). It is likely the impact of burnout is even wider than this, if parallels can be drawn with other areas of healthcare such as nursing, where burnout in staff has been associated with a decrease in the quality of care provided to service users (e.g. Poghosyan et al., 2010).
1.1.7 Previous Reviews

Despite growing concerns about burnout in AW populations (Rosenberger et al., 2019), to date there has only been one review which has addressed burnout and no previous reviews that have synthesised the factors associated with burnout in this population. Sterud et al. (2006) attempted to identify prevalence rates of burnout when reviewing the health status of AW. They found three studies which reported burnout outcomes, two of which reported high rates in AW. Due to inconsistent findings and few studies reporting rates of burnout, the authors were unable to conclude whether burnout rates were higher in AW than in the general population.

Reviews have also looked at factors associated with burnout in other healthcare professions, two will be discussed here which focus on healthcare populations most similar to AW. In their review of prevalence and determinants of burnout in emergency nurses, Adriaenssens et al. (2015) found that predictors for burnout included: demographic characteristics, coping strategies, exposure to traumatic events, job characteristics, and organisational factors. Chuang et al. (2016) reviewed research on burnout prevalence and associated factors in intensive care unit professionals, identifying two categories of factors associated with burnout: individual risk factors (age, sex, marital status, length of service, and personality traits) and work risk factors (experience, environment, workload and shift work, ethical issues, and end-of-life decision-making). Consequences of burnout, including higher staff turnover and poorer physical health were also identified.

The risk factors identified by previous reviews offer a useful starting point when considering the type of issues that may be associated with burnout among AW. They also identified important considerations for the present review, such as the divergence in findings on burnout prevalence rates, and the differences in how burnout was measured and reported across the different studies. Additionally, the MBI-HSS was identified as the most commonly used measure by studies, confirming its prominence in the emergency healthcare literature.
Previous reviews have had a number of limitations. Firstly, they have included any measure which assessed burnout, with resulting difficulties in comparing results between individual studies. In addition, the review conducted by Adriaenssens et al. (2015) was aimed at emergency nurses, however the broad participant inclusion criteria make it harder to attribute specific burnout risk factors purely to emergency nurses.

1.1.8 Rationale

Burnout has been cited a key concern for the UK AS (Larrey Society, 2015). However, despite there being a number of studies which have focused on various factors linked to burnout development among AW, these have yet to be reviewed. Furthermore, prevalence rates have not been examined since 2006. Reviews have been conducted with similar professions. However, there remains little clarity regarding what the specific factors associated with burnout are in AW, and thus a systematic review of existing research that examines potentially relevant factors is warranted. It is hoped that the present review will serve as a starting point for developing an understanding of burnout in this population, identifying potential future research directions and highlighting clinical implications. This may lead to more targeted intervention strategies to reduce burnout among AW in the future.

In line with the above, the review had two main aims: to synthesise and critically appraise the existing evidence regarding factors associated with burnout in frontline AW, and to build a clearer picture of the prevalence rates of EE, DP and PA in this population.
1.2 Methods

1.2.1 Literature Search

A systematic search of research investigating factors associated with burnout in AW was conducted. Ethical approval to conduct this review was granted by the University of Coventry Ethics Committee (Appendix B). Table 1.1 below outlines the key search terms used.

Literature searches took place between November and December 2019 and focused on the most relevant databases, including literature from psychology and prehospital medicine. The databases searched were: PsycINFO, Medline, Web of Science and CINAHL. Relevant journals sites and reference lists were also searched to identify any further articles.

Table 1.1

*Key Search Terms*

<table>
<thead>
<tr>
<th>Main Concepts</th>
<th>Synonyms</th>
<th>Location</th>
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<tr>
<td>Frontline Ambulance Workers</td>
<td>emergency medical service* OR EMS OR emergency medical technician* OR EMT OR paramedic* OR ambulance OR prehospital</td>
<td>Title Abstract</td>
</tr>
<tr>
<td>Burnout</td>
<td>burnout OR burn-out OR burn out</td>
<td>Title Abstract</td>
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1.2.2 Inclusion and Exclusion Criteria

Article titles and abstracts were initially screened and retained if they: (a) were English language articles; (b) were peer reviewed; (c) mentioned burnout; (d) participants were frontline AW; and (e) the full text was accessible.
Following initial screening, full text articles were obtained and assessed for eligibility for review according to a set of specific inclusion criteria outlined in Table 1.2. Full texts were screened and included for review if they used quantitative methodology. Due to the wide range of different emergency medical service designs globally, the review was restricted to studies examining the experiences of AW employed in a service which adopted a more Anglo-American approach (Al-Shaqsi, 2010). For purposes of the study selection, at least 75% of the sample had to be the target sample group, namely frontline AW who had not been trained to be a nurse or doctor. Paid AW were included, as it is assumed that those working in voluntary or non-frontline roles would experience different stressors. The inclusion of studies which used the MBI as a whole measure ensured the conceptualisation of burnout was consistent across studies, in turn facilitating comparability of study findings. This extended to different versions of the MBI based on the same conceptual understanding.

**Table 1.2**

*Specific Inclusion and Exclusion Criteria*

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<td>Methodology</td>
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<td></td>
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<td>Qualitative studies</td>
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<td>Participants</td>
<td>Frontline emergency ambulance workers, paid workers</td>
<td>Non frontline ambulance workers, nurses, doctors, armed forces, fire fighters, police, students, volunteers</td>
</tr>
<tr>
<td>Burnout Syndrome</td>
<td>Burnout related to occupation</td>
<td>Any other psychological consequences of occupation</td>
</tr>
</tbody>
</table>
1.2.3 Classification of Studies

In line with Moher et al. (2009), the process of study selection for the review was recorded on a ‘Preferred Reporting Items for Systematic Reviews and Meta-Analyses’ (PRISMA) flow diagram (Figure 1.2). In total 929 articles were identified from searching the databases, reference lists and journal websites. Duplicates were removed, leaving 617 articles. Title and abstracts were reviewed, using the criteria set out above, which left 123 articles. The full text of the remaining articles were reviewed and a further 108 articles excluded. The majority of these papers were excluded as the population studied was not in line with the current review focus. Following this, the most common reason studies were excluded was that they did not use the MBI to assess burnout. Other exclusion reasons included: inappropriate study design, full text not in English, MBI used as an incomplete measure, not measuring factors associated with burnout, and not being peer reviewed or research papers. Following a search of the literature, a total of 15 studies met the inclusion criteria and so were retained for systematic review.

<table>
<thead>
<tr>
<th>Burnout Measure</th>
<th>Studies using the MBI as a complete measure to assess burnout</th>
<th>Studies using other measures to assess burnout</th>
<th>Studies using one scale of the MBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors</td>
<td>Studies looking at factors associated with burnout</td>
<td>Studies not measuring factors associated with burnout</td>
<td></td>
</tr>
</tbody>
</table>

1.2.3 Classification of Studies
Figure 1.2

**PRISMA Flow Diagram (Moher et al., 2009)**

Records identified through database searching
- CINAHL (n=542)
- Medline (n=23)
- PsycInfo (n=64)
- Web of Science (n=298)
- Total (N=927)

Additional records identified through other sources (n=2)

Records after duplicates removed (N=617)

Records excluded due to not focusing on burnout within frontline ambulance staff or being clearly qualitative (n=494)

Records screened (N=617)

Full-text articles assessed for eligibility (N=123)

Full-text articles excluded, with reasons:
- Wrong population (n=31)
- Does not use the MBI (n=26)
- Does not measure burnout (n=18)
- Wrong study design (n=9)
- Full paper not in English (n=8)
- MBI not used as entire measure (n=6)
- Does not measure associated factors (n=5)
- Not peer reviewed (n=3)
- Not research (n=2)

Studies included in quantitative synthesis (N=15)
1.2.4 Quality Assessment

The assessment framework developed by Caldwell et al. (2005) was used to assess the quality of the remaining studies. This framework was selected as it has been used to assess the quality of quantitative research methodologies (e.g. Veater & East, 2016) and utilised in both health research and clinical psychology. See Appendix C for the framework.

The 15 studies were rated against 17 quality criteria. For each criterion, studies were rated as ‘0’ if criterion was not met; ‘1’ if the criterion was partially met; and ‘2’ if the criterion was fully met. An overall rating out of 34 was then given. All articles were included, as they all scored above 75%. Thus, they were deemed to attain a satisfactory level of rigour in terms of quality. The area most commonly associated with lower quality was the reporting of ethical issues, with a number of studies providing no information in this area.

To enhance the reliability of the quality assessment, two researchers completed the process independently. Inter-rater reliability analysis, using Kappa coefficients, were conducted for the papers included in the review and are presented in Table 1.3. Kappa coefficients ranged from .82 to 1.00 and an overall Kappa score was .90; representing a good agreement (Altman, 1999).

1.2.5 Method of Analysis

Narrative synthesis was used to integrate information regarding potential factors associated with burnout from the studies. This method takes a textual approach to synthesis to give a coherent summary of the current evidence. Guidance from Popay et al. (2006) was followed to manage potential sources of bias from the analysis. Burnout prevalence data was analysed using Review Manager (Version 5.3).
1.3 Results

1.3.1 Characteristics of Studies

A summary of the key characteristics of the 15 studies included in the review is shown in Table 1.3. The studies had similar aims: to investigate potential correlates of burnout in AW, often in addition to other mental health outcomes. Some also sought to measure prevalence of burnout.

The majority of the studies were conducted in the USA (five). Three studies were conducted in Turkey. One study was conducted in each of: Scotland, Germany, Romania, Ireland, Norway, the Netherlands and Australia (Tasmania). Of the 15 studies identified for review, eight were carried out between 2010 and 2020, four were carried out between 2000 and 2010, and the remaining three were carried out between 1996 and 1998. Thirteen of the studies used a cross-sectional design. One used both a longitudinal and cross-sectional design and one used a solely longitudinal design.

Four studies described the sample as ambulance staff or workers. Another four described the sample as EMTs. One included a majority of EMTs and also dispatchers. Five studies included a majority of paramedics alongside other ambulance staff. One study included a majority of EMTs and minority of paramedics. Length of service of AW varied greatly across the studies. Of the six studies reporting means, the smallest was 3.4 and the largest was 12.3 years of service. Seven studies reported medians or modes, these ranged from between one and ten years to over 20 years of experience. The smallest sample size was 27 (Gallagher & McGilloway, 2009) and the largest was 1101 (Baier et al., 2018).

Study participants were predominantly male, with female respondents representing a mean of 29.3% (range: 0%-58.7%). The majority of respondents fell between 29 and 41 years of age; with the exception of those from two studies, one of which indicated that most participants were under 29 (Baier et al., 2018) and
another had a majority of participants over 50 (Boland et al., 2018). Only three studies reported on ethnicity; in those that did, the vast majority of participants were White. Study participants were predominantly married, as reported by nine studies. Conversely, one study indicated the majority of participants were single (Weiss et al., 1996). One study did not report on age, gender, seniority, ethnicity or relationship status (Tunaligil et al., 2016).
### Table 1.3

**Key Characteristics of Studies**

<table>
<thead>
<tr>
<th>Author (Date)/ Quality Assessment</th>
<th>Aim</th>
<th>Design/ Method of Data Collection</th>
<th>Population/ Location</th>
<th>MBI version used</th>
<th>Main Analysis</th>
<th>Key Findings</th>
<th>Associated factors identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander and Klein (2001) QA=88.24% κ=.84</td>
<td>To measure the association between regular exposure to critical incidents and emotional welfare in AW.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>160 AW 70 ambulance technicians 40 paramedics Recruited from Scotland</td>
<td>MBI-HSS Spearman rank correlation Fisher's exact test T-test for between group differences</td>
<td>Burnout mean (SD) subscale scores: EE: 17.2 (10.7) DP: 8.4 (6.7) PA: 34.5 (7.8)</td>
<td>Years of experience associated with PA ($r=-0.29, p&lt;.001$). Critical incidents in past six months related to EE ($r=-0.25, p&lt;.05$). Significantly more staff who reported high DP, had experienced a critical incident compared with those who had not ($X^2=8.75, p&lt;.01$). Insufficient recovery time after incidents significantly higher in those higher on EE ($z=-2.15$,</td>
<td>EE: +Critical incidents -Recovery time -Hardiness -Job satisfaction -Satisfaction with organisation DP: +Critical incidents -Hardiness -Job satisfaction -Satisfaction with organisation PA: -Years of experience +Recovery time +Hardiness +Job satisfaction</td>
</tr>
<tr>
<td>Author (Date)/ Quality Assessment</td>
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<td>Years of service, median (Range): 9 (1-30)</td>
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<td>$p = .03$) and those who were low on PA ($z = -2.01, p = .05$).</td>
<td>Hardiness associated with less burnout.</td>
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<td>Hardiness Commitment: EE ($r = -.51, p &lt; .001$), DP ($r = -.45, p &lt; .001$), PA ($r = .45, p &lt; .001$).</td>
<td>Hardiness Commitment: EE ($r = -.51, p &lt; .001$), DP ($r = -.45, p &lt; .001$), PA ($r = .45, p &lt; .001$).</td>
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<td>Hardiness Control: EE ($r = -.35, p &lt; .001$), DP ($r = -.27, p &lt; .01$), PA ($r = .37, p &lt; .001$).</td>
<td>Hardiness Control: EE ($r = -.35, p &lt; .001$), DP ($r = -.27, p &lt; .01$), PA ($r = .37, p &lt; .001$).</td>
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<td>Hardiness Challenge: EE ($r = -.26, p &lt; .01$), DP ($r = -.15, p = .12$), PA ($r = .20, p &lt; .05$).</td>
<td>Hardiness Challenge: EE ($r = -.26, p &lt; .01$), DP ($r = -.15, p = .12$), PA ($r = .20, p &lt; .05$).</td>
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<td>Satisfaction with organisation negatively associated with EE ($r = -.29, p &lt; .01$) and DP ($r = -.31, p &lt; .01$).</td>
<td>Satisfaction with organisation negatively associated with EE ($r = -.29, p &lt; .01$) and DP ($r = -.31, p &lt; .01$).</td>
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<td>Job satisfaction negatively associated with EE ($r = -.36, p &lt; .001$) and DP ($r = -.31, p &lt; .001$) and positively with PA ($r = .33, p &lt; .001$).</td>
<td>Job satisfaction negatively associated with EE ($r = -.36, p &lt; .001$) and DP ($r = -.31, p &lt; .001$) and positively with PA ($r = .33, p &lt; .001$).</td>
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<tr>
<td>Author (Date)/Quality Assessment</td>
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<tr>
<td>2. Baier et al. (2018) QA=94.12% κ=1.00</td>
<td>To analyse the overall degree of burnout among Emergency Medical Service (EMS) workers. To identify potential adverse events that might harm patients. To analyse the relationship between burnout and perceived safety outcomes.</td>
<td>Cross-sectional Questionnaire measures via social media</td>
<td>Recruited from Germany Age: &lt;29, n=439 (39.9%) 30-39, n=367 (33.3%) 40-49, n=205 (18.6%) &gt;50, n=90 (8.2%) Gender: M, n=949 (86.2%) F, n=152 (13.8%) Ethnicity: Not recorded Relationship status: Not recorded Years of service, M(Range): 12.34 (.5-42)</td>
<td>MBI-HSS</td>
<td>Pearson correlation Logistic Regression (did not include PA)</td>
<td>Using Maslach et al., (1996): EE High = 25.3% DP High = 40.2% PA Low = 19.9% A high level of EE and DP found in 18.5% (n = 204) of study participants Burnout associated with following safety outcomes: Provider injury: EE (r = .21, p &lt; .01), DP (r = .19, p &lt; .01). Association with PA was not significant. Error and adverse events: EE (r = .14, p &lt; .01), DP (r = .27, p &lt; .01), PA (r = -.16, p &lt; .01). Safety-compromising behaviour: EE (r = .44, p &lt; .01), DP (r = .41, p &lt; .01), PA (r = -.17, p &lt; .01). EE (OR: 1.48, 95% CI (1.07, 2.05), p &lt; .05) and DP (OR: 1.53, 95% CI (1.16, 2.03), p &lt; .01) increased odds of provider injury. DP (OR: 1.57, 95% CI (1.13, 2.19), p &lt; .01) increased odds of errors and adverse events.</td>
<td>EE: +Provider injury +Error and adverse events +Safety compromising behaviour -&gt;Provider injury -&gt;Safety compromising behaviour DP: +Provider injury +Error and adverse events +Safety compromising behaviour -&gt;Provider injury -&gt;Errors and adverse events -&gt;Safety compromising behaviour PA: -Error and adverse events -Safety compromising behaviour</td>
</tr>
<tr>
<td>Author (Date)/Quality Assessment</td>
<td>Aim</td>
<td>Design/Method of Data Collection</td>
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<tr>
<td>3. Boland et al. (2018) QA=97.10% κ=1.00</td>
<td>To analyse the relationship between burnout and exposure to critical incidents.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>209 EMS workers 190 paramedics 19 dispatchers Recruited from United States of America (USA)</td>
<td>MBI-HSS</td>
<td>Logistic regression</td>
<td>Burnout mean (SD) subscale scores: EE: 13.0 (8.6) DP: 6.9 (5.9) PA: 39.1 (6.2)</td>
<td>EE and DP: - Age - Committed Relationship - Being a parent</td>
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<td>Age: 18-29, n=55 (26%) 30-39, n=43 (21%) 40-49, n=51 (24%) &gt;50, n=56 (27%) NR, n=4 (2%)</td>
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<td>PA not included in analysis</td>
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<td>Gender: M, n=125 (60%) F, n=84 (40%)</td>
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<td>Ethnicity: Not recorded</td>
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EE (OR: .89, 95% CI (.40, 1.39), \( p<.01 \)) and DP (OR: 1.20, 95% CI (.78, 1.62), \( p<.01 \)) increased odds of safety-compromising behaviour.
<table>
<thead>
<tr>
<th>Author (Date)/ Quality Assessment</th>
<th>Aim</th>
<th>Design/ Method of Data Collection</th>
<th>Population/ Location</th>
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<th>Main Analysis</th>
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<tr>
<td>4. Boland et al. (2019) QA=97.10%κ=1.00</td>
<td>To assess the relationship between social support outside the workplace, coping styles and burnout in EMS workers.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>167 EMS workers</td>
<td>MBI-HSS Logistic regression</td>
<td>Burnout mean (SD) subscale scores: EE: 13.1 (8.7) DP: 6.7 (5.7) PA: 39.2 (6.5)</td>
<td>Using Maslach et al. (1996): EE High = 11% DP High = 24% PA Low = 20%</td>
<td>EE and DP: +Social Isolation +Avoidant coping -Religion coping -Instrumental support coping -Emotional support to cope PA not included in analysis</td>
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- Relationship status: Married, n=132 (79%) Single, n=35 (21%)
- Years of service: 0-5, n=43 (21%) 6-10, n=49 (23%) 11-20, n=49 (23%) >20, n=68 (33%)
- Being over 50 reduced odds of burnout (OR=.27, 95% CI (.06, 1.31)).
- Being single increased odds of burnout (OR=2.15, 95% CI (.70, 6.65)).
- No significant relationship between increasing tertile of cumulative career to critical incidents and burnout.
<table>
<thead>
<tr>
<th>Author (Date)/ Quality Assessment</th>
<th>Aim</th>
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<th>Key Findings</th>
<th>Associated factors identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Boudreaux et al. (1997)</td>
<td>To analyse the relationship between coping style and burnout.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>64 EMTs Recruited from the USA</td>
<td>MBI-HSS Pearson correlation</td>
<td>No data on burnout prevalence.</td>
<td>Age associated with PA (r=.29, p&lt;.05).</td>
<td>EE: +Confrontative coping +Avoidant coping +Social support</td>
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<tr>
<td>QA=88.24% (\kappa=.86)</td>
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<td>DP: +Confrontative coping +Avoidant coping</td>
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</table>

Years of service:
- 0-5, \(n=33\) (20%)
- 6-10, \(n=37\) (22%)
- 11-20, \(n=38\) (23%)
- >20, \(n=57\) (34%)
- NR, \(n=2\) (1%)

Dysfunctional avoidant coping strategies increased burnout odds.
- Use of self-blame to cope increased odds of burnout (OR: 2.70, 95% CI (1.11, 6.53)).
- Use of food to cope increased odds of burnout (OR: 3.79, 95% CI (1.55, 9.27)).
- Use of substances to cope increased odds of burnout (OR: 4.57, 95% CI (1.30, 16.03)).
- Use of religion to cope reduced odds of burnout (OR: .25, 95% CI (.08, .77)).
- Instrumental support to cope reduced odds of burnout (OR: .37, 95% CI (.15, .95)).
- Emotional support to cope reduced odds of burnout (OR: .49, 95% CI (.19, 1.25)).

Pearson correlation analysis indicated:
- Age associated with PA \(r=.29, p<.05\).
<table>
<thead>
<tr>
<th>Author (Date)/ Quality Assessment</th>
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<tbody>
<tr>
<td></td>
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<td>F, 25%</td>
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<td>Self-blame associated with DP ($r=0.27, p&lt;0.05$).</td>
<td>PA: +Age</td>
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<tr>
<td>6. Boudreaux et al. (1998)</td>
<td></td>
<td>To determine whether modifying work schedules from 24 hr to 12 hr has a positive impact on burnout levels (alongside other social and psychological variables).</td>
<td>Ethnicity (recorded as race): Caucasian, 96.9% African-American, 1.6% Other, 1.6% Relationship status: Married, 54.7% Single, 34.4% Divorced/separated, 10.9% Years of service M: 7.5</td>
<td>MBI-HSS</td>
<td>Paired samples t-test</td>
<td>Burnout mean (SD) subscale scores: EE: 23.6 (2.60) DP: 12.9 (1.85) PA: 37.4 (1.70)</td>
<td>Shift reduction associated with reduced levels of EE over two-month period ($t=3.06, p&lt;0.01$).</td>
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<tr>
<td>QA=97.10%</td>
<td></td>
<td>Longitudinal, one month prior to, two months after and one year after a shift modification</td>
<td>51 two stages, 35 three stages, EMTs Recruited from USA Age M (Range): 29.7 (21-43) Gender: M, 70.5% F, 29.5% Ethnicity (recorded as race): White, 92%</td>
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<tr>
<td>$\kappa=1$</td>
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<td>Questionnaire measures via workplace distributed survey</td>
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<tr>
<th>Author (Date)</th>
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<th>Key Findings</th>
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</table>
| 7. Bria et al. (2013) QA=82.35% κ=.88 | Identify burnout predictors and the impact of burnout on turnover intentions. | Cross-sectional Questionnaire measures via workplace distributed survey | 105 members of the ambulance service Recruited from Romania | MBI-GS | Pearson correlation | Multiple linear regression | Burnout mean (SD) subscale scores: 
EE: 1.47 (1.34) Cynicism: 1.85 (1.25) Efficacy: 5.17 (1.07) Workload associated with EE (r=0.53, p<0.01). Emotional demands associated with EE (r=0.41, p<0.01). Negative work-home interaction associated with EE (r=0.47, p<0.01). Age associated with cynicism (r=0.29, p<0.01) and efficacy (r=-0.24, p<0.05). EE: +Workload +Emotional demands +Negative work-home interactions ->Turnover intentions Cynicism: +Age ->Turnover intentions Efficacy: -Age +Cognitive demands ->Turnover intentions | Black, 4% Native American, 2% Asian, n=2% Relationship status: Married, 51% Single, 31% Divorced/separated, n=18% Years of service M(Range): 7.9(6.6-27) |
<table>
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<tr>
<th>Author (Date)</th>
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<tbody>
<tr>
<td>Cenk (2019)</td>
<td>Analyse the exposure to violence and burnout levels.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>143 ambulance workers, 107 paramedics, 17 nurses, 4 physicians, 19 other</td>
<td>MBI-HSS adapted to Turkish Ergin (1992)</td>
<td>T-test</td>
<td>Burnout mean (SD) subscale scores: EE: 12.07 (6.57), DP: 7.97 (3.82), PA: 9.16 (5.14)</td>
<td>Cynicism significantly predicted by high emotional demands ($B= .21$, $p&lt;.05$) and older age ($B= .29$, $p&lt;.01$). Efficacy significantly predicted by high cognitive demands ($B= .20$, $p&lt;.05$), younger age ($B= -.27$, $p&lt;.05$), and low negative work-home interaction ($B= -.23$, $p&lt;.05$). Turnover intentions significantly predicted by EE ($B= .54$, $p&lt;.001$), cynicism ($B= .18$, $p&lt;.01$) and efficacy ($B= -.15$, $p&lt;.05$).</td>
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Cognitive demands associated with efficacy ($r=.26$, $p<.01$). EE significantly predicted by high workload ($B=.33$, $p<.01$) and negative work-home interaction ($B=.26$, $p<.01$).
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<tr>
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</thead>
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<tr>
<td>9. Deniz et al. (2016) QA=82.35%</td>
<td>To analyse the link between violence and burnout.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>Recruited from Turkey Age M(SD): 29.47(6.53) Gender: M, n=64 (53.3%) F, n=56 (46.7%) Ethnicity: Not recorded Relationship status: Married, 66.7% Years of service: 0-5, n=60 (42.0%) 6-10, n=68 (47.5%) 11-15, n=12 (8.4%) &gt;15, n=3 (2.1%)</td>
<td>MBI-HSS adapted to Turkish Mann–Whitney U test Chi-square test Kruskal–Wallis test</td>
<td>Mann–Whitney U test</td>
<td>Burnout mean (SD) subscale scores: EE: 11.60 (6.20) DP: 4.34 (3.01) PA: 9.16 (4.24)</td>
<td>EE: +Physical violence -Support at work PA: -Age Gender -Verbal violence</td>
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<td>Author (Date)/QA= Quality Assessment</td>
<td>Aim</td>
<td>Design/Method of Data Collection</td>
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<td>MBI version used</td>
<td>Main Analysis</td>
<td>Key Findings</td>
<td>Associated factors identified</td>
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<tr>
<td>QA=94.12%</td>
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<td>21 EMTs 6 dispatchers</td>
<td>Recruited from Ireland</td>
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<td>DP: +Post-traumatic stress symptoms -Physical health</td>
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<td>κ=1.00</td>
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<td>Age M(SD): 40(9.0)</td>
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<td>Gender: M, n=27 (100%)</td>
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<td>Relationship status: Not recorded</td>
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<td>Gender: PA scores were lower in men (p&lt;.01)</td>
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<td>Years of service: Not recorded</td>
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<td>Administrative support following violence: EE (p&lt;.05) and DP (p&lt;.05) scores lower in those who perceived inadequate support.</td>
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<td>Physical attack: EE scores higher in those who had experienced physical attack (p=.05)</td>
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<td>Verbal harassment and threat: PA scores lower in those who had experienced harassment and threat (p&lt;.05)</td>
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<td>Author (Date)/ Quality Assessment</td>
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<td>Design/ Method of Data Collection</td>
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<tr>
<td>11. Sterud et al. (2008) QA=97.06% κ=1.00</td>
<td>Investigate levels of suicidal ideation and suicide attempts among ambulance personnel, and to identify important correlates including burnout.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>1286 operational ambulance personnel Recruited from Norway Age M(SD): 36.8(9.3) Gender: M, 76.8% F, 23.2% Ethnicity: Not recorded Relationship status: Married, 75.0%</td>
<td>MBI-HSS Logistic regression</td>
<td>Burnout mean (SD) subscale scores:</td>
<td>EE: 1.9 (.6) DP: 1.7 (.6) PA: 3.5 (.4)</td>
<td>EE significantly increased odds of serious suicidal ideation (OR=1.5, CI (1.1-2.0), p&lt;.05)</td>
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<td>Post-traumatic stress symptoms associated with EE ($r_s=.71$, $p&lt;.001$), DP ($r_s=.68$, $p&lt;.001$) and PA ($r_s=.69$, $p&lt;.001$)</td>
<td>Critical incident stress associated with EE ($r_s=.38$, $p&lt;.05$)</td>
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Ethnicity: Not recorded
Relationship status: Married, $n=22$ (81.5%) Years of service: $>10$, $n=17$
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<th>Aim</th>
<th>Design/Method of Data Collection</th>
<th>Population/Location</th>
<th>MBI version used</th>
<th>Main Analysis</th>
<th>Key Findings</th>
<th>Associated factors identified</th>
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<tr>
<td>12. Tunaligil et al. (2016) QA=97.06% κ=1.00</td>
<td>To analyse predictors of mental, physical, and emotional well-being in emergency medical technicians.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>606 public EMTs 236 private EMTs Recruited from Turkey Age: Not recorded Gender: Not recorded Ethnicity: Not recorded Relationship status: Not recorded Years of service: Not recorded</td>
<td>MBI-HSS</td>
<td>For categorical variables: Chi-square and Fisher's exact tests For continuous variables: Student's t test and one-way ANOVA</td>
<td>No data on burnout prevalence. Participants reporting not making an informed career choice had significantly higher levels of EE ($p&lt;.05$) and DP ($p&lt;.05$). Participants reporting issues regarding work locations had significantly higher levels of EE ($p&lt;.01$) and DP ($p&lt;.01$) and lower levels of PA ($p&lt;.01$). Participants reporting experiencing false accusations at work had significantly higher levels of EE ($p&lt;.01$) and DP ($p&lt;.01$) and lower levels of PA ($p&lt;.01$).</td>
<td>EE: +Un-informed career choice +Issues with work location +False accusations +Occupational injuries +Work related disabilities +Inadequate organisational support DP: +Un-informed career choice +Issues with work location +False accusations +Occupational injuries +Work related disabilities +Inadequate organisational support</td>
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<td>Author (Date)/Quality Assessment</td>
<td>Aim</td>
<td>Design/Method of Data Collection</td>
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<tr>
<td>13. Van der Ploeg and Kleber (2003) QA=94.12% κ=1.00</td>
<td>To identify acute and chronic work-related stressors predictive of post-traumatic distress, fatigue and burnout.</td>
<td>Cross-sectional and Longitudinal Time 1, Time 2 Initial and follow-up questionnaire measures via workplace distributed survey</td>
<td>221 (T1) 123 (T2) AW 70 paramedics 53 ambulance drivers Recruited from the Netherlands Age M(SD): 39.8(7.1) Gender: M, n=189 (86%) F, n=32 (14%) Ethnicity: Not recorded Relationship status: Married, 74.4% Cohabited, 12.8%</td>
<td>Dutch version of MBI Pearson correlation Stepwise multiple regression</td>
<td>Burnout mean (SD) subscale scores: EE: 1.20 (.89) Cynicism: 1.10 (.88) Efficacy: 4.40 (.87) Using Maslach et al. (1996): EE High = 12% DP High = 18% PA Low= 16%</td>
<td>Participants reporting work-related permanent disabilities had significantly higher levels of EE ($p&lt;.01$) and DP ($p&lt;.01$) and lower levels of PA ($p&lt;.01$). Participants reporting inadequate organisational support had significantly higher levels of EE ($p&lt;.01$), DP ($p&lt;.01$) and lower levels of PA ($p&lt;.01$). PA: -Inadequate organisational support -Issues with work location -False accusations -Occupational injuries -Work related disabilities</td>
<td>Number of critical incidents associated with EE ($r=.30, p&lt;.01$) and cynicism ($r=.20, p&lt;.05$). Cynicism: +Critical incidents +Emotional demands +Physical strains -Support from colleagues -Support from supervisor -Communication -Autonomy</td>
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<td>Author (Date)/ Quality Assessment</td>
<td>Aim</td>
<td>Design/ Method of Data Collection</td>
<td>Population/ Location</td>
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<td>Single, 8.2% Divorced, 4.6%</td>
<td>Years of service M(SD): 9.3(7.0)</td>
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<td>Efficacy: +Support from colleagues +Support from supervisor +Autonomy</td>
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<td>$p&lt;.01)$ and efficacy ($r=-.42$, $p&lt;.001$).</td>
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<td>Lack of social support from supervisor associated with EE ($r=.41$, $p&lt;.001$), cynicism ($r=.40$, $p&lt;.001$) and efficacy ($r=-.34$, $p&lt;.001$).</td>
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<td>Poor communication associated with EE ($r=.26$, $p&lt;.01$).</td>
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<td>Lack of autonomy associated with EE ($r=.25$, $p&lt;.01$) and efficacy ($r=-.28$, $p&lt;.01$).</td>
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<td>High emotional demands associated with EE ($r=.27$, $p&lt;.01$) and cynicism ($r=.26$, $p&lt;.01$).</td>
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<td>Physical strains associated with EE ($r=.35$, $p&lt;.001$).</td>
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<td>EE at time 2 predicted by poor communication (3% of the variance) and physical strains (3% of the variance) after controlling for symptoms at time 1 (EE and IES total score).</td>
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<td>Author (Date)/ Quality Assessment</td>
<td>Aim</td>
<td>Design/ Method of Data Collection</td>
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<td>Associated factors identified</td>
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<tr>
<td>14. Weiss et al. (1996) QA=88.24% κ=.82</td>
<td>To analyse the effects of demographics, lifestyle and work characteristics on burnout in EMTs.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>69 EMTs Recruited from the USA Age M(SD): 31.7(7.2) Gender: M, n=53 (77%) F, n=16 (23%) Ethnicity (recorded as race): White, n=39 (57%) Other, n=17 (25%) Black, n=10 (14%) Hispanic, n=3 (4%)</td>
<td>MBI-HSS ANOVA</td>
<td>Burnout mean (SD) subscale scores: EE: 19.2 (10.10) DP: 9.3 (5.30) PA: 28.1 (6.50)</td>
<td>Cynicism at time 2 predicted by social support (8% of the variance) after controlling for symptoms at time 1 (EE). Efficacy at time 2 predicted by lack of social support from colleagues (7% of the variance) and lack of social support from the supervisor (2% of the variance) after controlling for symptoms at time 1 (CIS total score and IES total score).</td>
<td>PA: -Length of service -Qualification level</td>
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</table>

Those working for longer than three years had significantly lower levels of PA (diff = 3.9, 95% CI = .76-.70) Those who were more highly qualified had significantly lower levels of PA (diff = 4.8, 95% CI = .90-.87)
<table>
<thead>
<tr>
<th>Author (Date)/QA=94.12%(\kappa=82)</th>
<th>Aim</th>
<th>Design/Method of Data Collection</th>
<th>Population/Location</th>
<th>MBI version used</th>
<th>Main Analysis</th>
<th>Key Findings</th>
<th>Associated factors identified</th>
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<tbody>
<tr>
<td>15. Wongtongkam (2017)</td>
<td>To explore the prevalence of violent incidents and factors contributing to violence. To demographic factors associated with burnout and post-traumatic stress symptoms.</td>
<td>Cross-sectional Questionnaire measures via workplace distributed survey</td>
<td>48 ambulance workers Recruited from Tasmania and South Australia</td>
<td>Abbreviated MBI Independent t-test</td>
<td>No burnout prevalence data</td>
<td>EE: Gender</td>
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<td>Relationship status:</td>
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<td>Single, (n=36) (52%)</td>
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<td>Female paramedics reported significantly higher levels of EE than males (t(37)=-2.32, p&lt;.05)</td>
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<td>Married, (n=25) (36%)</td>
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<td>Divorced, (n=8) (12%)</td>
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<td>Years of service M(SD): (3.4(4.1))</td>
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<td>20-30, (n=10) (20.8%)</td>
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<td>30-40, (n=19) (39.6%)</td>
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<td>40-50, (n=10) (20.8%)</td>
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<td>&gt;50, (n=9) (18.8%)</td>
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<td>M, (n=26) (54.2%)</td>
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<td>F, (n=22) (45.8%)</td>
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<td>Relationship status:</td>
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<td>Married, (n=27) (56.3%)</td>
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<td>Divorced, (n=14) (29.2%)</td>
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<td>Single, (n=6) (14.5%)</td>
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<td>Author (Date)/Quality Assessment</td>
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<td>1-10, n=22 (45.8%)</td>
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<td>11-20, n=15 (31.3%)</td>
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<td>21-30, n=7 (14.6%)</td>
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<td>&gt;31, n=4 (8.3%)</td>
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1.3.2 Burnout Measurement and Prevalence

Ten out of 15 studies reported used the 22-item MBI-HSS (Maslach et al., 1996) adapted for use with healthcare professionals. Two used the 22-item Turkish version of the MBI-HSS (Ergin, 1993) and another the 20-item Dutch version (Schaufeli & van Dierendonck, 1994). One study used the 12-item abbreviated MBI-HSS (Mcmanus et al., 2000) and one study reported using the MBI-GS (Schaufeli et al., 1996). All measures use a seven-point Likert scale aside from the Turkish version which uses a five-point scale.

Table 1.4 gives an overview of the burnout rates that were reported by the studies included within the review. Eleven out of 15 studies gave mean subscale scores. However, there was variation in how these scores were calculated. This related to whether Likert scores were totalled for each participant before calculating means. Six studies gave prevalence rates in terms of the percentage of participants falling above Maslach et al.’s (1996) cut off points; high EE: 27 or over, low PA: 31 or less, and high DP: 13 or over. Three studies did not include any information regarding burnout prevalence rates.

Six studies used the MBI-HSS and provided mean subscale scores (Alexander & Klein, 2001; Boland et al., 2018; Boland et al., 2019; Boudreaux et al., 1998; Gallagher & McGilloway, 2009; Weiss et al., 1996). A meta-analysis using Review Manager 5.3 software was used to calculate an estimate of overall burnout prevalence. The results of meta-analysis (random effects model; Figure’s 1.3, 1.4, 1.5) showed the overall pooled mean of EE was 18.24 (95% CI 13.44 to 23.05), DP was 8.99 (95% CI 6.46 to 11.52), and PA was 32.36 (95% CI 28.46 to 36.26). $I^2$ values were high across all three analyses, indicating high between study heterogeneity (Higgins et al., 2003). High heterogeneity is likely due to the difference in settings and methodological approaches adopted between studies. Results of meta-analyses indicated moderate burnout levels across the AW from these studies, according to Maslach et al’s (1996) cut off points.

1 These cut off points have now been removed from the MBI, and whether they are valid for use is contentious (Doulougeri et al., 2016).
## Table 1.4

**Burnout Prevalence Rates**

<table>
<thead>
<tr>
<th>Rates</th>
<th>Measure</th>
<th>% EE High</th>
<th>% DP High</th>
<th>% PA Low</th>
<th>EE M (SD)</th>
<th>DP M (SD)</th>
<th>PA M (SD)</th>
<th>EE Likert M (SD)</th>
<th>DP Likert M (SD)</th>
<th>PA Likert M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alexander and Klein (2001)</td>
<td>MBI-HSS</td>
<td>20.0</td>
<td>26.0</td>
<td>36.0</td>
<td>17.2 (10.7)</td>
<td>8.4 (6.7)</td>
<td>34.5 (7.8)</td>
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<tr>
<td>2. Baier et al. (2018)</td>
<td>MBI-HSS</td>
<td>25.3</td>
<td>40.2</td>
<td>19.9</td>
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<tr>
<td>3. Boland et al. (2018)</td>
<td>MBI-HSS</td>
<td>6.0</td>
<td>15.0</td>
<td>11.0</td>
<td>13.0 (8.6)</td>
<td>6.9 (5.9)</td>
<td>39.1 (6.2)</td>
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<tr>
<td>4. Boland et al. (2019)</td>
<td>MBI-HSS</td>
<td>11.0</td>
<td>24.0</td>
<td>20.0</td>
<td>13.1 (8.7)</td>
<td>6.7 (5.7)</td>
<td>39.2 (6.5)</td>
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</tr>
<tr>
<td>5. Boudreaux et al. (1997)</td>
<td>MBI-HSS</td>
<td>no data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Boudreaux et al. (1998)</td>
<td>MBI-HSS</td>
<td>23.6 (2.60)</td>
<td>12.9 (1.85)</td>
<td>37.4 (1.70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.47 (1.34)</td>
</tr>
<tr>
<td>7. Bria et al. (2013)</td>
<td>MBI-GS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.47 (1.34)</td>
<td>1.85 (1.25)</td>
<td>5.17 (1.07)</td>
</tr>
<tr>
<td>8. Cenk (2019)</td>
<td>MBI-HSS Turkish</td>
<td>12.07 (6.57)</td>
<td>7.97 (3.82)</td>
<td>9.16 (5.14)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>9. Deniz et al. (2016)</td>
<td>MBI-HSS Turkish</td>
<td>11.6 (6.2)</td>
<td>4.34 (3.01)</td>
<td>9.16 (4.24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Gallagher and McGilloway (2009)</td>
<td>MBI-HSS Turkish</td>
<td>44.4</td>
<td>40.7</td>
<td>7.4</td>
<td>24.2 (13.01)</td>
<td>9.8 (6.54)</td>
<td>14.7 (6.84)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Sterud et al. (2008)</td>
<td>MBI-HSS Turkish</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>12. van der Ploeg and Kleber (2003)</td>
<td>MBI-Dutch</td>
<td>12.0</td>
<td>18.0</td>
<td>16.0</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Study or Subgroup</td>
<td>Prevalence</td>
<td>SE</td>
<td>Weight</td>
<td>Prevalence IV, Random, 95% CI</td>
<td>Prevalence IV, Random, 95% CI</td>
<td></td>
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</tr>
<tr>
<td>Alexander and Klein 2001</td>
<td>17.2</td>
<td>0.85</td>
<td>17.0%</td>
<td>17.20 [15.53, 18.87]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boland et al. 2018</td>
<td>13.1</td>
<td>0.59</td>
<td>17.2%</td>
<td>13.00 [11.84, 14.16]</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Boland et al. 2019</td>
<td>13.1</td>
<td>0.67</td>
<td>17.1%</td>
<td>13.10 [11.79, 14.41]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boudreaux et al. 1998</td>
<td>23.6</td>
<td>0.36</td>
<td>17.3%</td>
<td>23.60 [22.89, 24.31]</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Gallagher and McGilloway 2009</td>
<td>24.2</td>
<td>2.5</td>
<td>14.7%</td>
<td>24.20 [19.30, 29.10]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weiss et al. 1996</td>
<td>19.2</td>
<td>1.22</td>
<td>16.6%</td>
<td>19.20 [16.81, 21.59]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>100.0%</strong></td>
<td></td>
<td></td>
<td><strong>18.24 [13.44, 23.05]</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Heterogeneity: Tau² = 34.61; Chi² = 352.22, df = 5 (P < 0.000001); I² = 99%
Test for overall effect: Z = 7.44 (P < 0.000001)
Figure 1.4

**Prevalence of DP in AW from Studies Included in Meta-Analysis**

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Prevalence</th>
<th>SE</th>
<th>Weight</th>
<th>Prevalence IV, Random, 95% CI</th>
<th>Prevalence IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander and Klein 2001</td>
<td>8.4</td>
<td>0.53</td>
<td>16.9%</td>
<td>8.40 [7.36, 9.44]</td>
<td></td>
</tr>
<tr>
<td>Boland et al. 2018</td>
<td>6.9</td>
<td>0.41</td>
<td>17.1%</td>
<td>6.90 [6.10, 7.70]</td>
<td></td>
</tr>
<tr>
<td>Boland et al. 2019</td>
<td>6.7</td>
<td>0.44</td>
<td>17.1%</td>
<td>6.70 [5.84, 7.56]</td>
<td></td>
</tr>
<tr>
<td>Boudreaux et al. 1998</td>
<td>12.9</td>
<td>0.3</td>
<td>17.3%</td>
<td>12.90 [12.31, 13.49]</td>
<td></td>
</tr>
<tr>
<td>Gallagher and McGilloway 2009</td>
<td>9.8</td>
<td>1.26</td>
<td>14.9%</td>
<td>9.80 [7.33, 12.27]</td>
<td></td>
</tr>
<tr>
<td>Weiss et al. 1996</td>
<td>9.3</td>
<td>0.64</td>
<td>16.7%</td>
<td>9.30 [8.05, 10.55]</td>
<td></td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>100.0%</strong></td>
<td></td>
<td></td>
<td><strong>8.99 [6.46, 11.52]</strong></td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 9.56; Chi² = 213.16, df = 5 (P < 0.00001); I² = 98%

Test for overall effect: Z = 6.97 (P < 0.00001)
Figure 1.5

**Prevalence of PA in AW from Studies Included in Meta-Analysis**

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Prevalence</th>
<th>SE</th>
<th>Weight</th>
<th>Prevalence IV, Random, 95% CI</th>
<th>Prevalence IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander and Klein 2001</td>
<td>34.5</td>
<td>0.62</td>
<td>16.8%</td>
<td>34.50 [33.28, 35.72]</td>
<td></td>
</tr>
<tr>
<td>Boland et al. 2018</td>
<td>39.1</td>
<td>0.43</td>
<td>16.9%</td>
<td>39.10 [38.26, 39.94]</td>
<td></td>
</tr>
<tr>
<td>Boland et al. 2019</td>
<td>39.2</td>
<td>0.5</td>
<td>16.9%</td>
<td>39.20 [38.22, 40.18]</td>
<td></td>
</tr>
<tr>
<td>Boudreaux et al. 1998</td>
<td>37.4</td>
<td>0.24</td>
<td>17.0%</td>
<td>37.40 [36.93, 37.87]</td>
<td></td>
</tr>
<tr>
<td>Gallagher and McGilloway 2009</td>
<td>14.7</td>
<td>1.32</td>
<td>15.9%</td>
<td>14.70 [12.11, 17.29]</td>
<td></td>
</tr>
<tr>
<td>Weiss et al. 1996</td>
<td>28.1</td>
<td>0.78</td>
<td>16.6%</td>
<td>28.10 [26.57, 29.63]</td>
<td></td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>32.36 [28.46, 36.26]</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: $\tau^2 = 23.22; \text{Chi}^2 = 476.37, \text{df} = 5 (P < 0.00001); \hat{I}^2 = 99$

Test for overall effect: $Z = 16.27 (P < 0.00001)$
1.3.3 Synthesis of Factors Associated with Burnout

Across the 15 studies included in the review, 20 risk factors associated with the three components of burnout were identified, with five possible outcomes of burnout. A summary of the risk factors linked with each subscale is outlined in Table 1.5. This process used a ‘vote counting’ method; which, though criticised by some researchers (e.g. Hedges & Olkin, 1985) as an inaccurate approach, is viewed by others to have utility in generating preliminary knowledge as part of a narrative synthesis (Cwikel et al., 2000).

The risk factors lent themselves to being organised into the four overarching concepts: job demands, job resources, personal resources and individual factors. The salient findings for each of the key concepts are summarised in Table 1.5 (below), and then discussed. Due to the large numbers of factors analysed by the included studies, only significant findings were included in the table.
<table>
<thead>
<tr>
<th>Concept and Factors</th>
<th>Studies</th>
<th>MBI Subscale(s)</th>
<th>Nature of relationship (+/-)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Demands</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical incidents</td>
<td>Alexander and Klein (2001)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td></td>
<td>Gallagher and McGilloway (2009)</td>
<td>EE</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>van der Ploeg and Kleber (2003)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td>Violence at work</td>
<td>Cenk (2019)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td></td>
<td>Deniz et al. (2016)</td>
<td>EE, PA</td>
<td>+, -</td>
</tr>
<tr>
<td>Physical injuries and strains</td>
<td>Tunaligil et al. (2016)</td>
<td>EE, DP, PA</td>
<td>+, +, -</td>
</tr>
<tr>
<td></td>
<td>Baier et al. (2018)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td></td>
<td>van der Ploeg and Kleber (2003)</td>
<td>EE</td>
<td>+</td>
</tr>
<tr>
<td><strong>Poor working conditions:</strong></td>
<td>Tunaligil et al. (2016)</td>
<td>EE, DP, PA</td>
<td>+, +, -</td>
</tr>
<tr>
<td>location, shift length, work life balance, workload</td>
<td>Boudreaux et al. (1998)</td>
<td>EE</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Bria et al. (2013)</td>
<td>EE, PA</td>
<td>+, -</td>
</tr>
<tr>
<td>Emotional demands</td>
<td>Bria et al. (2013)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td></td>
<td>Tunaligil et al. (2016)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td></td>
<td>van der Ploeg and Kleber (2003)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td>Cognitive demands</td>
<td>Bria et al. (2013)</td>
<td>PA</td>
<td>+</td>
</tr>
<tr>
<td><strong>Job Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support at work</td>
<td>Deniz et al. (2016)</td>
<td>EE, DP</td>
<td>-, -</td>
</tr>
<tr>
<td></td>
<td>Tunaligil et al. (2016)</td>
<td>EE, DP, PA</td>
<td>-, -, +</td>
</tr>
<tr>
<td></td>
<td>van der Ploeg and Kleber (2003)</td>
<td>EE, DP, PA</td>
<td>-, -, +</td>
</tr>
<tr>
<td>Individual Factors</td>
<td>Authors</td>
<td>Evidence Levels</td>
<td>Mentions</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------------------------------------</td>
<td>-----------------</td>
<td>----------</td>
</tr>
<tr>
<td>Age</td>
<td>Boland et al. (2018)</td>
<td>EE, DP</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Boudreaux et al. (1997)</td>
<td>PA</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Bria et al. (2013)</td>
<td>DP, PA</td>
<td>+, -</td>
</tr>
<tr>
<td></td>
<td>Cenk (2019)</td>
<td>EE, PA</td>
<td>-, +</td>
</tr>
<tr>
<td></td>
<td>Deniz et al. (2016)</td>
<td>PA</td>
<td>+</td>
</tr>
<tr>
<td>Experience</td>
<td>Alexander and Klein (2001)</td>
<td>EE, PA</td>
<td>-</td>
</tr>
<tr>
<td>Weiss et al. (1996)</td>
<td>PA</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Gallagher and McGilloway (2009)</td>
<td>EE, DP</td>
<td>+, +</td>
<td></td>
</tr>
<tr>
<td>Mental health difficulties</td>
<td>Gallagher and McGilloway (2009)</td>
<td>EE, DP</td>
<td>+, +, +</td>
</tr>
<tr>
<td>Gender</td>
<td>Deniz et al. (2016)</td>
<td>PA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wongtongkam et al. (2017)</td>
<td>EE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cenk (2019)</td>
<td>EE</td>
<td></td>
</tr>
</tbody>
</table>

**Outcomes**

<table>
<thead>
<tr>
<th></th>
<th>Sterud et al. (2008)</th>
<th>EE</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicidal ideation</td>
<td>Baier et al. (2018)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td>Safety compromising behaviour</td>
<td>Baier et al. (2018)</td>
<td>DP</td>
<td>+</td>
</tr>
<tr>
<td>Errors and adverse events</td>
<td>Baier et al. (2018)</td>
<td>EE, DP</td>
<td>+, +</td>
</tr>
<tr>
<td>Provider injury</td>
<td>Bria et al. (2013)</td>
<td>EE, DP, PA</td>
<td>+, +, -</td>
</tr>
<tr>
<td>Turnover intentions</td>
<td></td>
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</tr>
</tbody>
</table>

*Note.* + indicates positive relationship - indicates negative relationship
1.3.3.1 Job Demands. Nine studies addressed the relationship between job demands and the MBI. There were a number of different demands studied. However, of the six factors identified, five were looked at by more than one study.

Two studies found significant and positive relationships between EE and DP and exposure to critical incidents, such as events involving children, suicides, road traffic accidents and violence. A third study found a relationship with EE only. Van der Ploeg and Kleber (2003) used a robust longitudinal design with a large sample size to demonstrate that the number of critical events experienced in the past five years was associated with EE and DP one year later. These findings are supported by cross-sectional data presented by Alexander and Klein (2001), who demonstrated that the frequency of incidents experienced in the past six months was associated with EE. They also found that those who had experienced a distressing incident in that time had significantly higher levels of DP than those who had not. Gallagher and McGilloway’s (2009) finding that AW experiencing critical incident related stress had significantly higher levels of EE, partially supports the conclusions of the previous two studies. Overall, results indicate that the impact of such events may endure, which may have a cumulative impact on AWs’ psychological wellbeing.

The experience of workplace violence was examined in two studies. Violence had also been included as a critical incident in the previous studies if it had been perceived as distressing by AW. Cenk (2019) found that increased experiences of verbal abuse at work was associated with higher levels of EE and DP, but did not find a significant relationship with physical violence. They attributed this to the relative frequency of verbal violence compared to physical violence. Conversely, Deniz et al. (2016) found participants exposed to physical attacks had significantly higher levels of EE than those who had not. They also found that experience of verbal abuse was correlated with lower levels of PA and suggested that this then leads to burnout. This difference is interesting given that both studies were conducted in Turkey with a similar number of AW. This perhaps highlights that there are other contextual factors, not directly measured by these
studies, which potentially have an important role to play in explaining the relationship between job demands and burnout. Given that studies examining other critical incidents gave more consistent findings, some measure of AWs' perception of violent incidents would seem important to include in future research studies.

Three studies investigated the relationship between burnout and physical injuries acquired at work; generally, results indicated that there was a positive association between the two. A relationship with EE was consistently found across studies, however, this was not the case with DP and PA. Tunaligil et al. (2016) found that those with occupational injuries and permanent disabilities had significantly higher levels of EE and DP and lower levels of PA. Baier et al. (2018) found that those who reported more injuries at work had significantly higher levels of EE and DP. Van der Ploeg and Kleber (2003) reported that experiencing physical strains at work at time one was associated with higher levels of EE at time two. Both van der Ploeg and Kleber and Baier et al. found that elements of social support played an important role in these relationships. Van der Ploeg and Kleber found that strains, alongside poor communication, accounted for a significant proportion of the variance in EE at time two. Whilst Baier et al. noted that the relationship between injuries and burnout was intensified by poor support following these incidents. Overall, it seems that as the severity of strain or injury sustained by AW increased, more aspects of burnout syndrome were identified by study findings.

Three studies looked at various working conditions and their relationship with burnout; results generally indicated that when working conditions are poor, EE is high and PA is low. Bria et al. (2013) found that high workload and negative work-home interactions were predictive of high EE rates. They also demonstrated that poor work-home interactions predicted low efficacy (aligned to PA) at work. Tunaligil et al. (2016) found that work locations and time spent commuting were significantly associated with all burnout subscales. Boudreaux et al. (1998), using a longitudinal design, showed that reducing work schedules was associated with lower levels of EE only over two months. However, these scores returned to baseline after one year and there was a high study attrition.
rate, so there is a limit to the inferences that can be made. Nonetheless, the authors noted that EE is most likely to be impacted by shift length due to the effects on sleep pattern, alongside the physical and psychological strain of the job over extended periods.

Emotional demands at work were another job demand investigated by three studies and results indicated that when emotional demands are high, EE and DP levels are high. Van der Ploeg and Kleber (2003) found that reporting these demands at time one was significantly related to EE and cynicism (aligned to DP) at time two. Bria et al. (2013) found that emotional demands at work had a significant relationship with EE using simple correlation. When linear regression analysis was conducted, they found emotional demands predicted high cynicism levels. They concluded that emotional demands are risk factors for both EE and cynicism. A further study by Tunaligil et al. (2016) analysed the experience of false accusations at work, which is understood in this review as an emotional demand. They indicated this experience was also associated with higher levels of EE and DP and additionally lower levels of PA.

In contrast to findings for emotional demands, cognitive demands appear to only have a relationship with PA, and this is a positive one. Bria et al. (2013) found that efficacy was predicted by cognitive demands in a linear regression analysis, indicating that high cognitive demands boost efficacy. Perhaps the interpersonal nature of emotional demands could be a reason for the difference between these and demands on cognitive resources.

1.3.3.2 Job Resources. Three studies investigated types of job resources and the relationship these had with burnout. Support at work was the factor identified most frequently, with three studies indicating its protective influence and generally findings suggested that when support is low, EE and DP are high. There was some evidence to suggest an impact on lowering PA also. Van der Ploeg and Kleber (2003) identified that reporting lack of social support from both colleagues and supervisors at time one was significantly related to higher levels of EE, cynicism and lower levels of efficacy one year later. Similarly, Tunaligil et al. (2016) found that those who experience organisation support as
‘inadequate’ had significantly higher levels of EE and DP and lower levels of PA. Furthermore, Deniz et al. (2016) found that those who described inadequate support from the employer had significantly higher levels of EE and DP, however no significant relationship was found with PA.

The above indicates a crucial role for social aspects of the job, including communication, in understanding burnout in this population. However, an additional finding by van der Ploeg and Kleber (2003) shows that this needs to be balanced with appropriate autonomy; lack of autonomy at work was associated with significantly higher levels of EE and lower levels of PA. The relationship with PA makes intuitive sense, as those who are given independence at work may generate a sense of achievement and confidence in their ability.

A further potentially important factor here is recovery time following incidents, which was investigated by Alexander and Klein (2001). Reporting having ‘never’ enough time to recover was associated with higher levels of EE and lower levels of PA, similar to the relationship found with autonomy.

Lastly, satisfaction at work was investigated by Alexander and Klein (2001), they found that both job and organisational satisfaction had a significant negative correlation with EE and DP. Increased job satisfaction was associated with significantly higher levels of PA.

1.3.3.3 Personal Resources. Seven studies investigated types of personal resources, individual ways in which AW manage their demanding role, and the relationship with burnout. Similarly to job resources, social support was the most salient personal resource factor, with three studies examining the relationship social support outside of work has with burnout. Results were also comparable and generally concurred on EE and DP having a negative relationship with support. Boland et al. (2018) found that being in a committed relationship was associated with reduced odds of experiencing EE and DP. In line with this, Boland et al. (2019) found that the odds of experiencing EE and DP increased as social isolation increased. This indicates that support within the workplace needs to be complemented by efforts to promote social integration
outside of the workplace. It is important to note that Boland et al. did not include PA in their regression analysis in either study. In contrast to these findings, Boudreaux et al. (1997) measured 'seeking social support' as a potential way to cope with the job and found that it had a positive relationship with EE. This finding is unexpected, however the fact that they only measured tendency to seek support, and not whether support was actually received, may account for differences in findings.

Other types of coping styles were addressed by Boudreaux et al. (1997) and also Boland et al. (2019). Findings indicated that avoidant ways of coping were associated with higher DP and usually higher EE. Boudreaux et al. found self-blame, distancing or escaping, were associated with higher levels of DP. In addition, escaping styles were associated with higher levels of EE. In line with these findings, Boland et al. found that increased use of avoidant coping styles, namely substance or food use and self-blame, were associated with increased odds of EE and DP. EE and DP were included in the analysis together, so the different relationship coping style has with individual elements of burnout was not examined. Confrontative styles of coping, such as hostility, risk taking or wishful thinking, were also associated with higher levels of both EE and DP by Boudreaux et al.

Positive effects of certain coping styles have also been identified. Namely, religion as a way to cope, instrumental support and emotional support were associated with decreased odds of EE and DP (Boudreaux et al., 1997). Again, highlighting the protective nature of social support against burnout development. The cross-sectional nature of this study unfortunately limits inferences that can be made; social support networks decreasing and maladaptive coping strategies increasing as a result of burnout, may provide an alternative explanation for the findings.

Two studies looked at other elements of AWs' personality and the relationship this has with burnout levels. Alexander and Klein (2001) investigated 'hardiness'; those with a hardy personality view potentially disturbing events as
meaningful, as under their control and as a challenge (rather than a threat). They found that the commitment and control subscale had a negative association with DP and EE and a positive association with PA. The challenge subscale had a negative association with EE only and a negative association with PA. The study authors concluded that those with a ‘hardy’ personality are less likely to develop burnout. They acknowledged that this trait may be reflected in other domains such as coping styles, appraisal of events or exercise, diet and sleep. Gallagher and McGilloway (2009) measured dispositional optimism and found that it had a negative association with all burnout subscales. They did not comment on an interesting finding with PA, showing that as PA increased optimism decreased.

The amount of AW role experience was investigated by two studies. Findings indicate that as years of experience increase, PA levels decrease. Both Alexander and Klein (2001) and Weiss et al. (1996) found this negative association between PA and years of experience. Furthermore Weiss et al. found that the more highly qualified the AW was the lower the levels of PA. Alexander and Klein discussed the role of an increasing reluctance to open up to emotional difficulties with more experience and the potential decrease in support from managers. The importance of acknowledging the cumulative impact of stressors on burnout was also noted.

The relationship between burnout and mental and physical health was investigated by Gallagher and McGilloway (2009). These authors found that symptoms of post-traumatic stress were significantly associated with higher EE, DP and PA levels. The relationship with PA was unexpected and they explained this by suggesting that AW who are more committed to their job are more likely to experience acute stress reactions. This study also found that poorer physical health was associated with significantly higher levels of EE and DP; however, a small sample size and cross-sectional design were limitations of this study.

Perhaps relevant to other findings regarding the importance of social networks outside of the workplace, parenthood was found to have a negative relationship with burnout. Boland et al. (2018) found decreased odds of burnout (EE and DP) in those who were parents.
Lastly, Tunaligil et al. (2016) found that those who reported not making an informed career choice had significantly higher levels of EE and DP. They discuss the importance of appropriate career counselling prior to undertaking ambulance work in protecting future wellbeing of staff.

1.3.3.4 Individual Factors. Six studies included analyses that focused on person-specific aspects of AW and their relationship with burnout levels. Interestingly, these factors were often noted as having an influence in relationships between burnout and other demand and resource factors discussed above.

Age was the most commonly cited factor found to have a relationship with burnout. The relationship with PA was most pronounced, however, the direction of this relationship varied between studies. Boudreaux et al. (1997) found that as age increased, so did PA, while Deniz et al. (2016) found that PA levels were significantly lower in younger age groups. In contrast, Bria et al. (2013), using regression analysis, reported that as age increased, efficacy reduced, particularly in the presence of low cognitive demands and poor work-life balance. In addition, they found that cynicism levels significantly increased with age, particularly where high emotional demands were present. Cenk et al. (2019) also found significantly lower PA and also EE in older age groups. Lastly, Boland et al. (2018) found that the odds of experiencing burnout (as measured by EE and DP) decreased in those over the age of 50. Overall, the picture of the relationship between burnout and age is unclear and it is likely that it is affected by additional factors such as work demands and life outside of work.

Gender differences were examined in three studies. Deniz et al. (2016) found that PA levels were significantly lower in male AW, no relationship was found with the other subscales. Wongtongkam (2017) and Cenk (2019) found that EE levels were significantly higher in females. Wongtongkam proposed that this was due to female AW being more likely to internalise negative emotions. They further suggest that this may be exacerbated by an imbalance between male and female employees in Australia, leaving female staff feeling under-supported, an observation that warrants further investigation.
1.3.3.5 Outcomes of Burnout. Three studies included factors which they understood to be outcomes resulting from high levels of burnout in AW, identified through regression analyses. Sterud et al. (2008) measured suicidal ideation and its relationship with burnout; higher levels of EE were found to increase the odds of serious suicidal ideation. They discussed that workplace factors, implicated in burnout development, are important independent variables which likely interact with personal and family problems which may lead to serious suicidal thoughts.

Elsewhere, Baier et al. (2018) investigated the relationship between burnout and various safety outcomes. They demonstrated that high EE and DP increased the odds of provider injury and safety-compromising behaviour; high DP levels increased odds of errors and adverse events. The authors discussed that these relationships are, however, likely to be bidirectional and there is probably a complex relationship between burnout and all of the safety outcomes.

Finally, Bria et al. (2013) found that those with high EE and DP levels and those with low PA levels had significantly higher turnover intentions, further highlighting the systemic impact of burnout.

1.3.4 Critique of Literature

Although all of the studies included in the present review achieved a good quality rating, there are still important limitations of the studies to consider.

1.3.4.1 Use of MBI. A key limitation was the inconsistency in the way in which burnout was measured across studies; this finding echoed those of previous reviews within other health populations (Adriaenssens et al., 2015; Chuang et al., 2016). Unlike in the previous reviews, the current review opted to include only studies that utilised the MBI and its three-factor conceptualisation of burnout. However, variation was still evident in how the prevalence rates were reported, scores calculated, and which measure was used.
In their review, Doulougeri et al. (2016) found differences in the scores used by studies to indicate the presence of burnout in the healthcare literature. They suggested that this is partly due to the differing guidelines which exist with regard to the classification of burnout. This likely accounts for at least some of the current review’s findings.

Despite selecting studies which used the MBI in its entirety, the present review highlighted that, when it came to analysis, PA was still not always included by studies (Boland et al., 2018; Boland et al., 2019). In addition, these studies aggregated EE and DP scores in their regression analysis, which again may have concealed useful information regarding the nuances of the relationship factors have with the different burnout subscales.

Furthermore, despite studies citing the use of a certain version of the MBI, it was not always clear what measure was being used. For example, Streud et al. (2008) reported the use of the MBI-HSS but went on to say this was measured on a five-point scale, which is inconsistent with guidelines for use of the published measure.

Lastly, the majority of studies used the MBI-HSS, as is recommended for use within healthcare populations (Maslach & Jackson, 1997), however there was still evidence of the use of the MBI-GS, with little explanation as to why this was the case (Bria et al., 2013). Although the questions and subscales are comparable, having a more consistent approach to use of the measure across research studies would better facilitate comparison between studies.

Overall, these findings highlight the variability and inconsistency of the use of the MBI within the literature. Due to this, prevalence rates presented by this review are limited by the small number of studies included in the calculations. Addressing this issue in the design of future studies using the MBI will be important, in order to facilitate better comparison of study findings and more accurate estimates of prevalence rates.
1.3.4.2 Study Design. This review revealed that the majority of studies in this research area adopted a cross-sectional design using simple correlation analysis, with only two studies using longitudinal designs (van der Ploeg & Kleber, 2003; Boudreaux et al., 2018). This is a limitation of the existing research; longitudinal studies are needed to establish causality, to allow more confident conclusions regarding the factors that contribute to burnout, and to better understand the progression of burnout over time. This is important in light of existing theory, which proposes that burnout has a sequential progression, with EE preceding DP and diminished PA (Maslach & Jackson, 1981).

Whilst reviewing the included studies, an absence of data regarding the ethnicity of participants was noted. This is an important area for future studies to address, in order to sufficiently describe the demographics of ambulance workers included in research and determine whether samples are representative.

The current review also highlighted the lack of studies conducted within the UK. As the factors that contribute to AW burnout are likely to be affected by the kind of organisational system workers are functioning in (Doulougeri et al., 2016), it is important that future research also considers the unique context of AS in the UK.

1.4 Discussion

The present review aimed to summarise and critique quantitative research investigating factors associated with burnout in frontline AW. The review assimilated a range of findings to present a coherent picture of what the existing evidence currently tells us about burnout in AW. Fifteen papers were reviewed and included in a narrative synthesis; 20 risk factors were identified and organised into four key concepts: job demands, job resources, personal resources and individual factors. Five potential outcomes of burnout were also identified. Overall prevalence rate calculations suggested moderate burnout in
AW populations; however these were based on only six of the fifteen studies reviewed and hence these are tentative estimates.

The review highlighted the complex and multi-faceted nature of occupational burnout in AW. A range of factors associated with burnout were examined by the studies, with a number of factors encompassed within each key concept. There was relatively little overlap across the reviewed studies in the factors investigated and how these were measured. Despite these limitations, the key risk factors identified by the review did converge with findings elsewhere in the literature. In particular, the results are in line with the more recent versions of the JD-R and associated research findings, which recognises the importance of personal resources (Xanthopoulou et al., 2007). The JD-R constitutes an overarching model that may be applied to various occupational settings. The present review highlighted important demands and resources, within AWs’ role specifically, associated with burnout. A key job demand identified was critical incidents, including experiencing violence at work. Additional interpersonal job stressors faced included: emotional demands, false accusations, and poor communication; there was also some evidence to suggest that demands of this kind were more likely to have a relationship with DP. Several of the demands identified reflected the difficulty AW have in striking a work-life balance, while managing difficult working conditions such as travel and shift work. The cumulative impact of job demands was cited by a number of authors, offering support for the chronic nature of burnout development (Maslach & Leiter, 2016).

The review highlighted a wealth of evidence indicating the protective role support, from networks within and outside of the workplace, has in the face of burnout in AW. This is in line with research elsewhere in the literature which has found various forms of social support protect against burnout (e.g. Li et al., 2015). There was also preliminary evidence to indicate that this needs to be balanced with appropriate autonomy and sufficient cognitive demands at work, both potential areas for future research.

Individual differences and personality factors, such as coping styles and personality traits, were found to be important personal resources to consider.
This is in line with previous research, which argues that these factors may influence burnout through affecting the perceived and objective nature of an individual’s work (Alarcon et al., 2009), by changing the way a person responds to and copes with situational job demands. These kinds of individual factors will also affect how able someone is to utilise effective coping and support.

The importance of interaction effects between various factors when researching burnout development was highlighted by the few studies that conducted multiple regression analysis. For example, van der Ploeg and Kleber (2003) found that physical strains alongside poor communication predicted EE, and Baier et al. (2013) noted that the relationship between injuries and burnout was intensified by little support following these incidents. This is in line with theoretical knowledge of the area, which highlights the importance of a mismatch between certain dimensions of a person’s work and personal life, proposed by both the JD-R and Areas of Worklife models. These interaction effects have been highlighted elsewhere in the literature, for example Koeske and Koesk (1989) found that workload of professional helpers had no direct effect on burnout but a large effect when the moderating impact of support was considered. Further research directed at measuring these interactions in AW populations is indicated, in order to understand the most effective ways of mitigating the impact of burnout.

The present review also identified a number of factors associated with burnout which did not fit into existing models of burnout development. These were labelled ‘individual factors’ and included more enduring aspects of a person’s identity, namely age and gender. The nature of the relationship these factors have with burnout is unclear from the studies presented in the review. This is possibly due to the interaction these factors have with demands and resources, which in turn affects burnout development, as emphasised elsewhere in the literature. For example, in a cohort of mixed professionals, Norlund et al. (2010) studied the relationship between burnout and age, gender, and occupational factors. They identified significant interaction effects between gender, working hours, and type of work. In addition, almost half of the variance within gender
could be explained by work related and life situational factors. This highlights the importance of measuring and accounting for demographic variables when researching factors which are potentially associated with burnout development.

Finally, the present review found some evidence for potential outcomes of burnout in AW populations. However, there was no overlap in the outcomes identified in individual studies, indicating a need for further work in this area. The results highlighted the detrimental impact burnout can have on AWs’ general mental health and behaviour at work, aligning with research with nurses (Poghosyan et al., 2010). In addition, evidence points to the harmful impact burnout of staff can have on the safety of patients and systems more generally via higher turnover intentions, consistent with findings elsewhere with emergency healthcare workers (Crowe et al., 2018).

1.4.1 Limitations

There were some limitations to the approach taken in this synthesis, relating to the potential for bias. For example, the factors and concepts emerging from the textual descriptions may have been influenced by subjective bias. Previous theoretical understanding did guide this process however and narrative synthesis techniques were undertaken to try and ensure the method was applied in as transparent a way as possible.

The review focused solely on studies that used the MBI to measure burnout, in order to enhance comparability of study findings. The decision to focus on one conceptualisation of burnout and the related measure was taken due to its prominence in the literature and wealth of research supporting it. However, this may inadvertently contribute to a bias in the literature. It could be important for future reviews to look at studies using other measures of burnout and their contributions to the area.

Finally, differences in sample characteristics (such as: job title, role and training) were present across studies. This is inevitable when comparing studies from different countries, as services are set up differently in order to meet the
demands present (Al-Shaqsi, 2010). This should be taken into account when generalising findings from this review.

1.4.2 Clinical Implications

The current review highlights several important areas for intervention with AW populations, particularly when burnout levels are high. Given the multiple and varied sources of job demand highlighted, together with the cumulative impact these are likely to have in burnout presentations, it seems important to consider an individualised and person-centred approach to managing AW workload and support. With regard to job demands, monitoring and reducing, where possible, the exposure to critical incidents is also a key measure to take into account. Given that evidence suggests that individuals differ in the way they manage these incidents and the psychological impact of them, the role of individualised appraisal systems is also vital to consider.

In light of evidence regarding the protective nature of social support, interpersonal factors within the workplace are important to address. This is important at both a supervisory and colleague level. Ensuring that team cohesion and bonding is supported through peer supervision and team away days could be one potential way to approach this. Findings also indicated that more experience and training can be linked to higher levels of burnout, it is therefore crucial that these staff members continue to receive support throughout their career.

1.4.3 Future Directions

In order to more accurately determine prevalence rates of burnout in AW populations, ongoing research needs to employ a consistent approach to use of the MBI. Another pertinent difficulty identified in this review, was the wide range of factors examined in different studies and the range of associated measures utilised, with little convergence across studies. In order to identify the most salient risk factors for burnout in this population, there is a need for replication studies but also for studies to refine their focus in light of findings.
from the present review. In addition, there is considerable scope for certain factors to be researched more thoroughly, for example autonomy was only examined in one study (van der Ploeg & Kleber, 2003) despite a wealth of findings from research with other professional groups suggesting this is a key protective factor in burnout development (see Adriaenssens et al., 2015).

Finally, the present review highlighted that complex interactions likely exist between factors associated with burnout. There is a need to investigate these interactions, in particular between work demands and resources such as support and coping style, as well as demographic variables. Including measures of AW perception of demands and resources would also be interesting, given the findings regarding differences in burnout levels dependent on individuals' personality. Finally, the use of statistical methods and employment of longitudinal designs to more robustly examine casual mechanisms of the factors that contribute to burnout in AW is crucial. These kinds of designs would also enable exploration of the progression of burnout over time, which is important, given the findings of this review which emphasise its chronic nature.

1.5 Conclusion

This review highlighted key demands, resources and individual factors associated with burnout in AW. The complexity of the relationships that exist between these various risk factors is also evident. Overall prevalence rates of burnout could not be definitively established, given the disparity in how the MBI is used within the literature. Future work is needed to address methodological limitations in the area, namely using designs which are more able to address causality and interaction effects, in order to better understand burnout in AW.
1.6 References


Chapter Two

What is the Relationship Between Workplace Violence, Burnout and Coping Styles in Frontline Ambulance Workers?

Written in preparation for submission to the British Paramedic Journal (See Appendix A for author guidelines).

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2.0 Abstract

Objective: The frequency of encountering incidents of workplace violence has been linked to negative psychological consequences for healthcare workers, including experiences of emotional exhaustion, depersonalisation and reduced personal accomplishment, the three constituents of burnout. Coping strategies play an important role in the stress-burnout relationship, with previous research showing that problem-focused coping predicts lower levels of burnout, whereas emotion-focused and dysfunctional coping are associated with higher burnout. Experiences of workplace violence are relatively high amongst frontline ambulance workers; despite this, the contribution of workplace violence to staff burnout has been under-researched. Furthermore, the potential mediating role of coping has not been examined in ambulance workers. The present study set out to explore the relationship between workplace violence, coping strategies and burnout in frontline ambulance workers.

Method: Cross-sectional survey data was collected from 266 frontline ambulance staff, recruited from four National Health Service Ambulance Trusts within the United Kingdom.

Results: High levels of both burnout and violence were reported by this sample of ambulance workers. A significant association between experiences of workplace violence and burnout symptomology was demonstrated. Dysfunctional coping strategies were found to mediate this relationship and the use of such strategies, as a response to experiencing violence at work, was specifically associated with greater emotional exhaustion and depersonalisation. There was evidence for the protective impact of emotion-focused coping on the development of emotional exhaustion, but this did not extend to depersonalisation.

Conclusion: Frontline ambulance staff experience high levels of violence at work and unhelpful coping styles employed to manage such experiences may lead to increased symptoms of burnout. Levels of burnout are also high and it is important that, moving forward, this is addressed by services. Further work is warranted to better understand what strategies protect against burnout in this population.

Key Words: Burnout, workplace violence, coping style
2.1 Introduction

Work within the ambulance service (AS) is inherently stressful, necessitating frontline staff to regularly attend to highly distressed and unwell people in unpredictable environments. Experiencing violence directed towards them is one of the many stressors faced by ambulance staff during their daily work.

2.1.1 Workplace Violence

Workplace violence (WPV) experienced by healthcare workers is a significant problem worldwide (Di Martino, 2002). WPV is defined by the European Commission as “incidents where persons are abused, threatened or assaulted in circumstances related to their work, involving an explicit or implicit challenge to their safety, well-being or health” (Wynne et al., 1997, p. 1). According to this definition, WPV includes: verbal violence (verbal abuse directed at a person); threatening behaviour (statements indicating intention to harm or perceived as threatening due to apparent behaviour); and physical assault (aggressive physical contact, irrespective of whether an injury was sustained). WPV is a particularly pertinent issue for emergency healthcare workers, illustrated by the 2017 National Health Service (NHS) staff survey (NHS England, 2018), which showed that 66% of frontline ambulance workers (AW) experienced at least one verbal assault and 40% at least one physical assault in the previous year. This is compared to findings from the 2017/18 Crime Survey for England and Wales indicating that 1.5% of workers were generally the victim of at least one violent incident at work; 0.7% of these had been physically assaulted and 0.8% had suffered threats (Health and Safety Executive [HSE], 2019). A recent review investigating violence towards emergency medical service personnel worldwide found that WPV towards AW is most commonly perpetrated by either the patient or a relative of the patient (Maguire et al., 2018). The current study has therefore focused on WPV towards AW from those sources. The review also highlighted a wide variation in reporting behaviour among emergency staff, leading the authors to suggest that national figures are likely to be an underestimate. Underreporting may be due to AW
perceiving violent events as insignificant or part of the job (Grange & Corbett, 2002). Maguire and colleagues also found no recent (2000-2016) United Kingdom (UK) studies exploring violence perpetrated against AW, highlighting a need for more research in this area.

The experience of violence at work can have a number of significant consequences for the healthcare staff affected, the patients they provide care to and the wider service, as indicated in a recent review of the topic by Lanctot and Guay (2004). Their findings indicated that WPV is most commonly associated with psychological and emotional consequences for staff, including experiences of burnout (e.g. Winstanley & Whittington, 2002).

2.1.2 Burnout

The term burnout was originally used by Freudenberger and Richelson (1980) to describe the exhaustion a person experiences following prolonged ‘over-commitment’ to their work. Maslach and Jackson (1986) developed this concept using qualitative interviews with individuals who worked in ‘human-services’, proposing that ‘burnout syndrome’ has three components. They argued that the syndrome includes experiences of: being stressed and exhausted (emotional exhaustion: EE) and the consequences of this, which are a distancing from, and decreased capacity to respond to, the needs of the recipients of their services (depersonalisation: DP). These in turn negatively affect a person’s sense of accomplishment (personal accomplishment: PA). This conceptualisation of burnout is widely adopted in the literature, with the Maslach Burnout Inventory (MBI) being the most commonly used measure by researchers.

The MBI has three component subscales: EE, DP, and PA, with no aggregate score. The most recent version of the MBI does not specify cut off points for these components, as the authors argue it is not a diagnostic measure. Thus, researchers have used the MBI to indicate burnout in various ways, including using different cut off points and creation of an overall burnout score. The latter practice has been
criticised for a number of reasons, including loss of information through combining the dimensions, which have complex associations between them and with other variables (Brenninkmeijer, 2003). A recent review analysed the various cut off points used in studies with healthcare samples, including 41 studies (Doulougeri et al., 2016). They found that most studies defined ‘high EE’ as scores of 27 or over, ‘high DP’ as ten or over, and ‘low PA’ as 33 or under.

Burnout is a key concern in healthcare broadly (Montgomery et al., 2019) and the UK AS specifically (The Larrey Society, 2015). Prevalence of burnout has been found to be between 20 and 30% among UK AW (Alexander & Klein, 2001), however, this is likely to be out of date. A more recent study conducted in the United States of America (USA) found comparable prevalence rates for work-related burnout, of around 30% in paramedics (Crowe et al., 2018) and these findings are similar to figures for Romanian AW (Bria et al., 2013). Crowe and colleagues found that burnout was associated with an increase in likelihood of sickness absences as well as greater probability of intending to leave a job within emergency medical services. Research in the UK has not directly examined the consequences of burnout among AW; however, between July 2017 and July 2018 stress accounted for almost 21% of sickness days taken within the UK AS (NHS Digital, 2019). For employers, the cost of this is high; it has been estimated that sick leave costs the NHS £1.7 billion per year (Boorman Report, 2009).

Despite these findings, research into the consequences of experiencing burnout for AW is still limited in comparison to other healthcare professions. For example, research focusing on doctors and nurses has indicated that burnout is associated with negative effects on work performance (Taris, 2006) and a reduction in the quality of patient care (Welp et al., 2014). Overall, these results demonstrate the potential impact burnout has, not only on staff, but also on patients and health services more broadly.
2.1.3 Workplace Violence and Burnout

WPV has consistently been associated with poor psychological wellbeing in healthcare settings, with burnout symptomology being a common finding. For example, experiencing physical assault, verbal aggression or threatening behaviour was associated with significantly higher levels of EE and DP in general hospital staff (Winstansley & Whittington, 2002). The authors noted that the frequency of WPV experiences played an important role in the association with increased burnout seen in staff in their study.

So far, only a few studies have explored WPV and burnout in emergency healthcare staff. A study conducted with prehospital emergency care staff in Spain found that experiencing verbal violence was associated with significantly higher levels of EE and DP, while the experience of physical violence was associated with increased EE only (Bernaldo-De-Quiros et al., 2015). These authors also noted that the frequency of experiencing verbal violence was important in understanding their results: those who were recurrently victimised had the highest levels of EE and DP. Evidence from research with AW in Turkey lends some support to these results, finding that experiencing physical attack at work was associated with higher levels of EE (Deniz et al., 2016). However, this study found that reporting verbal harassment and threats was associated with lower PA levels only. It is worth noting that Deniz and colleagues did not assess frequency of aggressive experiences or how long ago these occurred, just whether they had been experienced or not during the participants’ work life.

While the above indicates that there has been some convergence of research findings in this area, certain aspects remain unclear and a need for further research remains, particularly with regard to AW populations experiencing threatening behaviour.
2.1.4 Coping Style

Coping style has been shown to play a fundamental role in the relationship between stress and the amount of distress one experiences in response to this (Coolidge et al., 2000). It has also been found to predict level of burnout in response to a stressor (González-Morales et al., 2012). It would therefore be worthwhile to investigate whether this extends to the relationship between WPV and burnout.

Lazarus and Folkman (1986) defined coping as “cognitive and behavioural effects to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). Types of coping style have been conceptualised differently, though they are often divided into the categories of problem-focused, emotion-focused, or avoidant-oriented (Folkman & Moskowitz, 2004). Problem-focused coping involves directly addressing the problem causing distress by practical means, whereas emotion-focused coping involves trying to manage the emotional consequences of stressful events through changing one’s appraisals. Avoidant-style coping is characterised by behavioural or cognitive strategies utilised to evade the distressing situation or emotional response to the situation (Cooper et al., 2006). Carver and colleagues (1989) used this conceptualisation to develop the COPE (Coping Orientations to Problems Experienced). The COPE includes scales which measure problem-focused coping (active coping, using instrumental support, and planning), emotion-focused coping (use of emotional support, positive reframing, humour, acceptance, and religion) and those which measure ‘dysfunctional coping’, which represents less helpful, avoidant-style strategies. Dysfunctional coping strategies include behavioural disengagement, denial, self-distraction, self-blame, substance use, and emotional venting (Carver, 1997).

In a meta-analytic review of the relationship between coping style and burnout, including studies focused on any professional group, it was found that problem-focused coping correlated negatively with all three burnout dimensions. In contrast, emotion-focused coping was broadly positively correlated with burnout.
subscales. However, the authors indicated that different strategies within emotion-focused coping yielded different results. They also found that vocation played a moderating role in this relationship, with healthcare workers showing particularly large effects (Shin et al., 2014). Dysfunctional coping has been found to predict greater EE and DP in healthcare workers, for example in nurses (Bamonti et al., 2017) and doctors (McCain et al., 2017).

Research specifically focused on the link between coping style and burnout in AW is limited. However, a recent study of emergency medical service staff indicated that frequent use of more dysfunctional strategies, such as self-blame, food and substances, to cope was associated with increased burnout (Boland et al., 2019). In contrast, the use of instrumental support strategies was associated with reduced burnout, in line with findings with other populations. There was also evidence to suggest a positive influence of some emotion-focused strategies, namely the use of emotional support and religion.

The evidence from across different professional groups seems to clearly indicate a protective role for problem-focused coping in the stress-burnout relationship and conversely a negative role for dysfunctional coping. The literature is more uncertain when it comes to the role played by emotion-focused coping strategies. Given the paucity of studies focused on AW, there is a need to further investigate the relationship between these variables in this population, particularly in light of evidence indicating that the findings vary across different professional groups.

2.1.5 Rationale

Incidents of WPV have been reported as high in AW in the UK (NHS England, 2018) as have levels of burnout (Alexander & Klein, 2001). Despite this, research to explore whether WPV and burnout are associated in AW working in the UK has yet to be conducted. Research addressing this in other countries is also limited and has not always recorded the frequency of aggressive incidents encountered, which appears to be important in understanding the relationship between WPV and
burnout. Related to this, whilst coping style has been shown to play an important role in predicting individual levels of burnout (González-Morales et al., 2012), few studies have explored whether coping style plays a role in the relationship between stress and burnout in AW. However, given the evidence from research with other groups, it seems reasonable to assume that coping style may play an important role in the relationship between violence and burnout experiences. Gaining a clearer understanding of the relationship between these variables might also contribute to the future development of appropriately targeted interventions, both to reduce risk of burnout among AW in general and also to support those who show symptoms of burnout.

2.1.6 Aims and Hypotheses

In line with the above, the present study sets out to address the following research question: What is the relationship between workplace violence, burnout and coping styles in ambulance workers?

Drawing upon previous research findings already discussed here, the following seven hypotheses were investigated:

**Violence and Burnout**

1) Exposure to violence will be positively and significantly associated with emotional exhaustion and depersonalisation, and have a significant negative association with personal accomplishment.

2) Exposure to verbal violence will be positively and significantly associated with emotional exhaustion, depersonalisation, and have a significant negative association with personal accomplishment.

3) Exposure to physical violence will be positively and significantly associated with emotional exhaustion and depersonalisation.
**Violence and Coping Style**

4) Exposure to violence will be associated with poorer coping (i.e. positively and significantly associated with dysfunctional coping; negatively and significantly associated with problem-focused coping).

**Coping Style and Burnout**

5) Dysfunctional coping will be positively and significantly associated with emotional exhaustion and depersonalisation, and negatively and significantly associated with personal accomplishment.

6) Problem-focused coping will be negatively and significantly associated with emotional exhaustion and depersonalisation, and positively and significantly associated with personal accomplishment.

**Violence, Burnout and Coping Style**

7) Coping style will mediate the relationship between exposure to violence and each of the three components of burnout (emotional exhaustion, depersonalisation, and personal accomplishment).

Hypotheses were not developed regarding the relationship between experiences of threatening behaviour and burnout symptomology, as there was insufficient evidence in the literature to support this. Similarly, hypotheses were not developed with regards to the specific relationships between emotion-focused coping and violence or burnout, as evidence about these relationships was equivocal.

**2.2 Methodology**

**2.2.1 Design**

A cross-sectional survey design was employed, to explore the relationship between WPV, burnout and coping styles in frontline AW.
2.2.2 Participants

2.2.2.1 Power Calculation. In order to determine a sufficient sample size for the mediation analysis, power analysis was conducted in G*Power (Faul et al., 2013) with an alpha of 0.05, a power of 0.95, a medium effect size ($f^2 = 0.15$), and a total of three predictors. The indicated sample size required to meet the power assumptions was 119. In total, 266 AW participants were recruited to the study, suggesting that it was sufficiently powered to detect relationships between study variables.

2.2.2.2 Participant Description. Participants were recruited using non-probability purposive sampling to maximise the chances of gaining a sufficient number of responses from frontline AW. Participants were recruited from four NHS Ambulance Trusts: South Central Ambulance Service (SCAS), East of England Ambulance Service (EEAS), East Midlands Ambulance Service (EMAS) and South Western Ambulance Service (SWAS).

To be eligible for the study, AW had to be 18 years of age or over, be working in a frontline role and have been in post for six months or more (see Table 2.1). Frontline staff were included and non-frontline excluded due to differences in levels of patient contact experienced by each group. A minimum of six months in post was required due to violence experienced in the past six months being asked about in the study. This time period was specified rather than a 12-month period, used in other cross-sectional studies looking at violence in healthcare settings (e.g. Boyle et al., 2007; Winstanley & Whittington, 2002), with the aim of reducing the risk of recall biases over the time period (Gabbe et al., 2003).
Table 2.1

Inclusion and Exclusion Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profession</td>
<td>Frontline Ambulance Workers&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Non-Frontline Staff and Patient Transport Service staff</td>
</tr>
<tr>
<td>Experience</td>
<td>&gt;6 months in post</td>
<td>&lt;6 months in post</td>
</tr>
</tbody>
</table>

<sup>a</sup> Frontline staff included: paramedics, emergency medical technicians, associate ambulance practitioners, emergency care assistants, operational officers/managers, community first responders, clinical support managers, HART paramedics, senior RRV paramedic, paramedic team leaders, clinical mentors/supervisors.

2.2.3 Materials

2.2.3.1 Demographic Information. Survey questions asked about participants’ age, gender, ethnicity, job title, usual number of weekly working hours and length of service (see Appendix D).

2.2.3.2 Workplace Violence. A bespoke measure was designed to assess the three types of violence perpetrated against AW (see Appendix E). The measure asked respondents to consider the past six months for items addressing physical violence, and the past three months for threatening behaviour and verbal violence. The difference in timescales was selected in order to enhance accuracy of AW recall of WPV, whilst recognising the relative infrequency of physical versus verbal violence. This measure was based on the European Commission’s definition of WPV and was also informed by studies using a similar design (e.g. Winstanley & Whittington, 2002; van der Velden, 2015). Responses were captured using a Likert-type scale defining frequencies of violence encountered, informed by statistics from the 2017 NHS staff survey.

2.2.3.3 Burnout. Experiences of burnout were measured using the Maslach Burnout Inventory-Human Service Survey (MBI-HSS; Maslach & Jackson, 1981), see Appendix F. The MBI-HSS consists of 22 questions with a seven-point scale,
measuring responses between zero and six points. The inventory is divided into three subscales: emotional exhaustion (EE), depersonalisation (DP) and personal accomplishment (PA). The EE subscale contains nine items. Examples of the EE subscale are “I feel used up at the end of the workday” or “Working with people all day is a strain.” The DP subscale consists of five items. Examples of the DP subscale are “I have become more callous towards people” and “I believe that I treat some recipients as impersonal objects”. The PA subscale contains eight items. “I feel very energetic” and “I feel that I am positively influencing other people’s lives” are PA example items.

Higher scores for EE and DP subscales and lower scores on the PA subscale correspond to a greater degree of burnout (Maslach et al., 1997). In line with Doulougeri et al’s (2016) findings, the cut off points of 27 or over for EE, ten or over for DP, and 33 or under for PA, were used in the current study. Burnout subscales were also treated as continuous variables and analysed separately, also in line with Doulougeri et al.

When originally evaluated, the MBI-HSS was found to have good internal reliability, with Cronbach’s alpha coefficients being .90 for EE, .79 for DP and .71 for PA, while reliability was .82 for EE, .60 for DP and .80 for PA. It also demonstrated good convergent and discriminant validity (Maslach & Jackson, 1981). The MBI-HSS, in its three-factor structure, has since been used in research with diverse samples of healthcare and emergency workers, including police officers (Briones & Boutin, 2013), firefighters (Lourel et al., 2008) and ambulance personnel (Sterud et al., 2011).

2.2.3.4 Coping Strategies. Coping was measured using the Brief COPE inventory developed by Carver (1997), see Appendix G. The Brief COPE assesses the frequency of use of 14 coping strategies using two questions per strategy, totalling 28 items. These can be broken down into three subscales: problem-focused, emotion-focused, and dysfunctional coping, based on the conceptualisation by Meyer (2001). Using a four-point Likert-type scale,
participants were asked to indicate the frequency with which they use each strategy in stressful work situations.

Cooper et al. (2008) calculated validity and reliability for the Brief COPE using these three subscales and demonstrated Cronbach’s alphas of: .72 for the emotion-focused subscale, .84 for the problem-focused subscale, and .75 for the dysfunctional subscale. Good convergent and concurrent validity of the subscales were also demonstrated. Since then, this conceptualisation of the measure has been used in emergency department staff (Yates et al., 2011) and in mental health counsellors (Thompson et al., 2014). The latter demonstrated Cronbach’s alpha coefficients of .75 for the emotion-focused coping subscale, .83 for the problem-focused coping subscale, and .75 for the dysfunctional coping subscale.

2.2.4 Procedure

2.2.4.1 Ethics. Ethical approval was granted by Coventry University Ethics Committee (Appendix H) and the Health Research Authority (Appendix I). Following these approvals, study documents were sent to each of the four NHS Trusts for capability and capacity assessment, as part of the NHS Trusts’ Research and Development approval process.


2.2.4.2 Recruitment. Recruitment took place between May 2019 and November 2019. Frontline AW were recruited from SCAS, EEAS, EMAS and SWAS NHS Trusts.

Recruitment was largely facilitated by Trusts’ Research and Development departments, who shared the study link and advertisement either via email
directly or via internal Trust newsletters (Appendix J). In addition, the link was also made available on some Trusts’ social media pages. Four months into the recruitment period a follow-up prompt email was sent to all Trusts, who re-shared the link.

2.2.4.3 Administration of Measures. The study questionnaire was hosted by Online Surveys. Participants were first shown an information sheet, which included information that the study was entirely voluntary, that they could withdraw at any time and how to do this. It also indicated that demographic information and responses would be kept confidential and provided researcher contact details. Participants were then asked a series of forced choice eligibility questions, including whether they consented to take part in the study (Appendix K). If participants decided to proceed, they were asked to complete the study at a time when they would not be disturbed.

Given the findings from previous research, it was expected that some of the AW who completed the questionnaire would have been experiencing symptoms of burnout. In addition, the questions posed had the potential to evoke distressing memories of violent incidents. Therefore, on completion of the questionnaires, participants were shown a debrief sheet (Appendix L), detailing both internal NHS support resources and external support services which may be appropriate for individuals experiencing burnout and/ or struggling following violent incident(s).

The exact number of AW who accessed information about the study is hard to ascertain and the response rate of newsletter reading could not be calculated. However, in total all four Trusts employ around 9,700 frontline staff (information gathered from individual Trust’s Annual Reports 2018 – 2019). If all of these came across the study link, it would represent a response rate of 3%, though this is likely to be an underestimate.
2.2.5 Analysis

Data was analysed using IBM SPSS version 25. Pearson’s correlation was used to assess the relationships between variables, given that necessary assumptions for parametric analyses were satisfactorily met. Sequential mediation analysis was conducted using SPSS macro PROCESS (model 4).

2.3 Results

The study aimed to answer the question: What is the relationship between workplace violence, burnout and coping styles in AW? In line with this, the main results are presented here in relation to each of the seven apriori hypotheses; five of these were partially supported, one was fully supported, and one was not supported (see Table 2.10 below for an overview). Descriptive data will be summarised, and data addressing each hypothesis will be presented.

2.3.1 Descriptive Statistics

2.3.1.1 Demographic Information. In total, 266 AW participated. The majority of participants were male \((n=154)\) making up 57.9% of the sample; 40.2% of the sample was female \((n=107)\); 1.1% \((n=3)\) of the sample described their gender as ‘other’ and did not specify what that was; and 0.8% \((n=2)\) of the sample did not want to specify their gender. The majority of participants fell into the 40-49 age group \((n=81, 30.4\%)\); 22.2% of the sample were aged between 30-39 \((n=59)\), 21.8% were between 20-29 \((n=58)\), 21.4% were between 50-59 \((n=57)\), 3.8% were between 60 and 69 years old \((n=10)\), and 0.4% did not specify their age \((n=1)\). The majority of participants were White British \((93.2\%)\). Ethnicity of participants is reported in Table 2.2.
Table 2.2

*Total Number and Percentage of Participants According to Ethnicity*

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English/Welsh/Scottish/Northern Irish/ British</td>
<td>248</td>
<td>93.2</td>
</tr>
<tr>
<td>Irish</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Gypsy or Irish Traveller</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Any other White background</td>
<td>8</td>
<td>3.2</td>
</tr>
<tr>
<td>Mixed/Multiple ethnic groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White and Black Caribbean</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>White and Asian</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Other ethnic group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arab</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Would rather not say</td>
<td>33</td>
<td>11.2</td>
</tr>
</tbody>
</table>

*Other White backgrounds reported: Polish, New Zealander, Australian, European*

The reported mean number of hours worked per week by participants was $38.3(SD=7.40)$. Most of the participants were paramedics (63.2%) and the majority indicated that they had worked for the AS for more than five but less than ten years (26.0%). Further details of participant job roles and length of service can be found in Table 2.3.
Table 2.3

Total Number and Percentage of Participants According to Job role and Length of Service

<table>
<thead>
<tr>
<th>Demographic variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job title</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paramedic</td>
<td>168</td>
<td>63.2</td>
</tr>
<tr>
<td>Emergency Medical Technician</td>
<td>34</td>
<td>12.8</td>
</tr>
<tr>
<td>Associate Ambulance Practitioner</td>
<td>7</td>
<td>2.6</td>
</tr>
<tr>
<td>Emergency Care Assistant</td>
<td>23</td>
<td>8.6</td>
</tr>
<tr>
<td>Specialist Paramedic</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Other a</td>
<td>18</td>
<td>6.8</td>
</tr>
<tr>
<td><strong>Length of service</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 2 years</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Between 2 and 5 years</td>
<td>56</td>
<td>21.1</td>
</tr>
<tr>
<td>More than 5 but less than 10 years</td>
<td>69</td>
<td>26</td>
</tr>
<tr>
<td>More than 10 but less than 15 years</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>More than 15 but less than 20 years</td>
<td>36</td>
<td>13.5</td>
</tr>
<tr>
<td>More than 20 years</td>
<td>41</td>
<td>15.4</td>
</tr>
</tbody>
</table>

a Clinical operations manager, urgent care assistant, community first responder, clinical support manager, locality operational manager, HART paramedic, senior RRV paramedic, team leader, clinical mentor/supervisor, operations officer

2.3.1.2 Violence Rates. Overall violence was calculated by summing individual physical assault, verbal violence and threatening behaviour scores. Rates of physical violence experienced by the sample of frontline AW are shown in Table 2.4.
Table 2.4

*Physical Assault Reported in Past Six Months*

<table>
<thead>
<tr>
<th>Physical Assault Rate</th>
<th>Frequency</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>141</td>
<td>53.0</td>
</tr>
<tr>
<td>1-2 times</td>
<td>89</td>
<td>33.5</td>
</tr>
<tr>
<td>3-4 times</td>
<td>24</td>
<td>9.0</td>
</tr>
<tr>
<td>5-6 times</td>
<td>8</td>
<td>3.0</td>
</tr>
<tr>
<td>7-8 times</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>More than 8 times</td>
<td>1</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Rates of threatening behaviour and verbal violence experienced are displayed in Table 2.5.

Table 2.5

*Threatening Behaviour and Verbal Aggression Reported in Past Three Months*

<table>
<thead>
<tr>
<th>Violence Rates</th>
<th>Frequency</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threatening Behaviour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>67</td>
<td>25.2</td>
</tr>
<tr>
<td>1-2 times</td>
<td>117</td>
<td>44.0</td>
</tr>
<tr>
<td>3-4 times</td>
<td>50</td>
<td>18.8</td>
</tr>
<tr>
<td>5-6 times</td>
<td>11</td>
<td>4.1</td>
</tr>
<tr>
<td>7-8 times</td>
<td>11</td>
<td>4.1</td>
</tr>
<tr>
<td>More than 8 times</td>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>Verbal Violence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>36</td>
<td>13.5</td>
</tr>
<tr>
<td>1-2 times</td>
<td>85</td>
<td>32.0</td>
</tr>
<tr>
<td>3-4 times</td>
<td>73</td>
<td>27.4</td>
</tr>
<tr>
<td>5-6 times</td>
<td>30</td>
<td>11.3</td>
</tr>
<tr>
<td>7-8 times</td>
<td>11</td>
<td>4.1</td>
</tr>
<tr>
<td>More than 8 times</td>
<td>31</td>
<td>11.7</td>
</tr>
</tbody>
</table>
### 2.3.1.3 Burnout Rates

The average total burnout subscale scores indicated that the sample was experiencing high levels of burnout; scores are displayed in Table 2.6.

#### Table 2.6

*Average Total Burnout Subscale Scores in the Current Sample and Reference Cut off Scores and Percentage of Respondents within High Burnout Range*

<table>
<thead>
<tr>
<th>Burnout Subscale</th>
<th>Cut-off points</th>
<th>Current Study</th>
<th>High Burnout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Exhaustion (EE)</td>
<td>27</td>
<td>27.9 (13.30)</td>
<td>50.4%</td>
</tr>
<tr>
<td>Depersonalisation (DP)</td>
<td>10</td>
<td>11.7 (7.09)</td>
<td>58.3%</td>
</tr>
<tr>
<td>Personal Accomplishment (PA)</td>
<td>33</td>
<td>32.8 (8.28)</td>
<td>51.9%</td>
</tr>
</tbody>
</table>

*Note.* Reference cut off scores taken from Doulougeri et al. (2016) for high EE, high DP and low PA.

### 2.3.2 Hypotheses 1-6: Pearson Correlations

#### 2.3.2.1 Relationship Between Violence and Burnout

Table 2.7, below, summarises correlations between study variables. Overall violence was correlated with both EE ($r=.12, p<.05$) and DP ($r=.20, p<.01$), these correlations were small but significant. However, the negative correlation with PA did not reach significance. This demonstrates an association between being exposed to violence at work and experiencing symptoms of EE and DP in frontline AW. Thus, hypothesis 1 was partially supported.

Exposure to verbal violence had a small, significant and positive correlation with DP ($r=.14, p<.05$) and EE ($r=.11, p<.05$), but did not have a significant negative correlation with PA. This indicates that exposure to verbal violence is related to experiences of DP and EE, but not to PA; therefore hypothesis 2 was partially supported.
Exposure to physical violence had a small, significant and positive correlation with DP ($r=.12, p<.05$) but not with EE. This indicates that exposure to physical violence is related to experiencing DP but not EE, thus hypothesis 3 was partially supported.

Though not stated as apriori hypotheses, results indicated a small, positive and significant relationship between experiences of threatening behaviour and EE ($r=.14, p<.05$) and DP ($r=.23, p<.01$), while a negative association with PA did not reach statistical significance.
### Table 2.7

**Pearson Correlations Between Study Variables**

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emotional-Exhaustion (EE)</td>
<td>-</td>
<td>.61**a</td>
<td>-.41**a</td>
<td>.02</td>
<td>.14*</td>
<td>.11*a</td>
<td>.12*</td>
<td>.19**</td>
<td>.06a</td>
<td>.55**</td>
</tr>
<tr>
<td>2. Depersonalisation (DP)</td>
<td>.61**a</td>
<td>-</td>
<td>-.36**a</td>
<td>.12*</td>
<td>.23**a</td>
<td>.14*</td>
<td>.20**</td>
<td>.093</td>
<td>.15**a</td>
<td>.51**</td>
</tr>
<tr>
<td>3. Personal Accomplishment (PA)</td>
<td>-.41**a</td>
<td>-.36**a</td>
<td>-</td>
<td>-.08a</td>
<td>-.04a</td>
<td>-.03</td>
<td>-.05</td>
<td>.04</td>
<td>.18**a</td>
<td>-.38**</td>
</tr>
<tr>
<td>4. Physical Assault</td>
<td>.02</td>
<td>.12*</td>
<td>-.08a</td>
<td>-</td>
<td>.47**a</td>
<td>.37**a</td>
<td>.66**a</td>
<td>.11</td>
<td>.06a</td>
<td>.21**a</td>
</tr>
<tr>
<td>5. Threatening Behaviour</td>
<td>.14*</td>
<td>.23**a</td>
<td>-.04a</td>
<td>.47**a</td>
<td>-</td>
<td>.75**a</td>
<td>.91**a</td>
<td>.03a</td>
<td>.13*</td>
<td>.26**a</td>
</tr>
<tr>
<td>6. Verbal Violence</td>
<td>.11*</td>
<td>.14*</td>
<td>-.03</td>
<td>.37**a</td>
<td>.75**a</td>
<td>-</td>
<td>.90**a</td>
<td>-.00a</td>
<td>.10a</td>
<td>.12a</td>
</tr>
<tr>
<td>7. Overall Violence</td>
<td>.12*</td>
<td>.12**</td>
<td>-.05</td>
<td>.66**a</td>
<td>.91**a</td>
<td>.90**a</td>
<td>-</td>
<td>.04</td>
<td>.12*</td>
<td>.22**</td>
</tr>
<tr>
<td>8. Problem-focused Coping</td>
<td>.19**</td>
<td>.09</td>
<td>.04</td>
<td>.11</td>
<td>.03a</td>
<td>-.00a</td>
<td>.04</td>
<td>-</td>
<td>.59**a</td>
<td>.31**a</td>
</tr>
<tr>
<td>9. Emotion-focused Coping</td>
<td>.06a</td>
<td>.15**a</td>
<td>.18**a</td>
<td>.06a</td>
<td>.13*</td>
<td>.10a</td>
<td>.12*</td>
<td>.59**a</td>
<td>-</td>
<td>.34**a</td>
</tr>
<tr>
<td>10. Dysfunctional Coping</td>
<td>.55**</td>
<td>.51**</td>
<td>-.38**</td>
<td>.21**a</td>
<td>.26**a</td>
<td>.12a</td>
<td>.22**</td>
<td>.31**a</td>
<td>.34**a</td>
<td>-</td>
</tr>
</tbody>
</table>

*a* Two-tailed tests. Correlations with apriori hypotheses were run one-tailed; those without hypotheses were run two-tailed.

*p<.05  **p<.01
2.3.2.2 Relationship Between Violence and Coping Style. Exposure to violence had a small, significant and positive correlation with dysfunctional coping ($r=.22$, $p<.01$) but was not correlated with problem-focused coping. This indicates that increased exposure to violence is associated with the use of dysfunctional coping styles but not the decreased use of problem-focused coping; therefore hypothesis 4 was partially supported.

Though not stated as an apriori hypothesis, increased exposure to violence was found to be associated with the use of emotion-focused coping ($r=.12$, $p<.05$).

2.3.2.3 Relationship Between Burnout and Coping Style. Dysfunctional coping had a large, significant and positive correlation with both EE ($r=.55$, $p<.01$) and DP ($r=.50$, $p<.01$). Dysfunctional coping style also had a moderate, significant and negative correlation with PA ($r=-.38$, $p<.01$). This indicates that high levels of burnout symptomology are associated with increased use of dysfunctional coping strategies, supporting hypothesis 5.

Problem-focused coping did not have a significant negative association with EE or DP, nor did it have a significant positive association with PA, as expected. In fact, problem-focused coping had a small, significant and positive correlation with EE ($r=.19$, $p<.01$). This indicates that the use of problem-focused coping strategies is associated with higher levels of EE. Therefore, hypothesis 6 was not supported.

Though not stated as an apriori hypothesis, emotion-focused coping had a small, significant and positive correlation with DP ($r=.15$, $p<.01$), indicating that this style of coping is associated with higher levels of DP. Emotion-focused coping also had a small, significant and positive relationship with PA ($r=.18$, $p<.01$), indicating that the use of emotion focused coping strategies was associated with higher levels of PA.
2.3.3 Hypothesis 7: Mediation Analyses

In order to establish whether coping style mediates the relationship between exposure to violence and burnout, mediation analysis was conducted using PROCESS (Preacher & Hayes, 2004). The method uses a bootstrapping procedure to obtain estimates and confidence intervals around the indirect effects. Significant relationships in the models are indicated by bootstrapped confidence intervals that do not overlap with zero.

Two mediation analyses were conducted. The first analysis (a) used EE as the dependent variable and the second used DP (b), see Figures 2.1 and 2.2 for an illustration of the paths in the mediation analyses. As no significant relationship was found between violence and PA or violence and problem-focused coping, mediation analyses were not run including these variables (Baron & Kenny, 1986). Prior to conducting mediation analysis, the data were screened to determine whether they satisfied the necessary assumptions for multiple regression. Cook's D indicated that there was one multivariate outlier which was then removed from the analysis. All other assumptions were met

a) Mediation analysis: Coping style as a mediator of the relationship between violence and EE.

The total effect of violence on EE was significant ($b=.57, t=2.12, p<.05$). Table 2.8 shows the direct and indirect effects of reported violence on EE scores with the mediators (emotion-focused coping and dysfunctional coping) taken into account. When the mediators were excluded from the model, the relationship between WPV and EE was no longer significant ($b=-.11, t=.48, p>.05$). Examining the 95% confidence intervals confirms that violence had a significant indirect effect on EE through both emotion-focused coping ($b=-.15, 95\% \text{ BootCI }[-.34, -.01]$) and dysfunctional coping ($b=.58, 95\% \text{ BootCI }[.24, .93]$). The use of emotion-focused coping when exposed to violence was associated with lower EE. On the other hand, the use of dysfunctional coping when exposed to violence was associated with higher levels of EE.
Figure 2.1

*Path Diagram Illustrating the Paths Linking Violence and EE*

![Path Diagram](image-url)
### Table 2.8

The Direct and Indirect Effects of Violence on Emotional Exhaustion (EE)

<table>
<thead>
<tr>
<th></th>
<th>Direct Effect: Violence on EE</th>
<th>Indirect Effect: Violence on EE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$SE$</td>
</tr>
<tr>
<td>Emotion-focused coping</td>
<td>-.65**</td>
<td>.16</td>
</tr>
<tr>
<td>Dysfunctional coping</td>
<td>1.25**</td>
<td>.11</td>
</tr>
</tbody>
</table>

* $p<.05$  ** $p<.01$  *** Statistical software did not distinguish $p$-values for indirect effects
b) Mediation analysis: Coping style as a mediator of the relationship between violence and DP.

The total effect of violence on DP was significant ($b=.48, t=3.42, p=.001$). Table 2.9 shows the direct and indirect effects of violence on DP with the mediator variables: emotion-focused coping and dysfunctional coping taken into account. When the mediators were excluded from the model, the relationship between violence and DP was no longer significant ($b=.23, t=1.80, p>.05$). Examining the 95% confidence intervals indicates violence had a significant indirect effect on DP through dysfunctional coping ($b=.27, 95\% \text{ BootCI} [.10, .44]$). The use of dysfunctional coping when exposed to violence led to increased levels of DP. Emotion-focused coping did not mediate the relationship between violence and DP.

Figure 2.2

Path Diagram Illustrating the Paths Linking Violence and DP
<table>
<thead>
<tr>
<th></th>
<th>Direct Effect: Violence on DP</th>
<th>Indirect Effect: Violence on DP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$SE$</td>
</tr>
<tr>
<td>Emotion-focused coping</td>
<td>-.03</td>
<td>.09</td>
</tr>
<tr>
<td>Dysfunctional coping</td>
<td>.57**</td>
<td>.06</td>
</tr>
</tbody>
</table>

* $p<.05$  ** $p<.001$  *** Statistical software did not distinguish $p$-values for indirect effects
### Table 2.10

**Summary of Hypotheses Testing Outcomes**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Exposure to violence will be positively and significantly associated with emotional exhaustion and depersonalisation and will have a significant negative association with personal accomplishment.</td>
<td>Partial</td>
</tr>
<tr>
<td>2) Exposure to verbal violence will be positively and significantly associated with emotional exhaustion and depersonalisation and will have a significant negative association with personal accomplishment.</td>
<td>Partial</td>
</tr>
<tr>
<td>3) Exposure to physical violence will be positively and significantly associated with emotional exhaustion and depersonalisation.</td>
<td>Partial</td>
</tr>
<tr>
<td>4) Exposure to violence will be associated with poorer coping (i.e. positively and significantly associated with dysfunctional coping; negatively and significantly associated with problem-focused coping).</td>
<td>Partial</td>
</tr>
<tr>
<td>5) Dysfunctional coping will be positively and significantly associated with emotional exhaustion and depersonalisation and negatively and significantly associated with personal accomplishment.</td>
<td>Yes</td>
</tr>
<tr>
<td>6) Problem-focused coping will be negatively and significantly associated with emotional exhaustion and depersonalisation and positively and significantly associated with personal accomplishment.</td>
<td>No</td>
</tr>
<tr>
<td>7) Coping style will mediate the relationship between exposure to violence and each of the three components of burnout (emotional exhaustion, depersonalisation, and personal accomplishment).</td>
<td>Partial</td>
</tr>
</tbody>
</table>
2.4 Discussion

The aim of the present study was to explore the relationship between experiences of WPV, coping style and burnout in frontline AW. Initial descriptive analyses of the results indicated that both the rate of WPV, in all its forms, and levels of burnout were high in this sample.

As predicted by hypothesis 1, experiencing WPV was associated with burnout symptomology. Those who experienced a higher frequency of violence at work had higher levels of EE and DP; effect sizes were small however. The results indicated that different forms of violence were differentially related to each component of burnout, though not quite as predicted in hypotheses 2 and 3. Overall, experiencing verbal violence and threatening behaviour seemed to be most closely associated with experiences of burnout, showing correlations with both EE and DP. Violence was not significantly associated with reduced PA.

Greater exposure to WPV was associated with increased use of poorer coping strategies as predicted in hypothesis 4, demonstrated by the positive correlation with dysfunctional coping. Results also showed that exposure to WPV was linked with greater use of emotion-focused and not problem-focused coping. These effects, although significant, were small. Dysfunctional coping was strongly associated with higher levels of burnout symptomology, as predicted in hypothesis 6. However, problem-focused styles were not associated with lower levels of burnout, as predicted, nor were emotion-focused coping styles, with the exception of an association between emotion-focused coping and increased PA. In fact, problem-focused coping was associated with higher levels of EE and emotion-focused coping with higher levels of DP.

The final hypothesis sought to understand the mediating role of coping style in the relationship between WPV and burnout. Both of the mediation analyses conducted indicated that coping style is important to understand burnout in AW who have experienced WPV, with the results suggesting that coping style may at least partially account for the development (or not) of burnout in this context.
Dysfunctional coping style was a mediator of both the relationship between WPV and EE and WPV and DP, indicating that those who use dysfunctional strategies to cope in the context of experiencing workplace violence, appear to be at greater risk of burnout. On the other hand, results indicated that the use of emotion-focused strategies appeared to be protective in the relationship between WPV and EE; individuals experiencing higher levels of WPV who favour emotion-focused strategies were less likely to experience EE in this sample. However, this did not extend to experiences of DP. Problem-focused strategies were not found to have a relationship with WPV in this study, therefore suggesting that these strategies are not implicated in the relationship between violence and the development of burnout symptoms.

The level of violence towards UK AW, suggested by these results, is considerably higher than has been previously estimated. Forty-seven percent of the sample reported experiencing one or more incidents of physical violence in the past six months, compared with 40% in 12 months in the staff survey (NHS England, 2018) and 0.7% in the general population (HSE, 2019). Verbal violence was also higher than reported in the NHS staff survey, with 86.5% of the sample reporting at least one incident of verbal violence in the past three months compared with 66% in 12 months (NHS England, 2018). Furthermore, over 50% of participants reported more than three incidents of verbal violence in the past three months. This disparity in rates may be due to underreporting, which has been suggested to be common in this population (Maguire et al., 2018); this warrants further investigation. Compared to other recent studies assessing violence in AW elsewhere, rates are also higher in this sample. Bigham et al. (2014) indicated that 26% of emergency medical service staff had experienced physical assault, 67% verbal assault and 41% intimidation in the past 12 months in a Canadian sample. Overall, this may suggest that the rate of violence towards AW in the UK is particularly high, though it is difficult to generalise on the basis of this one sample. Nonetheless it is important to note the considerable levels of WPV these AW are experiencing during their day to day work, as this has been found to have important psychological, physical, social and organisational effects (Lanctot & Guay, 2014).
Levels of burnout were also high in the present study and likely reflect the demanding role AW have. Violence is only one stressor faced by AW. Additional occupational stressors such as: working shifts, long hours, fatigue, alongside exposure to death and severe trauma contribute to the overall complex picture of why AW experience burnout symptomology (van der Ploeg & Kleber, 2003). It is important to recognise these levels, given the significant consequences of burnout both for the workforce (Crowe et al., 2018) and for patients receiving their care (Welp et al., 2014). Compared to a previous study measuring burnout in UK AW (Alexander & Klein, 2001), levels of burnout in the current sample were noticeably higher: EE 17.2 vs 27.9, DP 8.4 vs 11.7 and PA 34.5 vs 32.8. Using Doulougeri et al’s (2016) cut off points, prevalence rates of high burnout in this sample were: EE: 50.4%, DP: 58.3%, and PA: 51.9%. These high rates may reflect changes in the nature of AW roles and responsibilities, as well as service contexts since 2001 and certainly merit further investigation.

Results from the present study indicated that experiencing WPV is associated with burnout experiences, in line with previous findings (e.g. Bernaldo-De-Quirós et al., 2015). This study adds to that literature with the original finding that AW experiences of threatening behaviour are also associated with high levels of EE and DP. This finding is interesting, given that previous research suggests that it is the repeated experience of aggression that is most strongly linked with burnout (Winstanley & Whittington, 2002) and the high rates of threatening behaviour seen in this sample. This might also explain why verbal violence was associated with both EE and DP symptomology, whereas physical violence was only related to EE in the present study.

The current study also furthers our understanding of the development of burnout in the face of WPV, with the finding that coping style partially accounts for this. The use of dysfunctional coping strategies, among AW in this sample, in response to WPV may influence burnout in a number of ways. Given that the purpose of dysfunctional coping styles such as disengagement, denial, self-distraction, self-blame, substance use and emotional venting, is largely one of avoidance (Cooper et
al., 2006), such coping is likely to impede individuals in effectively regulating their emotional reaction to distressing WPV incidents. By attempting to avoid internal experiences elicited by WPV rather than trying to process or change one’s situation, levels of distress are likely to increase which could in turn contribute to burnout. Previous authors have suggested that there could be a cyclical nature to this relationship, whereby highly burned out individuals are more likely to elicit unhelpful coping strategies in responses to job demands and stresses, which in turn further exacerbate exhaustion levels (Bakker & Costa, 2014). High exhaustion levels are linked to an emotional distancing of oneself from patients (DP) as part of the burnout experience (Maslach & Leiter, 1997). This change in attitudes and behaviour in response to high levels of EE may even increase the risk of eliciting aggressive responses from patients who are predisposed to behave in this way (Winstanley & Whittington, 2002), further adding to job stress. This cyclical model has yet to be tested in AW and is an area for future research to explore.

An unanticipated finding was that problem-focused strategies were not found to have a negative relationship with burnout as previous research has indicated (Shin et al., 2014). In fact, this study found evidence suggesting that problem-focused coping is associated with increased EE in this population. This may be due to the lack of controllability AW have over WPV and many of the other stressors inherent in their role more broadly. Researchers have suggested that active coping (equivalent to problem-focused coping) in situations that are high in controllability is adaptive, whereas in highly stressful and less controllable situations, attempting to regulate emotions is more useful (Perrez & Reicherts, 1992). We might class the AW role as inherently having low levels of controllability, in that staff have little input over the type or location of jobs they attend, much of the work is uncertain and time management is often out of their control. In a study looking at the impact of control when faced with chronic work stressors on active coping success, it was found that problem-focused coping has a positive impact on wellbeing only when situational controllability is high (Elfering et al., 2005). This is not something which has been investigated specifically with AW but warrants consideration in future studies.
The association found between emotion-focused strategies and DP is consistent with other findings showing that these strategies can be linked to increased risk of burnout (e.g. Howlett et al., 2015). However, they were found to positively affect levels of PA. One explanation for this difference may be due to PA developing separately from EE and DP, as suggested by other researchers (Leiter, 1993). Furthermore, emotion-focused strategies were found to have a useful role in mitigating the development of EE in response to WPV. In line with the research discussed above, it may be that certain emotion-focused strategies, which aim to regulate emotion and calm down a situation, are useful in the face of WPV incidents which AW have little control over or find highly stressful. This may in turn protect against the development of exhaustion. It has been suggested that DP is an avoidant way of coping with EE (Leiter & Maslach, 2001) and that emotion-focused coping may contribute to this process (Ben-Zur & Yagil, 2005). It may be that, over time, the use of emotion-focused strategies facilitates the development of DP as another way to manage these difficult interactions with other people, however this remains to be determined.

2.4.1 Limitations

There are several limitations to the present study. Firstly, although regression and mediation analyses allow us to infer the direction of a relationship between variables, the cross-sectional nature of the study design is a limitation, and a longitudinal design would be needed to more confidently assert directionality. This type of design would have been difficult in the time constraints present but would be a valuable approach for a future, follow-up study. The use of the mediation model is thought of as causal modeling, relying on the variables being arranged in the right order. This is inferred from previous literature and theoretical knowledge. The model presented in the current study is derived from a large body of previous research findings, orientated to understanding burnout as resulting from experiencing stressors (Maslach & Leiter, 2016) and coping as mediating an individual’s response to stressors (e.g. Coolidge et al., 2000) and thus the resulting health outcomes. It therefore seems likely that the causality chain in the mediation
analysis was laid out correctly for the present study. However, other theories do exist which propose a more cyclical model to the stress-burnout relationship (e.g. Winstanley & Whittington, 2002), and these also merit investigation.

Although the power requirements for the sample size were met, there was a relatively low response rate. This may be due to the demanding and busy role that AW have. As the sampling was not random, those who accessed the study may have represented a certain segment of the AW population, for example those who wanted a way to express the difficulties within the role such as violence and burnout, which may possibly have skewed results.

Given that the cumulative impact of WPV has been found to be important in the relationship with burnout, an overall violence score was deemed the most appropriate measure to use for the mediation analyses. This overall score amalgamated rates from the three WPV scales, which were measured over different timescales, representing a limitation of the overall violence score used in the present study. Furthermore, measures of violence were not measured on a ratio scale which presents a potential threat to the validity of the analyses used.

The study adopted a conceptualisation of coping styles which has been validated in previous research (e.g. Cooper et al., 2008). However, the way in which coping strategies are categorised is a source of debate within the literature (for a review see Skinner et al., 2003). In particular, findings on whether emotion-focused coping is linked with a positive impact on psychological outcomes or not has varied and this may be due to what is included as an emotion-focused strategy (Elfering et al., 2005). Elfering and colleagues criticise the way emotion-focused coping is sometimes assessed as not being truly indicative of an individual’s attempt to regulate emotion but as way to avoid emotional experience. The way in which the Brief COPE strategies have been divided in the present study does attempt to distinguish between avoidance (dysfunctional strategies) and emotion regulation attempts. However, one can never be sure that endorsement of particular coping strategies on a questionnaire actually translates into active behavioural coping style, and this remains a limitation of the survey design.
employed here.

2.4.2 Clinical Implications (Practice and Policy)

It is clear from the findings of the present study that there is an important link between unhelpful coping styles and burnout, and that these coping styles may influence AW ability to effectively manage the psychological impact of difficult incidents, such as violence at work. Although results failed to demonstrate clear benefits of functional coping strategies, it remains important to support AW to think about the ways they manage stress and the difficult psychological impact resulting from working in this challenging role. One intervention, acknowledged by others researching this area, would be to help AW become more aware of their coping styles and perhaps support them to consider the long-term impact of these ways of managing (Howlett et al., 2015). Constructive debriefing, such as peer-support, encapsulates an approach that helpfully challenges tendencies to self-blame, disengage or deny. Acceptance and Commitment Therapy could be a useful model to base interventions on, given the emphasis on the workability of an individual’s choice of behaviour, in terms of how well it aligns with long-term values (Hayes et al., 1999).

Adopting a Schwartz Centre Rounds approach, whereby organisational forums are held to discuss the psychological, emotional and social challenges associated with caring for people, is a way in which larger scale interventions could be set up (Robert et al., 2017). Given the long hours and shifts worked by this staff group, it would be necessary for this to be built into the working schedule. Furthermore, it is key that these spaces are confidential and safe (Robert et al.). Related to this, is evidence from research indicating that social support is key in ameliorating burnout development in this population (Li et al., 2015) and some have suggested that support networks also need to be promoted outside of the workplace (e.g. Boland et al., 2019).

At a policy level, a culture that promotes the reporting of violent incidents, of all forms, and a supportive response from managers is vital (Bigham et al., 2014).
Procedures for reporting violent incidents should be clear and consistent and AW should have access to follow-up support if needed (Gacki-Smith et al., 2009). The GMB Trade Union (2018) argued that the low prosecution rate of those perpetrating violence against AW means staff have little faith in the system to support them. They suggested that legislation which protects AW should be developed, alongside national awareness campaigns promoting knowledge of the issue. In line with this, the recent NHS Long Term Plan (2019) proposes to tackle violence against NHS staff, including work with the Crown Prosecution Service and piloting the use of body cameras on paramedics. This is in the early stages but represents positive change for the protection of AW.

2.4.3 Future Research

Moving forward, it will be important to replicate the present study with other samples of AW, to determine whether these findings generalise to those representing a wider range of contexts, both geographically and demographically. Levels of violence reported in this sample were high; it would be prudent to measure levels of WPV in AW in other locations in the UK using this format, to ascertain if this is the case more broadly and whether the disparity observed with national estimates in this population generalise.

Furthermore, the findings regarding the role of problem-focused strategies in the stress-burnout relationship were different to results from previous studies and warrant further investigation. As discussed, this may be due to the type of stressor WPV presents. Thus, in line with the above discussion, an investigation of the perceived controllability of stressful work incidents, including WPV, is of value. Understanding the impact this has on the type of coping strategies AW chose and burnout outcomes would also broaden understanding in this area. In addition, research focused on the utility of emotion-focused coping strategies is indicated, given the unclear findings both in this study and previous research. In particular, whether the different relationship this kind of coping had with EE and DP holds and why this might be the case. Future studies may also benefit from taking a
qualitative approach to investigate the complexity of how AW employ particular coping strategies in response to WPV.

Finally, this study gathered useful information regarding different types and frequency of violence experienced by AW. However, our understanding could be improved by gathering further information about contextual variables associated with each category of violent incidents AW experience. This could inform potential ways to reduce WPV or prevent it from occurring, which seems necessary given the rates indicated in the study.

2.5 Conclusion

The levels of violence and burnout reported by this sample of UK AW were notably high. The use of unhelpful coping styles in the face of WPV appears to play an important role in the presence of burnout symptomology in this group, while the utility of functional coping styles in this context remains unclear.
2.6 References


Brenninkmeijer, V. (2003). How to conduct research on burnout: advantages and disadvantages of a unidimensional approach in burnout research. *Occupational and Environmental Medicine, 60*, 16i–20. https://doi.org/10.1136/oem.60.suppl_1.i16


https://doi.org/10.1146/annurev.psych.55.090902.141456


https://doi.org/10.1097/nna.0b013e3181ae97db

GMB Union (2018). *In harm’s way.*
https://www.gmb.org.uk/sites/default/files/IN-HARMS-WAY.pdf


Maslach, C., Jackson, S. E., & Leiter, M. P. (1997). Maslach Burnout Inventory:


https://doi.org/10.1093/actrade/9780198745587.001.0001


Chapter Three

Reflecting on My Identity as Both a Researcher and a Clinician.

Not intended for publication

Total chapter word count: 3,287
3.1 Introduction

This chapter presents a reflective account of my developing identity as a clinical psychologist (CP), which incorporates being both a researcher and a clinician. Whilst conducting the research outlined above, I was able to identify conflicts between some of my beliefs and commitments, particularly when taking a researcher role. I will consider the development of different aspects of my identity, both before and during my training to be a CP. This includes consideration of my past experiences, which brought me to clinical training and how these have formed some of the beliefs I held regarding research and influence my preference for quantitative methodology. Alongside this, I will discuss aspects of the re-evaluation process I have taken, including my understanding of the relative strengths and limitations of both quantitative and qualitative methods and their application to my chosen area of research. By reflecting in this way, I have been able to more readily integrate aspects of my identity and think about further development needs.

3.2 Experience of the Research Process

During the research process, I recognised that I had held a belief that being a researcher and ‘scientific’, encompassed a necessity to take a neutral stance and in turn be somewhat disconnected from research participants. This stance can more readily fit with the quantitative methodology I chose, which emphasises an objective approach to research, whereby the researcher and participants remain separate and do not influence one another (Sale et al., 2002). I also realised that adopting this approach brought a sense of safety and certainty.

I acknowledged a conflict, as a detached approach did not fit with my values and commitments, to connect with others and hear their stories. It was also at odds to how I felt about the group of participants I had chosen to involve in my research. My choice to explore burnout in frontline ambulance workers (AW) as a topic was important to me on a personal level, as well as one which sparked an academic
interest, and something I cared very much about. In addition, the more I had researched the area, the more I recognised the impact of the complex socio-political landscape on AW well-being. Talking to my partner and friends who work within the ambulance service (AS), it was clear how limits on resources and target pressures were playing a significant role in their experience of burnout and violence. They discussed their beliefs about the socio-political landscape affecting the emotional climate amongst the patients they came across during their work. Complex issues, such pressures on their service, social services, and other healthcare services, alongside wider financial struggles, were felt to be impacting on how they were received by the individuals they were called out to support. They proposed that patients were often waiting a long time for their help with “unrealistic expectations” of what the service could provide; this inevitably prompted anger and frustration in patients and carers and in some this was expressed as violence. In addition, the ability of the AS to appropriately support staff who were experiencing burnout did not feel “possible or prioritised” in a climate of targets and extreme service pressures. I felt frustrated and saddened at times during the research process that the methods I had chosen could not capture individual stories such as these.

By noting this conflict during the research process, I have recognised that there was room for me to consider the beliefs I held about research methodology. I will now discuss how my past experiences developed some of these beliefs and understandings of what it meant to be a researcher versus a clinician.

3.3 Experiences Prior to Training

My introduction to psychology came from an interest in neuroscience and how behaviour is reflected physiologically in the brain. The undergraduate degree that I selected was an ‘Experimental Psychology’ BSc and one which very much focused on psychology as a cognitive science, espousing the ‘scientist-practitioner’ aspect of a being a psychologist, with little focus on relational skills. Quantitative methodological approaches made up the majority of the research syllabus and
although qualitative methodologies were taught, they were given little focus and lecturers were rather dismissive of their utility and scientific credibility. I was surrounded by both direct and indirect learning experiences which served to influence my beliefs about the superiority of a quantitative approach to research. It has since become apparent to me that ‘quantitative’ and ‘scientific’ became somewhat synonymous.

Following on from this degree, I had a wide variety of research and clinical experiences. Some of these served to strengthen these ideas that I had developed during my BSc. I worked in a research implementation team, contributing to a number of prestigious research projects. All of these projects were quantitative in methodology and required strict adherence to research protocols with an objective and somewhat detached approach. I also worked within a neuropsychological assessment service and the importance of neutrality and consistency in my approach to assessment with clients was often emphasised. I have recognised that these jobs appealed to my interest in developing my scientific knowledge and learning from others.

I also held a number of other roles, which highlighted another aspect of my identity which had drawn me to psychology and clinical psychology in particular. When working as a healthcare assistant and subsequently as an assistant psychologist, I recognised how much I valued connecting with others, hearing their stories and trying to understand and help them with the situation they found themselves in. Not only that but I was starting to experience the power that the relationship between two people had in the success of any interaction I had, whether that be in a research or clinical setting. It was impossible to remove the human subjectivity that was brought to any contact. For example, I remember having feedback regarding neuropsychological assessments I had conducted, saying that I had helped clients feel at ease, when they had previously felt very anxious during psychometric testing. Levels of anxiety are known to impact memory and attentional processes (Eysenck et al., 2007), thereby would have impacted upon assessment results. I also had experiences of supervisors who had encouraged self-reflection and a developing awareness of what I brought to
therapeutic relationships, alongside the wider context. I recognised how key
reflection was in my practice and this was one of the reasons I chose to apply to
the Doctorate in Clinical Psychology course that I did, given its emphasise on this
function.

These two aspects of my identity are key elements of a CP; being able to connect
with and help others whilst reflecting on these interactions, and an ability to
understand and apply scientific theory. However, when it came to being a
researcher I noted that I was having trouble reconciling what I had learned about
neutrality and my commitment to connection with others. During the research
process, recognising this mismatch prompted me to consider how identity is
developed, alongside how CPs manage the different aspects of their role.

3.4 Identity

The concept of ‘identity’ is complex and there have been numerous theories which
attempt to understand how an individual’s identity develops. Identity can be
thought of as encompassing: a person’s commitments, characteristics, beliefs about
themselves, beliefs about their position in relationship to others and membership
within social groups, and their relationship to material goods and geographical
space (Schwartz et al., 2011). According to this definition a person’s identity is
multifaceted, yet different aspects overlap and interact (Amiot et al., 2007).
Whether identities are discovered, or are socially or personally constructed, is
debated.

A cognitive approach to identity development assumes that individuals hold a self-
theory, which is a system of personal constructs, assumptions, beliefs and schemas
about how the self interacts with the world (Berzonsky, 2011). This approach
assumes that identity is, at least in part, personally constructed, in that people play
a role in constructing a sense of themselves and their reality (Kelly, 1955).
Constructs are developed from many different learning experiences, indirectly
through modelling interactions with others and more directly through teaching
from a variety of sources such as educational establishments or cultural and social influences. Within this cognitive framework, self-theories may not be well understood by people or explicit at a conscious level. The use of conscious informational processing has been found to be a useful way to develop identity constructs (Berzonsky). In line with this, self-reflection is a key part of identity evaluation (Luyckx et al., 2006). Soensens and Vansteenkiste (2011) propose that self-reflection and self-awareness are necessary for ‘integrated regulation’, which is the process of bringing together values and identity congruent commitments and aligning these with other esteemed values and goals. Acceptance and Commitment Therapy (ACT) also emphasises understanding one's valued directions in life and committing to action which moves oneself in that direction, whilst developing an awareness of the thoughts and feelings which can get in the way of this (Hayes et al., 1999).

Having considered this research, it has become evident to me that there is a need to consciously consider aspects of oneself using reflection and awareness skills, and to assimilate these in a meaningful way; this is a key part of identity development. This is in line with the focus on personal and professional development and the integration of different skills within CP training.

3.5 Clinical Psychologists: Reflective Scientist-Practitioners

The British Psychological Society (BPS; 2019) emphasise that, during training to be a CP, development needs encompass the integration of knowledge and skills which reflect being both scientist-practitioners and reflective-practitioners. The scientist-practitioner model, originating from the Boulder Conference on Graduate Education in Clinical Psychology (Raimy, 1950), refers to the ability to critically evaluate the evidence base and contribute to it through research. The reflective-practitioner model, based on work of Schön (1987), encompasses the meta-cognitive capacity of a CP to reflect on the wider context and processes involved in an interaction (Youngson, 2009). Together these enable CPs to successfully manage the multifaceted role, which includes being a: therapist, researcher, leader,
supervisor, teacher, consultant and team member. The different skills being necessary to use across these roles (Hughes, 2009).

### 3.6 Evaluating Beliefs Regarding Research Methodology

Through considering my reflections and identity theory, I have been prompted to evaluate some of my beliefs about quantitative research and the necessity to be ‘detached’, alongside a contemplation of the utility of qualitative approaches. Quantitative methodology does not offer the same opportunity to understand the rich narratives of each individual participant as qualitative research does, which also more obviously taps into the relational and formulation skills I had been developing during my trainee position. I can now more readily recognise the benefits of conducting qualitative work that I had previously overlooked. Methods, which I had been encouraged to view as lesser in some way, I now see can offer an alternative insight into a research problem. By conducting in-depth interviews, an opportunity to connect with participants and understand their complex experiences is afforded (Geertzt, 1973) and the nuances of the AW experiences of burnout would have been more readily captured. Quantitative approaches on the other hand, can seem very much at odds with the wish to represent and hear individuals and their experiences, through the adherence to capturing information afforded by questionnaires alone.

However, I have reflected on this last point and have come to realise that even though the amount and type of information captured by quantitative methods may be restricted, this does not mean that they do not address and tap into valued aspects of the lives of participants under investigation. This awareness was really brought into focus when I received feedback about my study from a participant. The participant commented that it had meant a lot that someone cared about their mental wellbeing and had taken an interest in the area. This in turn encouraged me to think about how I connect with and help people whilst using quantitative methodology and reignited a spark of passion in my research.
The power of quantitative research may not come from telling the story of individual participants but instead from the number of participants that can be recruited and represented. By conducting research in this way, I was giving the chance to many AW to have their experiences captured. By using power calculations, significance levels and effect sizes, my results were more able to capture and accurately represent the experience of AW on a larger scale. In addition, both critical evaluative skills alongside the ability to empathise and be reflective, allowed me to interpret and discuss the results in a way which can connect to and perhaps more closely reflect, the experience of participants. Thus, I have recognised that neutrality and connection in research need not be mutually exclusive.

3.7 Research Methodology Within Clinical Psychology

I have also thought about the wider perception and role of quantitative research within psychology. There continues to be a division between quantitative and qualitative methodology within social science research. The positivist approach of quantitative research, whereby the researcher is objective and data is analysed by statistics, is still often regarded as a more valid way of obtaining information (Ryan & Golden, 2006); as I have experienced in some of my prior roles and education. However, I have also experienced the opposite more recently during training, whereby quantitative methods are viewed as not in keeping with how CPs view people and their experiences. This point of view is also reflected within the literature (e.g. Burman, 2001).

Maynard (1994) argues that this division is unhelpful and the polarisation of the two methods is harmful to social research as a whole. Sieber (1973) proposed that both of the methods should be utilised to advance our understanding. Both methods have their strengths, qualitative approaches to capture the nuances of experience and quantitative to provide statistical patterns from responses (Driscoll et al., 2007). Importantly, researchers have proposed that the design of a study should be planned to answer the research question, within the confines of
the study context (Johnson & Onwuegbuzie, 2004) and both methods can be used to complement each other. An example of this is Mixed Methods research (e.g. Tashakkori & Teddlie, 2003), which proposes an integrated methodological approach and puts aside philosophical debates, instead focusing on which research strategy is more likely to appropriately investigate the particular phenomena. This approach seems especially appropriate when researching such complex phenomena as human emotions and relationships.

Furthermore, tools associated with each methodology can be utilised by the other. For example, Ryan and Golden (2006) propose that methods of reflexivity can be used to enhance quantitative research. They argue that there are complicated dynamics that occur between researchers and participants in quantitative research. They suggest that it is vital to reflect upon the emotional impact of sensitive information gained during the research process on the researcher, irrespective of the methodology used. This would add depth to a quantitative study, by gaining more of an insight into how and by whom the data were collected.

Overall, I have come to appreciate that qualitative and quantitative research methods need not be held in contention. The skills and knowledge I have gained through clinical practice, regarding the importance of reflexivity and the impact of any human interaction, do not have to be disregarded during the research process; rather these can complement this role.

3.8 Experiencing Disconnection and the Importance of Connection

I have also reflected on why I gained a sense of safety and certainty in roles that I perceived to be more neutral. Due to past experiences, there was a familiarity with taking a more objective approach to my work, which contributed to a sense of security. Taking quantitative approaches to research can also generate a (ironically subjective) sense of certainty through employing methods that attempt to discover knowable ‘facts’. One can also more readily attempt to bypass the uncertainty and
complexity that comes with human relationships by operationalising them and removing 'confounding' aspects. However, although taking a more known role may have felt safe, there was, at times, a disparity with my personal value of connecting with others.

I have experienced the power of connecting with people within all roles a CP takes. This experience is in line with a wealth of literature, which recognises the importance of the therapeutic alliance in clinical work as being one of the most robust predictors of outcomes (a review: Horvath et al., 2011). Although the role taken by a researcher is distinct and it is important to recognise the differing boundaries present (Gilbert, 2001), I would argue that some degree of connection is key in any work with other people. Dickson-Swift and colleagues (2006) discuss the challenges of negotiating boundaries when conducting research with people; they suggest that emotional distancing is a protective way of managing potential burnout ensuing from this work. Evidently, negotiating the degree of emotional connection within the research process is a complex issue.

ACT recognises the conflict between behaviours that move us away from our values, which can feel ‘safe’ in that they protect from the pain associated with making ‘towards values’ moves (Harris, 2008). In my case, I have noticed that the fear of failure can prompt a retreat into staying within my comfort zone. This likely played a part in my decision not to use qualitative methods during my thesis.

It is understandable to retreat to the known and certain at times and this can be a necessary and self-protective move. By becoming more aware of times when I do this, which actually conflicts with important values and commitments, I can enhance my experience of being a trainee CP and the multifaceted roles that are encompassed within this title.
3.9 Conclusion: Evaluation of my Identity as a Clinical Psychologist

Reflection has given me the opportunity to enlist information processing and conscious self-awareness skills (Berzonsky, 2011). I have become more aware of my beliefs, commitments, and conflicts between them and have become more able to integrate these into my developing identity as a trainee CP, with multiple responsibilities.

As part of this I have developed my understanding of what it is to take on a researcher role as a CP. I have been able to appreciate the benefits of different methodological approaches and how these do not need to be held in opposition to one another and have explored ways in which they can be used alongside each other. Given my enhanced appreciation for what a qualitative approach can add, it would aid my development to conduct research using these methods in the future, perhaps alongside quantitative approaches. I was also able to re-evaluate unhelpful beliefs I held about the use of quantitative methods which did not fit with how I identify as a CP, which enabled me to renew my passion for and connection with my research during the process.

The pursuit of scientific knowledge through research and within my clinical work, is something that I enjoy and value. I appreciate using quantitative research methods; being able to use measures drawn from scientific enquiry and the use of statistics to generalise findings is satisfying for me. Similarly, within my clinical practice it is important for me to draw upon the theory and literature and use my critical evaluation skills. I am now more able to integrate this side of my identity with my passion for making real human connections; particularly as my training has given me the opportunity to learn about why this is such a powerful part of all clinical work.

It is important to recognise that there are still distinctions between the different roles of a CP and negotiating these roles requires an appreciation of the differing boundaries. Managing these shifting expectations is likely an area I will continually reflect on during my ongoing journey as a qualified CP.
3.10 References


Hughes, J. (2009). What is personal development and why is it important? In J. Hughes & S. Youngson (Eds.), *Personal development and clinical psychology* (pp. 24-45). Chichester, England: Blackwell


Appendices

Appendix A

Author Guidelines for the British Paramedic Journal

Author Guidelines

1. General Principles

This journal follows the principles set out by the International Committee of Medical Journal Editors Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals. A summary of those guidelines relevant to authors is provided below. In addition, there is additional specific guidance relating to the types of submissions that the journal currently accepts, namely:

- Original research
- Literature reviews
- Case reports
- Best evidence topic reports
- Audit
- Service evaluation
- Research methodology
- Letters
- Quality improvement

2. Reporting Guidelines

Reporting guidelines have been developed for different study designs and the most appropriate guideline checklist must be completed and uploaded as a supplementary file with your article submission. Specific examples include:

- CONSORT for randomized trials
- STROBE for observational studies
- PRISMA for systematic reviews and meta-analyses
- STARD for studies of diagnostic accuracy
- SQUIRE for quality improvement

You can obtain these and a wide range of other guidelines from the Enhancing the QUAlity and Transparency Of health Research (EQUATOR) website.

3. Pre-registration
The journal strongly encourages pre-registration of original research and systematic reviews with online databases, such as [ClinicalTrials.gov](https://clinicaltrials.gov), [ISRCTN](https://www.isrctn.com) and [PROSPERO](https://www.crd.uiowa.edu/prospero/), in-line with [ICME guidelines on clinical trial registration](https://www.icmeconsult.org/clinical-trial-registration), all clinical trials MUST be pre-registered.

4. Authorship

Authorship confers credit and has important academic, social, and financial implications. Authorship also implies responsibility and accountability for published work. Because authorship does not communicate what contributions qualified an individual to be an author, you must provide information regarding the contributions of the authors (unless there is only one).

i. Who Is an Author?

An author is someone who meets ALL of the following 4 criteria:

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND Drafting the work or revising it critically for important intellectual content; AND
2. Final approval of the version to be published; AND
3. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
4. In addition to being accountable for the parts of the work he or she has done, an author should be able to identify which co-authors are responsible for specific other parts of the work. In addition, authors should have confidence in the integrity of the contributions of their co-authors.

ii. Non-Author Contributors

Contributors who meet fewer than all 4 of the above criteria for authorship should not be listed as authors, but they should be acknowledged. Examples of activities that alone (without other contributions) do not qualify a contributor for authorship are acquisition of funding; general supervision of a research group or general administrative support; and writing assistance, technical editing, language editing, and proofreading. Those whose contributions do not justify authorship may be acknowledged individually or together as a group under a single heading (e.g. "Clinical Investigators" or "Participating Investigators"), and their contributions should be specified (e.g., "served as scientific advisors," "critically reviewed the study proposal," "collected data," "provided and cared for study patients", "participated in writing or technical editing of the manuscript").

4. Manuscript Sections

The following are general requirements for reporting within sections of all study designs and manuscript formats.

a. Title page

The title page should contain the following:

- Title
- Author information
- Word count
- Keywords.

i. Title
The title provides a distilled description of the complete article and should include information that, along with the Abstract, will make electronic retrieval of the article sensitive and specific. Ensure you include the study design in the title (particularly for randomised trials and systematic reviews and meta-analyses)

**ii. Author information**

The first named author should be the corresponding author responsible for the journal submission. For all authors, a full name, postal and email address is required. In addition, a contact number for the corresponding author should be supplied. If you have an Open Researcher and Contributor Identification (ORCID), please include this also.

**iii Word count**

Include the word count, excluding the abstract, acknowledgments, tables, figure legends, and references.

**iv. Keywords**

Suggest up to 3 Medical Subject Heading (MeSH) keywords to aid in searching for your article. The MeSH on demand service can help with this.

b. Abstract

Original research, literature and systematic reviews, and meta-analyses require structured abstracts that should generally conform to the IMRAD style. The abstract should provide the context or background for the study and should state the study’s purpose, basic procedures (selection of study participants, settings, measurements, analytical methods), main findings (giving specific effect sizes and their statistical and clinical significance, if possible), and principal conclusions. It should emphasise new and important aspects of the study or observations, note important limitations, and not overinterpret findings. Clinical trial abstracts should include items that the CONSORT group has identified as essential. Funding sources should be listed separately after the Abstract.

c. Introduction

Provide a context or background for the study (that is, the nature of the problem and its significance). State the specific purpose or research objective of, or hypothesis tested by, the study or observation. Cite only directly pertinent references, and do not include data or conclusions from the work being reported.

d. Methods

The guiding principle of the Methods section should be clarity about how and why a study was done in a particular way. Methods section should aim to be sufficiently detailed such that others with access to the data would be able to reproduce the results. In general, the section should include only information that was available at the time the plan or protocol for the study was being written; all information obtained during the study belongs in the Results section. If an organisation was paid or otherwise contracted to help conduct the research (examples include data collection and management), then this should be detailed in the methods.

i. Selection and description of participants

Clearly describe the selection of observational or experimental participants (healthy individuals or patients, including controls), including eligibility and exclusion criteria and a description of the source population. Because the relevance of such variables as age, sex, or ethnicity is not always known at the time of study design, researchers should aim for inclusion of representative populations into all study types and at a minimum provide descriptive data for these and other relevant demographic variables. If the study was done involving an
exclusive population, for example in only one sex, authors should justify why, except in obvious cases (e.g. obstetric emergencies).

**ii. Technical information**

Specify the study's main and secondary objectives—usually identified as primary and secondary outcomes. Identify methods, equipment (give the manufacturer’s name and address in parentheses), and procedures in sufficient detail to allow others to reproduce the results.

**iii. Statistics**

Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to judge its appropriateness for the study and to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals). Avoid relying solely on statistical hypothesis testing, such as p-values, which fail to convey important information about effect size and precision of estimates. References for the design of the study and statistical methods should be to standard works when possible (with pages stated). Define statistical terms, abbreviations, and most symbols. Specify the statistical software package(s) and versions used. Distinguish prespecified from exploratory analyses, including subgroup analyses.

**e. Results**

Present your results in logical sequence in the text, tables, and figures, giving the main or most important findings first. Do not repeat all the data in the tables or figures in the text; emphasise or summarise only the most important observations. Provide data on all primary and secondary outcomes identified in the Methods Section. Extra or supplementary materials and technical details can be placed in supplementary files where they will be accessible but will not interrupt the flow of the text, or they can be published solely in the electronic version of the journal. Refer to the supplementary files in the text using the reference 'Supplementary 1', 'Supplementary 2' etc.

Give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical significance attached to them, if any. Restrict tables and figures to those needed to explain the argument of the paper and to assess supporting data. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables. Avoid nontechnical uses of technical terms in statistics, such as "random" (which implies a randomising device), "normal," "significant," "correlations," and "sample."

Separate reporting of data by demographic variables, such as age and sex, facilitate pooling of data for subgroups across studies and should be routine, unless there are compelling reasons not to stratify reporting, which should be explained.

The BPJ embraces the principle that research should be reproduceable. Consider adding details about how interested readers could replicate your methods by adding further information as a supplemental file, including details about whether the raw data is available for the purpose of reproduction of the results.

**f. Discussion**

It is useful to begin the discussion by briefly summarising the main findings, and explore possible mechanisms or explanations for these findings. Emphasise the new and important aspects of your study and put your findings in the context of the totality of the relevant evidence. State the limitations of your study, and explore the implications of your findings for future research and for clinical practice or policy. Do not repeat in detail data or other information given in other parts of the manuscript, such as in the Introduction or the Results section.
Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not adequately supported by the data. In particular, distinguish between clinical and statistical significance, and avoid making statements on economic benefits and costs unless the manuscript includes the appropriate economic data and analyses. Avoid claiming priority or alluding to work that has not been completed. State new hypotheses when warranted, but label them clearly.

g. References

i. General considerations related to references

Authors should provide direct references to original research sources whenever possible. Although references to review articles can be an efficient way to guide readers to a body of literature, review articles do not always reflect original work accurately. On the other hand, extensive lists of references to original work on a topic can use excessive space. Fewer references to key original papers often serve as well as more exhaustive lists, particularly since references can now be added to the electronic version of published papers, and since electronic literature searching allows readers to retrieve published literature efficiently.

Do not use conference abstracts as references: they can be cited in the text, in parentheses, but not as page footnotes. References to papers accepted but not yet published should be designated as "in press" or "forthcoming." Information from manuscripts submitted but not accepted should be cited in the text as "unpublished observations" with written permission from the source.

Avoid citing a "personal communication" unless it provides essential information not available from a public source, in which case the name of the person and date of communication should be cited in parentheses in the text. For scientific articles, obtain written permission and confirmation of accuracy from the source of a personal communication.

The BPJ will endeavour to check the accuracy of all reference citations, but in order to minimise errors, references should be verified using either an electronic bibliographic source, such as PubMed, or print copies from original sources. Authors are responsible for checking that none of the references cite retracted articles except in the context of referring to the retraction. Authors can identify retracted articles in MEDLINE by searching PubMed for "Retracted publication [pt]", where the term "pt" in square brackets stands for publication type, or by going directly to the PubMed's list of retracted publications.

ii. Reference style

The BPJ uses the American Psychological Association (APA) 6th edition reference style. This is similar to Harvard, but has the advantage that there are no variations of this reference style, unlike Harvard. In addition, most citation managers already support it (e.g. Mendeley, Endnote, Zotero).

h. Tables

Tables capture information concisely and display it efficiently; they also provide information at any desired level of detail and precision. Including data in tables rather than text frequently makes it possible to reduce the length of the text.

Prepare tables according to the specific journal's requirements; to avoid errors it is best if tables can be directly imported into the journal's publication software. Number tables consecutively in the order of their first citation in the text and supply a title for each. Titles in tables should be short but self-explanatory, containing information that allows readers to understand the table's content without having to go back to the text. Be sure that each table is cited in the text.

Tables should be included in the main body of text where they are referred to. Place the table title above the table and label it sequentially (Table 1, Table 2 etc.). Give each column a short or an abbreviated heading. Authors should place explanatory matter in a table footnote, not in
the heading. Explain all nonstandard abbreviations in the table footnote, and use symbols to explain information if needed.

If you use data from another published or unpublished source, obtain permission and acknowledge that source fully.

Additional tables containing additional data that is too extensive to publish may be added as a supplemental file(s). An appropriate statement should be added to the text to inform readers that this additional information is available and use the appropriate citation (e.g. Supplementary 1). Submit the tables for consideration with the paper so that they will be available to the peer reviewers.

i. Illustrations (Figures)

Digital images of manuscript illustrations should be submitted separately as a PNG or JPG file. Vector illustrations should be submitted separately as an SVG. Although this is an electronic journal, aim to submit PNG or JPG images that are minimally compressed and at a resolution of at least 2000px on the longest dimension.

For X-ray films, scans, and other diagnostic images, as well as pictures of pathology specimens or photomicrographs, send high-resolution photographic image files.

Figures will not be redrawn, so letters, numbers, and symbols on figures should be clear and consistent throughout, and large enough to remain legible when the figure is reduced for publication. Titles and detailed explanations belong in the legends—not on the illustrations themselves.

Figures should be numbered consecutively according to the order in which they have been cited in the text. If a figure has been published previously, acknowledge the original source and submit written permission from the copyright holder to reproduce it. Permission is required irrespective of authorship or publisher except for documents in the public domain.

In the manuscript, legends for illustrations should be on a separate page, with Arabic numerals (i.e. 1,2,3...) corresponding to the illustrations. When symbols, arrows, numbers, or letters are used to identify parts of the illustrations, identify and explain each one clearly in the legend.

j. Units of Measurement

Measurements of length, height, weight, pressure and volume should be reported in metric units (metre, kilogram, kiloPascal or litre) or their decimal multiples.

Temperatures should be in degrees Celsius. Blood pressures should be in millimeters of mercury.

k. Abbreviations and symbols

Use only standard abbreviations; use of nonstandard abbreviations can be confusing to readers. Avoid abbreviations in the title of the manuscript. The spelled-out abbreviation followed by the abbreviation in parenthesis should be used on first mention unless the abbreviation is a standard unit of measurement.

l. Conflicts of interest

The credibility of published articles depends in part on how transparently an author's relationships and activities, directly or topically related to a work, are handled during the planning, implementation, writing, peer review, editing, and publication of scientific work.

The journal follows the ICJME guidance for conflict of interests, which states: “The potential for conflict of interest and bias exists when professional judgment concerning a primary interest (such as patients' welfare or the validity of research) may be influenced by a secondary interest (such as financial gain). Perceptions of conflict of interest are as important as actual conflicts of interest.”
If you have a potential or actual conflict of interest, or are unsure, please complete the ICME conflict of interest form and include it with your submission to the journal.

**m. Ethics**

At the end of the manuscript you should include a statement indicating that the research was approved or exempted from the need for review by the responsible review committee (institutional or national). If no formal ethics committee is available, a statement indicating that the research was conducted according to the principles of the Declaration of Helsinki should be included.

Confirmation of consent from patients is required for case reports and studies that involve patients (including vulnerable populations) and animals.

**n. Funding**

Any source of funding should be stated at the end of the manuscript, or a statement confirming that no funding was provided.

**o. Author contributions**

Please include a statement at the end of the manuscript outlining the contribution of each author to the study and manuscript.

Last update: 12th January, 2020
Appendix B

Coventry University Ethical Approval for Systematic Review Project

Certificate of Ethical Approval

Applicant:

Aimee Hayes

Project Title:

A Systematic Review of the Factors Associated with Burnout in Ambulance Workers

This is to certify that the above named applicant has completed the Coventry University Ethical Approval process and their project has been confirmed and approved as Low Risk

Date of approval:

30 October 2019

Project Reference Number:

P96009
### Appendix C

Quality Assessment Framework for Quantitative Papers (Caldwell, Henshaw, & Taylor, 2005)

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Guidance</th>
<th>Score</th>
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<tr>
<td>1. Does the title reflect the content?</td>
<td>The title should be informative and indicate the focus of the study. It should allow the reader to easily interpret the content of the study. An inaccurate or misleading title can confuse the reader.</td>
<td>0 = not met</td>
</tr>
<tr>
<td>2. Are the authors credible?</td>
<td>Researchers should hold appropriate academic qualifications and be linked to a professional field relevant to the research.</td>
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<tr>
<td>3. Does the abstract summarize the key components?</td>
<td>The abstract should provide a short summary of the study. It should include the aim of the study, outline of the methodology and the main findings. The purpose of the abstract is to allow the reader to decide if the study is of interest to them.</td>
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<tr>
<td>4. Is the rationale for undertaking the research clearly outlined?</td>
<td>The author should present a clear rationale for the research, setting it in context of any current issues and knowledge of the topic to date.</td>
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</tr>
<tr>
<td>5. Is the literature review comprehensive and up-to-date?</td>
<td>The literature review should reflect the current state of knowledge relevant to the study and identify any gaps or conflicts. It should include key or classic studies on the topic as well as up to date literature. There should be a balance of primary and secondary sources.</td>
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<tr>
<td>6. Is the aim of the research clearly stated?</td>
<td>The aim of the study should be clearly stated and should convey what the researcher is setting out to achieve.</td>
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<tr>
<td>7. Are all ethical issues identified and addressed?</td>
<td>Ethical issues pertinent to the study should be discussed. The researcher should identify how the rights of informants have been protected and informed consent obtained. If the research is conducted within the NHS then there should be indication of Local Research Ethics committee approval.</td>
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<tr>
<td>8. Is the methodology identified and justified?</td>
<td>The researcher should make clear which research strategy they are adopting, i.e. qualitative or quantitative. A clear rationale for the choice should also be provided, so that the reader can judge whether the chosen strategy is appropriate for the study.</td>
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<tr>
<td>9. Is the study design clearly identified and is the rational for choice of design evident?</td>
<td>The design of the study, e.g. survey, experiment, should be identified and justified. As with the choice of strategy, the</td>
<td></td>
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<tr>
<td>Question</td>
<td>Explanation</td>
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<td>reader needs to determine whether the design is appropriate for the research undertaken</td>
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<tr>
<td>10. Is there an experimental hypothesis clearly stated? Are the key variables clearly identified?</td>
<td>In experimental research, the researcher should provide a hypothesis. This should clearly identify the independent and dependent variables and state their relationship and the intent of the study. In survey research the researcher may choose to provide a hypothesis, but it is not essential, and alternatively a research question or aim may be provided.</td>
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<tr>
<td>11. Is the population identified?</td>
<td>The population is the total number of units from which the researcher can gather data. It may be individuals, organisations or documentation. Whatever the unit, it must be clearly identified.</td>
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<tr>
<td>12. Is the sample adequately described and reflective of the population?</td>
<td>Both the method of sampling and the size of the sample should be stated so that the reader can judge whether the sample is representative of the population and sufficiently large to eliminate bias.</td>
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<tr>
<td>13. Is the method of data collection valid and reliable?</td>
<td>Informants are selected for their relevant knowledge or experience. Representativeness is not a criteria and purposive sampling is often used. Sample size may be determined through saturation.</td>
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<tr>
<td>14. Is the method of data analysis valid and reliable?</td>
<td>The method of data analysis must be described and justified. Any statistical test used should be appropriate for the data involved.</td>
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<tr>
<td>15. Are the results presented in a way that is appropriate and clear?</td>
<td>Presentation of data should be clear, easily interpreted and consistent.</td>
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<tr>
<td>16. Is the discussion comprehensive?</td>
<td>In quantitative studies the results and discussion are presented separately. In qualitative studies these maybe integrated. Whatever the mode of presentation the researcher should compare and contrast the findings with that of previous research on the topic. The discussion should be balanced and avoid subjectivity.</td>
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<tr>
<td>17. Is the conclusion comprehensive?</td>
<td>Conclusions must be supported by the findings. The researcher should identify any limitations to the study. There may also be recommendations for further research, or if appropriate, implications for practice in the relevant field.</td>
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Appendix D

Demographic Information Questionnaire

**Background Information**

1) What is your job title?
   a. Paramedic
   b. Emergency Medical Technician
   c. Associate Ambulance Practitioner
   d. Emergency Care Assistant
   e. Specialist Paramedic
   f. Ambulance Nurse
   g. Other, please state below:

   …………………………………………………………………

2) How many hours do you usually work a week?

   …………………………………………………………………

3) How long have you been working in the Ambulance Service?
   a. Less than 2 years;
   b. Between 2 and 5 years
   c. More than 5 but less than 10 years
   d. More than 10 but less than 15 years
   e. More than 15 but less than 20 years
   f. More than 20 years

4) What is your age?
   a. Under 20 years old
   b. 20-29
   c. 30-39
   d. 40-49
   e. 50-59
   f. 60-69
   g. Over 69 years old

5) What is your ethnic group?

Choose one option that best describes your ethnic group or background

**White**
a. English/Welsh/Scottish/Northern Irish/British
b. Irish
c. Gypsy or Irish Traveller
d. Any other White background, please describe

**Mixed/Multiple ethnic groups**

e. White and Black Caribbean
f. White and Black African
g. White and Asian
h. Any other Mixed/Multiple ethnic background, please describe

**Asian/Asian British**

i. Indian
j. Pakistani
k. Bangladeshi
l. Chinese
m. Any other Asian background, please describe

**Black/African/Caribbean/Black British**

n. African
o. Caribbean
p. Any other Black/African/Caribbean background, please describe

**Other ethnic group**

q. Arab
r. Any other ethnic group, please describe

…………………………………………………………………

s. Would rather not say

6) How would you identify your gender?
   a. Male
   b. Female
   c. Transgender
d. Other, please describe

…………………………………………………………………

e. Would rather not say
Appendix E

Bespoke Workplace Violence Measure

Workplace violence can take a number of different forms, including:

I. Physical assault: any aggressive physical contact with you, irrespective of whether an injury was sustained.

II. Threatening behaviour: any statements indicating intention to harm you or that you perceived as threatening due to the person’s behaviour, e.g. punching the wall or throwing furniture.

III. Verbal aggression: any verbal abuse directed at you, e.g. swearing at you, name calling or being insulting towards you.

With reference to the above descriptions please estimate:

1. How many times in the **past 6 months** have you been physically assaulted by a patient, a patient’s relative, friend or caregiver or a bystander whilst at work?
   a. None
   b. 1-2 times
   c. 3-4 times
   d. 5-6 times
   e. 7-8 times
   f. More than 8 times

2. How many times in the **past 3 months** have you experienced threatening behaviour by a patient, a patient’s relative, friend or caregiver or a bystander whilst at work?
   a. None
   b. 1-2 times
   c. 3-4 times
   d. 5-6 times
   e. 7-8 times
   f. More than 8 times

3. How many times in the **past 3 months** have you experienced verbal aggression from a patient, a patient’s relative, friend or caregiver or a bystander whilst at work?
   a. None
   b. 1-2 times
   c. 3-4 times
   d. 5-6 times
   e. 7-8 times
   f. More than 8 times
Appendix F

Maslach Burnout Inventory - Human Services Survey

**MBI Human Services Survey for Medical Personnel**
Christina Maslach & Susan E. Jackson

The purpose of this survey is to discover how various people in the human services or the helping professions view their job and the people with whom they work closely.

Instructions: On the following page are 22 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, write the number 0 (zero) in the space before the statement. If you have had this feeling, indicate how often you feel it by writing the number (from 1 to 6) that best describes how frequently you feel that way. An example is shown below.

Example:

<table>
<thead>
<tr>
<th>How often:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>A few times a year or less</td>
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<td>Once a month or less</td>
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<td>A few times a month</td>
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<td>Once a week</td>
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<td>A few times a week</td>
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<td>Every day</td>
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</table>

______________________________

- How often 0-6
- Statement:

1. _________  I feel depressed at work.

If you never feel depressed at work, you would write the number “0” (zero) under the heading “How often.” If you rarely feel depressed at work (a few times a year or less), you would write the number “1.” If your feelings of depression are fairly frequent (a few times a week but not daily), you would write the number “5.”
## MBI Human Services Survey for Medical Personnel

### How often:

<table>
<thead>
<tr>
<th>Never</th>
<th>A few times a year or less</th>
<th>Once a month or less</th>
<th>A few times a month</th>
<th>Once a week</th>
<th>A few times a week</th>
<th>Every day</th>
</tr>
</thead>
</table>

### Statements:

1. ________ I feel emotionally drained from my work.
2. ________ I feel used up at the end of the workday.
3. ________ I feel fatigued when I get up in the morning and have to face another day on the job.
4. ________ I can easily understand how my patients feel about things.
5. ________ I feel I treat some patients as if they were impersonal objects.
6. ________ Working with people all day is really a strain for me.
7. ________ I deal very effectively with the problems of my patients.
8. ________ I feel burned out from my work.
9. ________ I feel I’m positively influencing other people’s lives through my work.
10. ________ I’ve become more callous toward people since I took this job.
11. ________ I worry that this job is hardening me emotionally.
12. ________ I feel very energetic.
13. ________ I feel frustrated by my job.
14. ________ I feel I’m working too hard on my job.
15. ________ I don’t really care what happens to some patients.
16. ________ Working with people directly puts too much stress on me.
17. ________ I can easily create a relaxed atmosphere with my patients.
18. ________ I feel exhilarated after working closely with my patients.
19. ________ I have accomplished many worthwhile things in this job.
20. ________ I feel like I’m at the end of my rope.
21. ________ In my work, I deal with emotional problems very calmly.
22. ________ I feel patients blame me for some of their problems.

(Administrative use only)

EE Total score: ________  DP Total score: ________  PA Total score: ________
EE Average score: ________  DP Average score: ________  PA Average score: ________

MBI - Human Services Survey for Medical Personnel - MBI-HSS (MP): Copyright ©1991, 2016 Christina Maslach & Susan E. Jackson. All rights reserved in all media. Published by Mind Garden, Inc., www.mindgarden.com
MBI – Human Services, Medical Personnel, and Educators Scoring Key
Emotional Exhaustion (EE) Subscale

Directions: Line up this scoring key with the MBI survey form. Sum the survey responses on EE items # 1, 2, 3, 6, 8, 13, 14, 16, and 20 that correspond to the unshaded areas on this scoring key. Enter this EE total score on the survey form. Divide the EE total score by the number of answered EE items for an EE average score. Research usually reports the average score.

<table>
<thead>
<tr>
<th>How Often</th>
<th>0-6</th>
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<td>21.</td>
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<td>22.</td>
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</table>
Appendix G

Brief Coping Orientations to Problems Experienced Questionnaire

Brief COPE

There are many ways to try to deal with problems. These items ask what you've been doing to cope with any stressful events encountered at work. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

1 = I haven't been doing this at all
2 = I've been doing this a little bit
3 = I've been doing this a medium amount
4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to the cinema, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.
Appendix H

Coventry University Ethical Approval for Empirical Project

Certificate of Ethical Approval

Applicant:

Aimee Hayes

Project Title:

What is the relationship between workplace violence, burnout and coping styles in frontline ambulance workers?

This is to certify that the above named applicant has completed the Coventry University Ethical Approval process and their project has been confirmed and approved as Medium Risk

Date of approval:

24 January 2019

Project Reference Number:

P77085
Appendix I

Health Research Authority Approval

Miss Aimee Hayes
Room 123 Charles Ward Building
Priory Street
Coventry
CV15FD

16 April 2019

Dear Miss Hayes

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title: What is the relationship between workplace violence, burnout and coping styles in frontline ambulance workers?

IRAS project ID: 256926
Protocol number: N/A
REC reference: 19/HRA/1774
Sponsor Coventry University

I am pleased to confirm that HRA and Health and Care Research Wales (HCRW) Approval has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the “Information to support study set up” section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.
Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?
The attached document “After HRA Approval – guidance for sponsors and investigators” gives detailed guidance on reporting expectations for studies with HRA and HCRW Approval, including:
- Registration of Research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics and is updated in the light of changes in reporting expectations or procedures.

Who should I contact for further information?
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is 256926. Please quote this on all correspondence.

Yours sincerely,
Alex Thorpe

Approvals Manager

Email: hraapproval@nhs.net

Copy to: Dr Carolyn Gordon, Academic Supervisor
List of Documents

The final document set assessed and approved by HRA and HCRW Approval is listed below.

<table>
<thead>
<tr>
<th>Document</th>
<th>Version</th>
<th>Date</th>
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<td>1</td>
<td>24 January 2019</td>
</tr>
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<td>1</td>
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<tr>
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<td>23 January 2019</td>
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<td>HRA Statement of Activities [SoA]</td>
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<td>Validated questionnaire [COPE]</td>
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Information to support study set up

The below provides all parties with information to support the arranging and confirming of capacity and capability with participating NHS organisations in England and Wales. This is intended to be an accurate reflection of the study at the time of issue of this letter.

<table>
<thead>
<tr>
<th>Types of participating NHS organisation</th>
<th>Expectations related to confirmation of capacity and capability</th>
<th>Agreement to be used</th>
<th>Funding arrangements</th>
<th>Oversight expectations</th>
<th>HR Good Practice Resource Pack expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sites will undertake the same activities.</td>
<td>Formal capacity and capability confirmation should not be required. Research activity is limited to forwarding a link to the online survey to ambulance staff.</td>
<td>The applicant has provided a Statement of Activities and Schedule of Events which are intended to be used as the agreement.</td>
<td>No funding will be provided to sites.</td>
<td>The Chief Investigator will be responsible for activities at sites. No research activity will take place at each site.</td>
<td>The applicant is a student with no contractual relationships with the participating NHS sites. However, it is understood that they will not enter NHS premises to access patients and so no additional HR Good Practice Resource Pack clearances would be expected.</td>
</tr>
</tbody>
</table>

Other information to aid study set-up and delivery

*This details any other information that may be helpful to sponsors and participating NHS organisations in England and Wales in study set-up.*

The applicant has confirmed that they applied for portfolio adoption but this was rejected due to lack of funding.
Appendix J

Newsletter and Email Advert for Empirical Study

Are you a frontline member of the Ambulance Service?

I am recruiting frontline members of the ambulance service to take part in a short online research study. The study forms part of a Clinical Psychology Doctorate.

The study is looking at the relationship between experiences of violence whilst at work, how these experiences are managed and the development of signs of burnout within ambulance staff.

Your answers will help us to better understand burnout and the impact of violence on ambulance staff, in addition whether there are ways of coping with these experiences that are more helpful than others.

The study is open to those who have been in a frontline ambulance role for at least 6 months.

The online survey will consist of a series of questions and take approximately 15 - 20 minutes to complete.

Interesting in participating? You can access the online survey and find out more information here:

https://coventry.onlinesurveys.ac.uk/work-place-violence-burnout-and-coping-in-ambulance-staff

Please email me if you would like to know more at:

[Email Address]

Thank you!

Aimee Hayes
Trainee Clinical Psychologist

IRAS Project ID: 256926
Appendix K

Participant Information Sheet and Consent Form

Workplace violence, burnout and coping styles in frontline ambulance workers

PARTICIPANT INFORMATION STATEMENT

Thank you for taking the time to consider taking part in this study. Aimee Hayes, Trainee Clinical Psychologist at Coventry University, is leading this research. It is being undertaken as a partial requirement for the completion of her doctorate.

The purpose of this study is to explore exposure to incidents of workplace violence, experiences of feeling worn out and lacking in motivation (burnout) and coping in frontline ambulance staff.

If you are happy to take part, please answer the study questions (found here: URL) relating to the frequency of violence you have experienced in the last year, how you tend to cope with stressful situations and questions about any signs of burnout you experience. Your answers will help us to better understand the impact of violence on ambulance staff and whether there are ways of coping with these experiences that are more helpful than others.

The online survey should take approximately 25 minutes to complete. Ideally, Aimee would like you to complete it when you have ample time and will not be interrupted, so it might be helpful avoid doing the survey whilst on shift.

Your participation in the survey is entirely voluntary, and you can opt out at any stage by closing and exiting the browser. You are also free to withdraw your questionnaire responses from the project data set at any time until the data are analysed (28th February 2020). If you decide to take part, you will be provided with a participant number. Please make a note of that number and should you wish to withdraw from the study, contact Aimee (contact details are provided below), quoting your participation number, at the earliest opportunity. Please also contact the Faculty Research Support Office (email: ethics.hls@coventry.ac.uk) so that your request can be dealt with promptly in the event of the Aimee's absence. You do not need to give a reason. A decision to withdraw, or not to take part, will not affect you in any way.

Your answers will be treated confidentially and the information you provide will be kept anonymous, meaning that any answers you give cannot be linked to you. Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR) and the Data Protection Act 2018. Your data will be held securely on a password protected database on a Coventry University One Drive and will only be viewed by the research team when being analysed using statistics software. Once analysed, the findings will be written up for thesis and publication for submission to a
journal and/or research conference. The data will be retained by the university for 5 years, after which it will be deleted.

The project has been reviewed and approved through the formal Research Ethics procedure at Coventry University and the Integrated Research Application System. A potential risk to you is that you may become distressed after recalling any incidents of violence you might have experienced. Sources of support are available, if this is the case, and details are included below and on further information you will receive following completion of the study questionnaire.

Coventry University is a Data Controller for the information you provide. You have the right to access information held about you. Your right of access can be exercised in accordance with the General Data Protection Regulation and the Data Protection Act 2018. You also have other rights including rights of correction, erasure, objection, and data portability. For more details, including the right to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk. Questions, comments and requests about your personal data can also be sent to the University Data Protection Officer - enquiry.ipu@coventry.ac.uk.

For further information, or if you have any queries, please contact Aimee Hayes at hayesa9@uni.coventry.ac.uk. If you have any concerns that cannot be resolved through the lead researcher, please contact Dr Carolyn Gordon (ab0477@coventry.ac.uk) or Dr Tom Patterson (t.patterson@coventry.ac.uk).

Thank you for taking the time to participate in this survey. Your help is very much appreciated. If you are happy to take part, please tick the below boxes:

I have read and understood the above information

I understand my participation is voluntary and I am free to withdraw until February 2020

I understand how to contact the research to ask for my data to be withdrawn

I understand my data will be treated as described above

I understand results will be written up as a DClin thesis and for publication within a journal

I confirm that I am aged 18 or over

I confirm that I am an employed frontline member of the Ambulance Service who is not in a Patient Transport Service role

I confirm that I have been working for the Ambulance Service for at least 6 months

I would like to receive a copy of the results (if so please leave your email address in the space below)

..................................................................................................................................
I agree to take part in this questionnaire survey

If you have been affected by reading this information or are struggling with the impact of violence at work there are a number of resources available to support you both within and outside of the ambulance service, these are listed below.

**Internal Resources**
- Line management support
- Support through occupational health
- Trauma Risk Management
  - Staff support, individual to your Trust (e.g. services provided through: Optum, Staying Well Service, Peer Support Network)
- Unions

**External Resources**
- Psychological therapies are open to self-referral in some locations, if not, you may be able to access them through your GP. Use: [https://www.nhs.uk/service-search/Psychological-therapies-(IAPT)/LocationSearch/10008](https://www.nhs.uk/service-search/Psychological-therapies-(IAPT)/LocationSearch/10008) to find out what is available in your location.
- There are a number of charities that offer support and you can access them directly.
  - Sane, offer online support and an emotional support helpline: [http://www.sane.org.uk/what_we_do/support/helpline/](http://www.sane.org.uk/what_we_do/support/helpline/).
  - Samaritans, also offer online and over the phone support: [https://www.samaritans.org](https://www.samaritans.org)
  - Mind have a dedicated Blue Light Programme for emergency workers; support can include face to face support, telephone support and/or online information depending on your location. Find out more: [https://www.mind.org.uk/news-campaigns/campaigns/bluelight/](https://www.mind.org.uk/news-campaigns/campaigns/bluelight/).
Appendix L

Debrief Sheet

Thank you very much for taking part in this research study, we really appreciate your help.

Background

With the information you have provided us, we hope to find out whether increased exposure to incidents of violence whilst on shift plays a role in the development of signs of burnout. This may include feeling: emotionally exhausted, low in morale, low in capability, cynical, irritable and/or detached from work. We also hope to find out whether ambulance staff who use certain coping strategies, such as problem solving or seeking support, are less likely to develop signs of burnout. Further to this we hope to find out whether those who use coping strategies, such as self-blame or avoiding thinking about incidents, are more likely to show signs of burnout. This could help to provide information that may inform supportive interventions in the future.

Further support

Recalling incidents of violence can be very distressing. Furthermore, there is evidence to suggest that, for people who work in healthcare settings in particular, if violence is something regularly encountered whilst at work it may affect psychological wellbeing.

If you have been negatively affected by answering this questionnaire or are struggling with the impact of violence at work there are a number of resources available to support you both within and outside of the ambulance service, these are listed below.

Internal Resources
• Line management support
• Support through occupational health
• Trauma Risk Management
• Staff support, individual to your Trust (e.g. services provided through Optum, Staying Well Service, Peer Support Network)
• Unions

External Resources
• Psychological therapies are open to self-referral in some locations, if not, you can access them through your GP. Use: https://www.nhs.uk/service-
search/Psychological-therapies-(IAPT)/LocationSearch/10008 to find out what is available in your location.

- There are a number of charities that offer support and you can access them directly. For example:
  - Sane, offer online support and an emotional support helpline:
  - Samaritans, also offer both online and over the phone support:
    [https://www.samaritans.org](https://www.samaritans.org)
  - Mind have a dedicated Blue Light Programme for emergency workers; support can include face to face support, telephone support and/or online information depending on your location. Find out more:

Thank you again for taking part.