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**“Looked at the stars with my daughter”: A dual-lens study of daily recovery and
burnout in senior doctors with leadership responsibilities in New Zealand**

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Abstract

Burnout is a pervasive problem in healthcare that has serious implications for doctors, their colleagues, the systems within which they work, and their personal lives. Anchored in Conservation of Resources (COR) theory and the Stressor-Detachment Model (SDM), this study examined how burnout levels change over time in senior doctors with leadership responsibilities, and how their non-work recovery activities relate to day-to-day recovery while continuing to work. It adopted a dual-lens approach, examining (1) organisational and social conditions that relate to burnout, and (2) individual recovery interventions in managing burnout.

A two-part mixed-methods design was used ($N = 43$). Part 1 comprised a repeated-measures component examining burnout across two time points and its relationship with organisational and social conditions and turnover intentions. Participants were also asked about their reasons for continuing in their roles despite experiencing burnout. Part 2 comprised a two-week daily diary component examining how daily work demands and non-work recovery activities, operationalised as psychological detachment, relate to daily recovery.

The results showed a mixed picture. As expected, burnout levels were strongly linked between the two timepoints. Contrary to hypotheses, social support (both in life and at work) was not associated with burnout. Although more than half of participants had accessed professional support services in the three months prior to the study, support service use was unrelated to burnout. Participants also reported multiple barriers to help-seeking. Turnover intentions were also low and unrelated to burnout. In Part 2, the daily diary results showed that doctors frequently engaged in non-work recovery activities, and some, but not all, were associated with same-day and next-day psychological detachment.

Overall, the study identified a paradox: despite participants' proactive recovery efforts, strong non-work social support, and continued functioning at work and home, burnout scores were strongly related across the study period. Participants appeared able to regain sufficient resources to meet daily demands, but this did not correspond with reductions in burnout. These findings suggest that addressing prevalent, ongoing burnout amongst senior doctors cannot be an individual effort. Real change likely requires system-level interventions that address the pressures of modern healthcare.

Keywords: burnout, doctors, social support, safety climate, teamwork climate, turnover, recovery, psychological detachment.

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Chapter 1 - Introduction

Burnout in healthcare is rife. While rates vary by factors such as country, healthcare speciality, and research methodology (Maslach & Leiter, 2016), a systematic review involving 109,628 doctors estimates the prevalence sits at approximately 67% (Rotenstein et al., 2018). In New Zealand, burnout and psychological distress rates for doctors have not improved over time. A study conducted approximately 25 years ago comprising 500 doctors found that 61% reported suffering moderate to severe stress (Richards, 1999), while another study showed that nearly a third of doctors were experiencing significant levels of psychological distress (Dowell et al., 2001). More recent studies show burnout rates at around 50% across the profession (Chambers et al., 2016), and even 70% in specialities such as General Practitioners (Royal New Zealand College of General Practitioners, 2024).

As an illustration of the magnitude of burnout and the risk it carries for doctors and patients alike, in 2022 the US Surgeon General issued an advisory calling burnout a “crisis” that healthcare organisations have a “moral obligation” to fix (Office of the Surgeon General, 2022). In New Zealand, similar concerns regarding the prevalence and impact of doctor burnout have been raised by organisations including the Association of Salaried Medical Specialists (Chambers & Frampton, 2016) and Medical Protection Society (2019). Recent industrial action by senior doctors across the country, which included strikes, focused on many of the workplace factors linked to burnout, including workload, remuneration, and staffing shortages (Association of Salaried Medical Specialists, 2025), all exacerbated by a healthcare system often described as being “on the brink of failure” (King, 2024), and in “crisis” (Palmer, 2024).

Within the doctor workforce, senior doctors are a distinct cohort as their work encompasses both clinical (undertaking frontline patient care) and leadership pressures (Loh et al., 2016). Within these dual roles, senior doctors hold substantial organisational responsibilities, managing teams, overseeing service delivery within budgetary constraints, and contributing to complex and challenging organisational decisions (Chambers et al., 2016; Denis & Van Gestel, 2016). Understanding burnout in this group is particularly important as burnout within these roles represents a substantial risk, impacting not only senior doctors’ own wellbeing and ability to function at work, but also critical healthcare outcomes such as patient care and safety, team performance, and workforce stability (Briggs et al., 2024; Kirkpatrick et al., 2024).

Numerous studies have highlighted the far-reaching impact of burnout on senior doctors, their teams and patients (Maslach & Leiter, 2016; Nagarajan et al., 2024; Xerri et al., 2023). From a team perspective, longitudinal evidence shows that leader burnout can crossover to followers as a “contagion”, impacting follower engagement, work strain, and personal resources to cope (Huang et al., 2016). It can also impact team culture, and staff retention, and lead to fractious relationships within teams and across operational and clinical groups (Denis & Van Gestel, 2016).

From a patient perspective, burnout in doctors has been linked to serious health and safety risks (Shanafelt et al., 2010). As one example, a meta-analysis comprising 239,246 physicians found that burnout doubled patient safety incidents, and burnout amongst doctors was associated with other patient-related issues such as lower doctor professionalism and patient dissatisfaction (Hodkinson et al., 2022). Given that senior doctors oversee critical aspects of healthcare, supervise junior doctors, and conduct clinical care, the implications of burnout amongst senior doctors are profound (Chambers & Frampton, 2016). Understanding the persistence of burnout and the conditions that influence the recovery process within this group is therefore essential.

Organisational and Social Conditions and Burnout

Broadly, doctors experience disproportionately high levels of burnout compared to the general population, and longitudinal evidence shows that burnout tends to remain high over extended periods within this group (Schaufeli et al., 2011). The reasons for these trends are complex, reflecting a unique combination of factors across individual, social and organisational domains (Chambers et al., 2016). These factors, along with burnout itself, can increase their vulnerability to other mental health disorders, substance misuse, and suicide (Bria et al., 2014; Dutheil et al., 2019; Guille & Sen, 2024; Kumar, 2016).

At the individual level, factors linked to burnout include overuse of maladaptive coping strategies, overcommitment to work, and traits such as perfectionism (Patel et al., 2018), while at the social level, quality of support plays an important role. Social support, defined as person-to-person interactions that foster wellbeing, can occur at multiple levels, including non-work support (such as family and friends), collegial support, and manager support (Moura et al., 2020). While positive relationships can help to buffer doctors from stressful work experiences, poor relationships can exacerbate strain (Moura et al., 2020). In a non-work context, a lack of social support in life (e.g., no significant other or low perceived

support from family and friends) has been linked to burnout in doctors (Rogers et al., 2016; Seidler et al., 2014), and work-family conflict (Patel et al., 2018).

At work, interpersonal conflict and adverse leadership behaviours by direct line managers (referred to as managers hereafter) have been associated with higher levels of burnout for doctors (Blanco-Donoso et al., 2017; Cheng et al., 2016; Moura et al., 2020), as has the psychosocial work climate (Seidler et al., 2014). A positive psychosocial climate is characterised by the quality of teamwork interactions, participation safety, and a sense of being valued by management (Cheng et al., 2016; Garrick et al., 2014). Conversely, a negative climate has been found to be a structural contributor to burnout stability and can present barriers to help-seeking and usage of professional services (Clough et al., 2019). To that end, studies show engagement in professional support services for mental health challenges is low amongst doctors (Kay et al., 2008), with research suggesting factors such as the work climate and a perceived lack of confidentiality and professional consequences may inhibit uptake (Clough et al., 2019).

At the organisational level, senior doctors tend to work in demanding environments characterised by high workloads, constant change, and frequent exposure to serious illness and death (Patel et al., 2018). As both leaders and clinicians, they face a constant balancing act as they navigate these roles within the constraints of healthcare systems, often leading to competing priorities and pressures (Loh et al., 2016). Finally, professional norms within medicine also play a contributory role, with doctors held to a high moral standard and heroism embedded into everyday practice, all within a professional culture where stress is normalised (Clough et al., 2019).

While burnout can contribute to doctor turnover, it does not always lead to resignation. The latest retention data from the Medical Council of New Zealand (2025) shows doctors aged between 36 and 55 are more likely to stay compared to doctors in their 20s and those aged 65 and over. Reasons for continuing to stay are varied and include sizeable debt from medical training, perceived impact on colleagues, and a commitment to helping others (Long et al., 2020; Moreno-Jiménez et al., 2012; Seathu Raman et al., 2024). While retention may appear positive on face value, it does not necessarily reflect a healthy work environment. Many of the issues raised during the recent industrial action by senior doctors points to limited progress towards effective system-level solutions that address the unrelenting strains

and pressures of working in modern medicine (Association of Salaried Medical Specialists, 2025).

Individual Daily Recovery

Recovery from burnout is conceptualised in this study as the process of restoring psychological and emotional resources in the context of ongoing work demands (Salminen et al., 2017). While full, macro-level, recovery from burnout may take years, micro-level recovery can also occur on a short-term, day-to-day basis (Aronsson et al., 2024; Reis et al., 2024). Central to this daily process is psychological detachment, defined as the ability to mentally detach from work during non-work time (Sonnentag & Fritz, 2015). Psychological detachment has been linked to engagement in recovery activities, which are actions individuals undertake as personal interventions, such as physical activity (Demerouti, 2015). This relationship is often explained through the Stressor-Detachment Model (SDM), which proposes that recovery occurs when individuals are able to mentally disengage from work demands during non-work time (Sonnentag & Fritz, 2015). However, research suggests that psychological detachment can be difficult for doctors to achieve given the pressures of work (Fauzi et al., 2020).

While system-level interventions aimed at addressing burnout in healthcare organisations are critical, implementation is often slow and constrained by broader contextual conditions such as the political environment (Chambers & Frampton, 2016). Research shows individuals are frequently left to manage burnout symptoms on their own (Korhonen & Komulainen, 2023). For senior doctors who continue working despite experiencing burnout symptoms, individual recovery efforts therefore become an important means of replenishing enough energy to meet the demands of work and home life (Walsh et al., 2025). This aligns with the Conservation of Resources (COR) theory, which proposes that workers continually seek to replenish sufficient resources to cope with ongoing demands (Hobfoll et al., 2018). However, recovery does not occur in isolation. It is shaped by many of the same organisational and social conditions that contribute to burnout stability, such as leadership support at work and work-family conflict (Demerouti et al., 2009; Doolittle, 2020; Sonnentag et al., 2017).

Research Limitations

Despite extensive research on burnout in healthcare, there are substantial gaps in burnout and recovery literature for doctors as global research has predominantly focused on

burnout prevalence, risk factors, and outcomes (McManus et al., 2011; Sonnentag et al., 2017). While some longitudinal studies have investigated burnout change over time, comparatively fewer have explored how organisational and social conditions relate to burnout stability and daily recovery processes, and short-term recovery has rarely been examined alongside time-based reports of burnout symptoms (Lou et al., 2022; Sonnentag et al., 2017).

Within New Zealand, research examining burnout amongst senior doctors is limited, with existing studies largely focused on prevalence and associated factors rather than recovery processes (Chambers et al., 2016; Reynolds et al., 2021; Surgenor et al., 2009). Consequently, little is known about burnout fluctuations over time within this population, and how they experience burnout and recovery while continuing to work.

Further, much of the international recovery research for doctors is either cross-sectional or intervention-based, typically focusing on structured programmes (Bria et al., 2014). Interventions are defined as deliberate actions intended to improve individual, group, or organisational outcomes by altering processes deemed ineffective or harmful (Lambert et al., 2022). Such interventions and programmes are typically focused on individual-level support or skill-building, such as mindfulness training, and while these can be beneficial, focusing on the individual alone can inadvertently reinforce the notion that burnout is a personal problem (Korhonen & Komulainen, 2023).

Less is known about how senior doctors navigate day-to-day recovery within ongoing organisational constraints and social pressures, and the practical mechanisms through which recovery occurs in the real world (Abedini et al., 2018; Lambert et al., 2022). There are also gaps in understanding the role of social support in burnout recovery, particularly in a non-work context (Ma et al., 2020). Although studies often gather demographic relationship information, such as marital status or number of children, few have further examined the quality of that support, especially for doctors (Lund, 2022).

From a conceptual and methodological perspective, it has been argued that many dominant models of burnout assume causal relationships that have not been consistently tested using longitudinal designs, meaning there is limited understanding of how burnout develops and resolves over time (Maslach & Leiter, 2016). Further, much of the existing research relies on single-time, self-report questionnaires, which may not adequately capture the dynamic and fluctuating nature of burnout and recovery processes (Xanthopoulou & Meier, 2014). To that end, evidence increasingly supports the use of multi-day longitudinal

studies to assess these factors in relation to real-time demands and experiences (Fleuren et al., 2023).

Repeated-measures and diary-based designs offer promising ways to address these gaps (Gochmann et al., 2022; Seathu Raman et al., 2024). Although longitudinal research can introduce challenges such as participant attrition and increased participant burden, these suggested approaches are recognised as being valuable for capturing variation, and can provide greater insight into the complex relationships between burnout, recovery processes and related variables such as social support (Frick et al., 2024; Gochmann et al., 2022; Iida et al., 2012; Janssens et al., 2018; Song et al., 2025). In sum, given the gaps in the literature, a longitudinal mixed-methods design allows for the examination of changes in burnout over time, alongside daily recovery processes, and organisational and social conditions within the doctor population.

Research Questions

Considering the research gaps and opportunities, this study takes a dual-lens approach, examining organisational and social conditions alongside individual daily recovery processes. These are explored across two time points (Time 1: baseline; Time 2: follow-up), together with a daily diary component designed to capture recovery experiences close to when they occur. The study addresses these research questions:

Part 1: Relationships Between Organisational and Social Conditions and Burnout

- RQ1. What is the relationship between burnout measured at the beginning of the study and burnout measured at the end of the study period?
- RQ2. How do organisational and social support conditions (i.e., in life and at work) relate to burnout levels over time?
- RQ3. How is burnout associated with turnover intentions, and why do doctors continue in their current roles while experiencing burnout?

Part 2: Individual Daily Recovery

- RQ4. How are daily work-related factors and non-work recovery activities associated with same-day and next-day psychological detachment?

In essence, the central question of this research is: How do senior doctors with leadership responsibilities, who are experiencing burnout, navigate day-to-day recovery while continuing to work, and how does their burnout change over time?

The overall aim is to help healthcare organisations better understand the conditions that influence burnout and daily recovery and to support evidence-based interventions that improve doctor wellbeing and related outcomes such as retention and patient safety. Based on the literature reviewed, the following hypotheses specify the predicted relationships for the research questions:

- H1. Burnout at Time 1 is positively associated with burnout at Time 2.
- H2a. Social support, both in life and at work, is negatively associated with burnout at Time 1 and Time 2.
- H2b. Psychosocial work climate is negatively associated with burnout at Time 1 and Time 2.
- H2c. Usage of professional support services is negatively associated with burnout at Time 1 and Time 2, and with fewer reported barriers to access.
- H3. Burnout at Time 1 and Time 2 is positively associated with turnover intentions at Time 1.

Exploratory question: What reasons do doctors report for continuing in their work roles despite experiencing burnout?

- H4a. Work demands (i.e., work hours, on-call hours, and work conditions) is negatively associated with same-day and next-day psychological detachment.
- H4b. Engagement in non-work recovery activities (e.g., high- or low-effort leisure activities) is positively associated with same-day psychological detachment, and some activities (e.g., physical and social activities) are also positively associated with next-day psychological detachment.

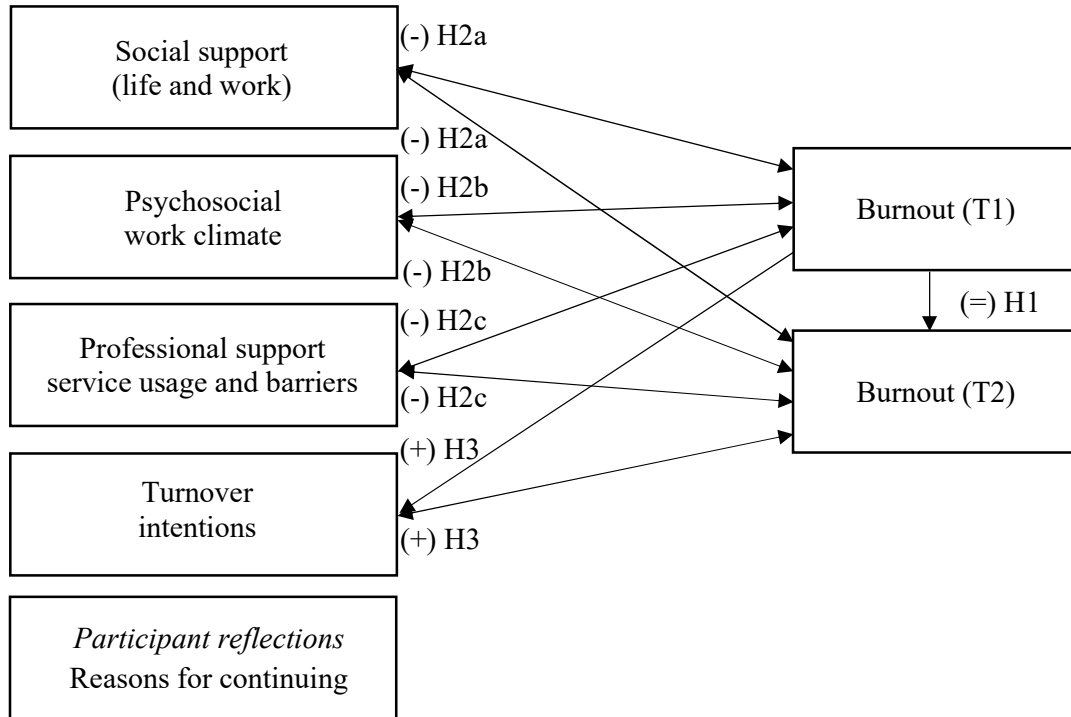
Exploratory question: What helped and hindered participants' recovery the most over the diary period?

The research framework is presented in Figure 1.

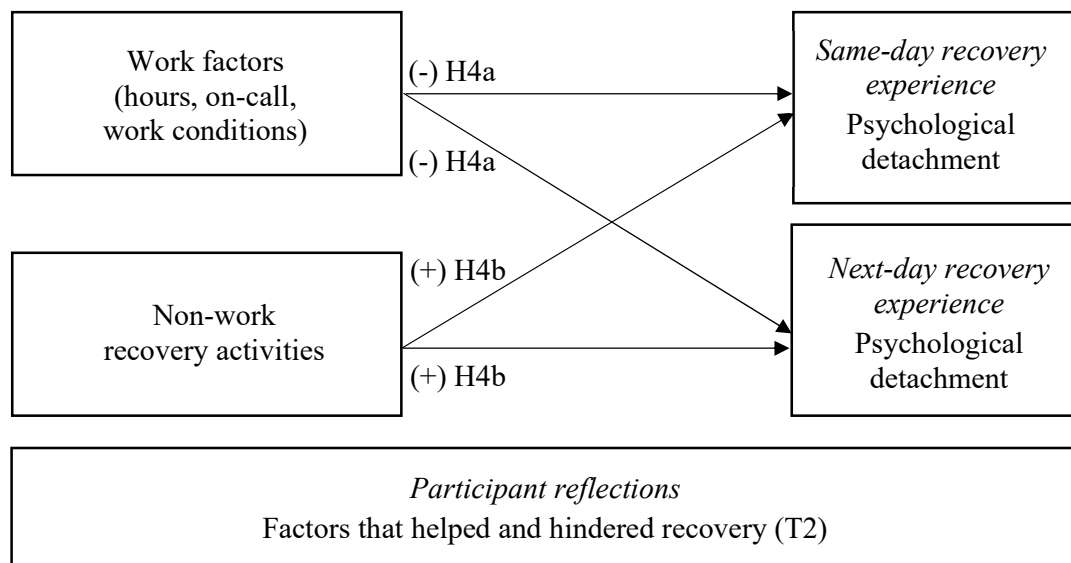
Figure 1

Research Framework and Hypotheses Using a Dual-Lens Approach

Part 1: Relationships Between Organisational and Social Conditions and Burnout



Part 2: Individual Daily Recovery



Significance and Contributions

With today's substantial global economic and healthcare challenges, burnout is unlikely to diminish anytime soon, and the risks for doctors, their patients, and healthcare organisations are too great to ignore. While prevention is critical, progress towards system-level reform is slow. In the meantime, healthcare organisations and doctors need to proactively respond to burnout as it currently exists, given its high prevalence (Demerouti et al., 2021).

To that end, this study contributes to a greater understanding of burnout and daily recovery across organisational, social, and individual domains. At organisational and social levels, it aims to provide insight into the conditions that may contribute to the persistence of burnout, which may support the development of robust system-level interventions. At the individual level, it aims to identify factors associated with daily recovery within ongoing work demands, and offer practical insights into how doctors approach recovery within the constraints of modern healthcare work.

Chapter 2 - Literature Review: Organisational and Social Conditions and Burnout

Evidence indicates that doctors tend to have higher levels of personal resilience than the general population, and at the same time they experience disproportionately high levels of burnout (McCain et al., 2018; West et al., 2020). This presents a paradox that cannot be explained by individual factors alone, and a wealth of research shows that burnout is shaped by the social and organisational contexts within which doctors work and live (Kumar, 2016). Accordingly, this chapter examines burnout stability, the role of social support, and the organisational and leadership pressures that shape how burnout can intensify or diminish over time. It also examines why senior doctors continue to work in their current roles, despite experiencing ongoing symptoms. Finally, COR theory (Hobfoll, 1989) is introduced as a theoretical lens to help explain the persistence of burnout over time, and the influential factors.

Defining Burnout

The concept of burnout was originally identified by Freudenberger in 1974, followed by Maslach in 1976 (Aronsson et al., 2017). While some researchers argue there is no unifying definition of the concept, and that it has crossover with other constructs such as depression and anxiety, it is generally considered to be a three-factor construct, comprising emotional exhaustion, depersonalisation or cynicism, and reduced professional efficiency (Ahola et al., 2017; Khammissa et al., 2022; Maslach et al., 2001). Emotional exhaustion is the feeling that one's emotional and physical resources have been wholly depleted, depersonalisation is when a person distances themselves from their work and relationships become draining tasks, and reduced professional efficiency refers to a lack of achievement, a decrease in productivity, and feelings of incompetence (Aronsson et al., 2017; Maslach et al., 2001). Of the three, emotional exhaustion is the factor with the greatest research attention and is often regarded as the first sequential stage, leading to the other two factors over time as outcomes (Maslach & Leiter, 2016). In essence, burnout has been characterised as the point where the symptomology “has become so intense that it severely affects workers” (Haar, 2021).

In 2019, the World Health Organisation (2019) included burnout in its 11th Revision of the International Classification of Diseases (ICD-11), providing arguably the first standardised definition for the concept. It defines burnout as an occupational phenomenon rather than a medical condition, which is “the result of chronic workplace stress that has not

been successfully managed”, and it stipulates that burnout should not be applied to other areas of life. This last statement has been somewhat controversial, with evidence showing that the causes of and contributors to burnout are not limited to work and that non-work demands, such as caregiving responsibilities and a lack of social support, can substantially impact burnout, its duration and one’s ability to recover (Aronsson et al., 2024).

Burnout Stability

Burnout does not appear to develop through one uniform pathway across persons. Rather, studies suggest it progresses in a non-linear fashion subtly over time, finally reaching a steady point where once key symptoms finally show, burnout is usually well advanced (Khammissa et al., 2022; Mäkikangas & Kinnunen, 2016). It is important to note that burnout does not have a cut-off score, and there are no clinical markers (Almén, 2021). Rather, higher scores on self-report burnout scales indicate more severe symptoms and potential adverse outcomes (Guille & Sen, 2024).

Once developed, burnout appears to be a relatively stable over time, with longitudinal studies showing similar levels of burnout within persons over months and even years with little fluctuation (Mäkikangas & Kinnunen, 2016). It is thought its stability is a result of continuous exposure to work demands and insufficient personal capacity to recover (Sonnenschein et al., 2007a). In support of this view, a qualitative study examining burnout recovery ten years after onset found that participants, who were from a range of professions, experienced ongoing symptoms and had challenges with managing these over time (Aronsson et al., 2024). Within the doctor population, similar trends can be found. A longitudinal study of 165 Dutch primary healthcare doctors found that around 23% to 28% of the variance of participants’ burnout levels across a 10-year period could be attributed to a stable component, which was theorised as likely to be ongoing exposure to work-related factors (Schaufeli et al., 2011). Evidence on the changes in burnout scores over shorter time periods (e.g., ten days) is less clear, with some studies finding variances in exhaustion levels within persons, while other studies find no change at all (Xanthopoulou & Meier, 2014).

The Implications of Burnout and its Relationship with Turnover

The persistent nature of burnout has serious implications for doctors, their colleagues, the systems within which they work, and their personal lives (Gabriel & Aguinis, 2022). At the individual level, burnout has been linked to a range of adverse physical and psychological health outcomes, including poor quality of life, coronary heart disease and increased

mortality risk (Ahola et al., 2017; Khammissa et al., 2022). At home, it can extend into family life, with evidence of secondary distress amongst spouses and spillover effects for children (Grimmer & Jacquin, 2023; Kerr et al., 2021).

Within the work context, burnout has been consistently linked to conflict and fractious relationships, reduced performance and professionalism, and increased healthy and safety incidents, particularly related to patient care (Briggs et al., 2024; Denis & Van Gestel, 2016; Kirkpatrick et al., 2024; Maslach & Leiter). It is also associated with reduced personal motivation, and lower productivity (Khammissa et al., 2022).

Burnout is also strongly associated with turnover and intentions to leave (Stehman et al., 2019). However, the reality is that many senior doctors continue working in their roles while experiencing ongoing symptoms. Evidence examining why doctors stay is relatively limited (Seathu Raman et al., 2024). However, the available evidence suggests reasons for staying include concerns about the impact leaving would have on colleagues, limited flexible work options, work-family conflicts, visa requirements, and a strong commitment to helping others (Long et al., 2020; Moreno-Jiménez et al., 2012; Seathu Raman et al., 2024).

Financial pressures and personal circumstances may also influence the decision to continue working. Verstappen and Poole (2017) reviewed New Zealand medical student debt trends over a nine-year period, and found at graduation, on average, 92% of domestic students reported a student loan debt, with 28% having a debt of \$90,000 or more. Other studies on New Zealand doctors has found that student loan debt created financial difficulties, making it more difficult for doctors to save for a house deposit, and had even influenced their decision to have children (Moore et al., 2006). Marriage also appeared to influence decision-making to continue on, which may be due to family commitments such as children or the desire to work and live near older parents or other family members (Seathu Raman et al., 2024).

Social Support and Burnout

For the purposes of this study, social conditions are operationalised as social support, psychosocial work climates, and professional and societal norms. Social support is conceptualised as person-to-person interactions that provide psychological or material resources, including emotional concern, information, or practical assistance (Moura et al., 2020). It can come from a range of sources, such as family, friends, work colleagues, and managers (Sochos et al., 2012). While social support is often viewed as protective against

work stress and burnout, studies exploring social support and burnout within the doctor population are relatively limited (Blanco-Donoso et al., 2017; Seidler et al., 2014). Within the available evidence, this section begins by exploring individual characteristics, often influenced by the social context, followed by non-work social support, work-based social support, and psychosocial work climates. Finally, it considers professional support service usage and the common barriers to accessing such support.

Individual Characteristics, Social Conditions and Burnout

A range of individual characteristics have been linked to increased vulnerability to burnout amongst doctors, many of which are influenced by the social environments in which doctors live and work (Kumar, 2016). Gender differences are one of the most well-documented demographic patterns, with female doctors often reporting higher levels of burnout than their male counterparts (Lyubarova et al., 2023). This disparity has been largely attributed to broad societal influences including greater exposure to occupational risks (e.g., microaggressions), occupational inequities (e.g., compensation disparities), and unequal domestic responsibilities (Houkes et al., 2011; Lyubarova et al., 2023).

Other demographics categories, conversely, are less clear. For example, regarding age, some studies show younger or older doctors at greater risk, while others show no significant relationship at all (Amofo et al., 2015). Within New Zealand, a study of 178 senior doctors found doctors aged over 50 years had significantly lower burnout levels than those aged 50 or under (Reynolds et al., 2021). The authors theorised that older doctors were likely better equipped to manage work-related pressures given time and experience in the role.

Certain psychological characteristics have also been linked to burnout, including traits and cognitive patterns that can intensify responses to sustained work demands. These include perfectionism, self-criticism, extreme self-reliance, fear of failure, overcommitment to work, and difficulty setting boundaries, along with maladaptive coping strategies as well (Almén, 2021; Brown et al., 2019; Dominic et al., 2021; Hill & Curran, 2016). While these psychological characteristics exist within a person and can contribute to their burnout experience, they can also influence doctors' social relationships, desire to seek help from others, and their overall experience of burnout (Patel et al., 2018).

Non-Work Social Support and Burnout

While social support outside of work from family, partners, and friends can play an important role contributory role to individual experiences of burnout (Doolittle, 2020; Rogers et al., 2016), few studies have investigated non-work social support for doctors, particularly within the home environment (Schug et al., 2021; Seidler et al., 2014). Of the available literature, researchers have emphasised different components, with some focused on the direct effect of non-work social support on personal strain and stress, while others have focused on the implications, suggesting that stressful experiences may, over time, erode non-work social support or alter how it is experienced (Sochos et al., 2012).

To that end, it is difficult to determine the average quality of non-work social support that doctors perceive to have due to the limited research. This gap is important, given that medical work can, over time, negatively impact non-work relationships through sustained demands on individual time and energy (Leep Hunderfund et al., 2022). Of the studies that have been conducted, there is no clear trend. One study of 656 Chinese doctors found their self-reported non-work social support was significantly lower than the general Chinese population (Fu et al., 2021). In contrast, a study of 218 resident doctors in the United States reported 92% of participants reported an average or greater connection to their external social community outside of medicine (Lund, 2022). Of course, these findings also need to be considered within broader socio-cultural context, as cultural differences may affect how support is perceived, accessed, and reported (Brailovskaia et al., 2021).

Notwithstanding, there is evidence, conducted mostly on resident doctors, that shows that experiencing greater non-work social support from family and friends can buffer the stress of working in medicine and is linked to lower levels of burnout (Ma et al., 2020; Pang et al., 2022; Rogers et al., 2016). Doctors who report stronger friendships tend to report lower burnout and greater compassion satisfaction, being the fulfilment derived from helping others (Doolittle, 2020). In America, a study of 661 doctors across varying levels of seniority, employed at a single healthcare centre, found nine in ten doctors reported they had frequent career support from their partner, and their partner often expressed confidence in their ability to handle a situation (O'Sullivan et al., 2025). Furthermore, the researchers found greater career support from a partner was associated with improved work-life integration.

To that end, work-life integration, and its opposite, work-life conflict, defined as being when work demands markedly interfere with home life, is a common challenge for

doctors (Almén, 2021; Kumar, 2016; Mache et al., 2015). Work hours (e.g., long hours, shift work and inflexible schedules) are often cited across the literature as one of the main contributors, particularly as it is highly dependent on an employer's appetite for supporting staff to prioritise time outside of work (Dimou et al., 2016; Lu et al., 2022). Within the New Zealand context, the study by Chambers and Frampton (2016) found senior doctors worked approximately 60 hours, on average, in the week prior to the survey, and just over half worked more than 14 hours consecutively, both of which were significantly correlated with work-related burnout.

Indeed, work-life integration and family considerations were consistent themes throughout study by Chambers and Frampton (2016), with many doctors reporting they were constantly concerned about ensuring enough time with friends and family, and this added to their stress. Having young families, with greater caregiving responsibilities, also increased demands related to managing work and home life in the study. Females, in particular, were significantly more likely to report issues associated with having young children than their male counterparts. While the global evidence is somewhat mixed on gender differences, there is a growing number of studies globally suggesting females doctors experience work-family conflict more often than their males colleagues (Amofo et al., 2015; Guille & Sen, 2024; Mache et al.).

The impact of work-life conflict impact can be substantial, with burnout in doctors linked to distress in their spouses, along with greater symptoms of anxiety, depression and secondary trauma, even when spouses rated themselves more resilient than their physician partner (Grimmer & Jacquin, 2023). Family incivility, ranging from low level aggressive behaviours through to abusive conduct, has also been linked to burnout amongst doctors, potentially through spillover effects from work that impair individual functioning (Paul Vincent et al., 2022). Equally, other New Zealand-based research has found that family involvement at the start of the day can influence how workers experience their day, highlighting the bi-directional relationship between work and home (Haar et al., 2018).

Work-Based Social Support, Psychosocial Work Climates and Burnout

Compared to non-work social support, there is more evidence available on the influence of work relationships on burnout amongst doctors. Within the work context, there are two key sources of support: managers, and colleagues (Nielsen et al., 2018). Social support from managers is particularly important for senior doctors, as managers play a

substantial role in how work is perceived, achieved and enjoyed (Moura et al., 2020). High-quality relationships between managers and their teams typically involve attention, time, empowerment, and autonomy (Thomas & Lankau, 2009), and support across these factors can help senior doctors to cope with the high demands of work and mitigate burnout, particularly with the combined pressures of leadership and clinical work (Moura et al., 2020).

Social support from colleagues is also vital and can help to protect doctors from stressful work experiences, and evidence shows collegial support can be an important buffer, defusing tension, assisting problem solving and providing care and encouragement (Blanco-Donoso et al., 2017). Conversely, interpersonal conflict, being a dispute between two or more people, was reported by surgeons in one study to be an important contributor to stress and burnout (Al-Ghunaim et al., 2022). In that study, participants reported interpersonal conflict often arose from a lack of compassion towards each other, working in unfamiliar teams, perceived staff incompetence, and even personality differences. Consistent with this, other research shows that individuals with poor co-worker support are more likely to experience burnout (McLinton et al., 2023).

Beyond interpersonal relationships, the broader psychosocial work climate can influence the availability and quality of work-based support (Seidler et al., 2014). Psychosocial work climate is operationalised as teamwork climate and safety climate in this study. A positive teamwork climate is characterised by a shared vision, participation safety, task orientation, support for innovation and frequent interaction (Cheng et al., 2016). In a positive safety climate, management values employee wellbeing, actively prevents psychological harm, and supports the use of protective factors under high demand (Garrick et al., 2014). While positive teamwork and safety climates are typically beneficial, research on the relationship between these and burnout has produced mixed results (Mossburg & Dennison Himmelfarb, 2021; Seidler et al., 2014). While some studies report that stronger perceptions of safety can mitigate burnout, others have found associations vary depending on psychosocial factors such as workload, work hours, and social conditions (Lu et al., 2022; Sousa et al., 2023; Wilbanks et al., 2025).

Despite the mixed findings, supportive leadership from managers has consistently been identified as a key factor in the development and maintenance of teamwork and safety climates, particularly through the promotion of trust in workers (de Carvalho et al., 2023). In climates where trust is high, employees can speak honestly and openly about errors without

guilt or fear, and collaborative learning is encouraged. Conversely, adverse leadership behaviours, operationalised as low transformational leadership (e.g., poor ethical decision-making and high self-interest), have been associated with poorer teamwork climate and higher levels of burnout among healthcare workers (Cheng et al., 2016). Supporting this, a study of 3,896 doctors found poor leadership had the strongest association with burnout, ahead of other factors that influence job satisfaction, such as workload and salary (Shanafelt et al., 2015). There is also increasing evidence from longitudinal studies that burnout can be a “contagion” with crossover from leaders to followers, leading to a “strain climate” rather than safe climate in organisations (Hobfoll et al., 2018; Huang et al., 2016; Shanafelt et al., 2015).

Professional Support Services and Barriers to Help-Seeking

Critically, support is not only determined by the presence of others, but also by professional and social norms that influence help-seeking, disclosure, and perceptions of vulnerability within medicine (Clough et al., 2019). Medicine has long been built upon strong moral foundations, demanding exceptionally high personal and professional standards and a duty to care for those in need (Giannoudi, 2025). Many doctors choose medicine because they are intrinsically motivated by a desire to serve others (Guille & Sen, 2024). However, the associated norms to be selfless and put patients’ needs first can come at a high cost (Maslach & Leiter, 2016). Self-sacrifice and a culture of mental health stigma has long existed in the profession, with burnout and mental health issues seen as personal weaknesses (Clough et al., 2019). In a study of over 200 Australian doctors, the expectation to act as a hero through stress was found to be a strong theme, with stress normalised and viewed as a marker of commitment to the profession or organisation (Clough et al., 2019).

At the same time, studies show doctors commonly report experiencing a sense of failure and frustration at their limited ability to provide gold-standard care within the complex constraints of modern medicine (Kumar, 2016). This diminished ability to provide the care they aspire to can also lead to feelings of powerlessness, grief of loss, moral injury and a plethora of other emotions and behaviours that increase burnout vulnerability (Kumar, 2016; Wang et al., 2022). In addition, broader societal beliefs that doctors should be constantly available and capable of delivering high standard care without error or harm, can intensify the relentless pressure that doctors experience (Patel et al., 2018; Stehman et al., 2019).

Within this context, and despite the high levels of burnout across the profession, psychological help-seeking amongst doctors is typically low and many are reluctant to seek professional care (Clough et al., 2019). Research suggests a mix of personal concerns and system-level factors prevent doctors from seeking treatment for burnout and other mental health challenges (Clough et al., 2019; Kay et al., 2008). Personal factors include the stigma of seeking care, embarrassment, cost, time constraints, difficulties prioritising personal wellbeing, fear of losing autonomy, and a desire to be self-reliant, as well as cultural pressures to appear persistently healthy. Work barriers include long hours, limited access to services, the normalisation of stress in the profession, and concerns about confidentiality and potential career repercussions (Clough et al., 2019; Cunningham & Cookson, 2009).

New Zealand-based research mirrors these international findings. Cunningham and Cookson (2009) examined use of a workplace funded counselling service for doctors and found uptake was notably low. Of the 9,547 doctors holding registration in New Zealand at the time, only 39 doctors had used the counselling service, and most only had one to six sessions. Barriers included a lack of awareness of the service, concerns regarding confidentiality, and personal concerns about receiving counselling. While more current research on help-seeking barriers could not be found for a New Zealand doctor cohort, a recent Australian study shows these concerns have not reduced over time with only one in four doctors reporting they would use a doctor mental health helpline (Wijeratne et al., 2021). The international evidence shows these barriers to help-seeking have worrying consequences. A study of over 7,900 US surgeons found 60% with recent suicidal ideation were reluctant to seek help because of concerns it could impact their medical licence to practice (Shanafelt et al., 2011).

Organisational and Leadership Pressures

While individual factors and social conditions are important contributors to burnout, evidence shows organisational pressures are instrumental in the development and persistence of burnout over time (Chambers et al., 2016; Maslach et al., 2001; Nielsen et al., 2018). Globally, healthcare organisations operate within increasingly complex public health systems shaped by political, bureaucratic, societal, and technological pressures (Kumar, 2016; Maslach & Leiter, 2016). New Zealand is no different, with doctors reporting increased workloads linked to greater administrative demands and rapid technological and service-delivery changes that require doctors to continually adapt their ways of working (Chambers et al., 2016; Kumar, 2016).

Within the broader political environment, tensions between doctors and the government of the day are well documented as adding pressure to already demanding clinical roles, particularly where expectations to prioritise patient care extend beyond reasonable limits (Maslach & Leiter, 2016). As an example of this tension, the governmental response to the recent industrial action in late 2025 focused on doctors as individuals, arguing the strike was a “a decision by some of the most well-paid public servants in New Zealand to walk away from patients and cancel care” (RNZ Digital Reporters, 2025). However, many senior doctors have repeatedly and strongly rejected this claim and argued their concerns do not stem from individual weakness or patient-related factors, but rather from systemic factors such as chronic under-resourcing (Chambers & Frampton, 2016).

Within the organisational environment, senior doctors hold dual roles, as organisational leaders and as clinicians, with substantial influence on healthcare performance, perceived quality of care, and patient safety outcomes (Denis & Van Gestel, 2016). Their leadership responsibilities typically encompass a range of activities, including staff supervision, budget management, governance, risk management, technology evaluation, and participation in committees (Kirkpatrick et al., 2024). Many are also involved in developing new ways of working, redesigning patient care models, and upskilling peers, all while continuing frontline work (Denis & Van Gestel, 2016).

The breadth these responsibilities often creates competing priorities, and balancing leadership with clinical work has been associated with strained management relationships, power imbalances between peers, and limited leadership support or training (Denis & Van Gestel, 2016; Loh et al., 2016). Indeed, evidence shows being both a clinician and an organisational leader is often stigmatised within the medical community, where accepting a management position is commonly viewed as “stepping into the dark side”, an intrinsically negative role fixated on processes and targets over a greater calling to care for humanity (Loh et al., 2016).

COR Theory and Burnout

To understand the development and persistence of burnout, it is useful to consider relevant theoretical frameworks and COR theory is one of the most commonly applied models (Hobfoll et al., 2018). COR is a motivational theory that posits that people are motivated to obtain, preserve and protect resources that are valuable to them and that doing so requires effort (Hobfoll, 1989). Resources are defined as provisions, personal

characteristics, contextual factors, or emotional resources that a person values, such as time, energy, relationships, finances, or health (Song et al., 2025). It is not a theory grounded in individualism. Rather, it has been asserted that a large part of resource acquisition and protection lies in social bonding and support, and people operate within the bounds of sociocultural expectations and conditions, such as at work (Hobfoll et al., 2018).

Accordingly, COR theory suggests that burnout is an experience of chronic emotional, cognitive or physical resource loss within the work environment (Song et al., 2025). Both potential and actual resource loss has been found to facilitate stress and fatigue (Lu et al., 2022), and a failure to replenish that resource loss leads to a continual loss cycle that can be difficult to break (Hobfoll et al., 2018). For doctors, this means that in the face of resource-threatening work environments, they are required to continually invest personal energy and resources to manage day-to-day (Paul Vincent et al., 2022). To counter low resources at work, research suggests that individuals often borrow from family and other close relationships to support work efforts, and this can contribute to work-life conflict, compounding the problem (Hobfoll, 2001; Mache et al., 2015). In the absence of opportunities for resource replenishment, a reinforcing spiral of resource loss can occur, contributing to the persistence of burnout over time (Pladdys, 2024).

Within COR theory, work factors can either promote resource gain, or facilitate resource loss for individuals (McLinton et al., 2023). Such influences include colleague and manager support, and teamwork and safety climates, and these require continual investment by both individuals and organisations to manage and sustain (Lu et al., 2022). While studies have shown that the availability and use of work resources can be protective, low resource investment by the organisation can enable excessive work demands and limit an individual's capacity to adequately meet these demands at the same time (Garrick et al., 2014). Consistent with this, Chambers et al. (2016) found senior doctors identified poor working conditions, such as under resourcing, poor management and workload, as key contributors to their persistent feelings of exhaustion and fatigue, and experience of burnout.

Chapter Summary

In sum, as a workplace phenomenon, burnout is commonly conceptualised as a three-factor syndrome comprising emotional exhaustion, depersonalisation or cynicism and reduced professional efficiency. Once developed, it is relatively stable over time and the implications of this extend well beyond the individual doctor, affecting colleagues, patients,

and workplace functioning, as well as to doctors' families and lives outside of work. Individual characteristics, social relationships, and organisational and leadership pressures contribute to its stability, and through a COR lens, these can be understood as factors that contribute to resource loss, in turn, helping explain how burnout develops and is persistent over time. Despite experiencing burnout, many senior doctors continue in their current role, influenced by a range of professional and socioeconomic factors.

Chapter 3 - Literature Review: Individual Daily Recovery

While evidence suggests that multi-level approaches to recovery, from individual to system-wide, are most effective, senior doctors are often required to manage their own recovery, making individual strategies more practically achievable than waiting for system-level change (Chambers & Frampton, 2016; Karabinski, 2021; Sonnentag et al., 2017; Steed et al., 2021). While this approach does support individual agency, it can also reinforce the notion that responsibility for recovery rests primarily with the individual (Korhonen & Komulainen, 2023). Notwithstanding, given the prevalence and persistence of burnout amongst senior doctors, understanding how recovery occurs on a day-to-day basis is essential. Accordingly, this chapter defines recovery and examines key theoretical frameworks that help to explain the burnout recovery process on a day-to-day basis. It also investigates psychological detachment as a key indicator of daily recovery, and examines evidence on specific recovery activities, primarily within non-work time.

Defining Recovery

At a biological level, stress is considered to be the activation of various neurophysiological processes, including the sympathetic autonomic nervous system, which results in a whole-body “fight or flight” reaction, affecting multiple organs and physiological pathways (Stewart & Arora, 2019). While chronic activation of these processes has been linked to the development and persistence of burnout, recovery is associated with the deactivation of these processes and a return of functioning to pre-stress levels (Demerouti, 2015). Of course, one of the challenges of burnout is that it has no specific clinical markers, and is primarily conceptualised as a psychological condition, despite the associated physiological manifestations (IJzerman & Halsema, 2025). Recovery can therefore be defined as the process of restoring both psychological resources and physiological resources after strain, and it can be influenced positively or negatively by internal (e.g., cognitive and emotional) and external factors (e.g., work environment) (Salminen et al., 2017). The end outcome of the recovery process is thought to be performance readiness (Demerouti, 2015; Sonnentag et al., 2017), and, as a construct, it is considered a vital process for workers to engage in regularly to mitigate job demands, and sustain wellbeing, motivation and performance at work (Sonnentag et al., 2022).

Within the recovery process, research suggests there are two core components that facilitate change - recovery activities and recovery experiences (Sonnentag et al., 2022).

Recovery activities are individual actions that reduce strain levels and foster recuperation, and can be either high-effort, such as exercising or socialising, or low-effort, such as watching TV or doing nothing (Aronsson et al., 2024; Sinval et al., 2021). Recovery experiences, on the other hand, are psychological states, such as psychological detachment from work, control over leisure time, relaxation or mastery in non-work time, all of which are associated with improved wellbeing and overall recovery as an outcome (Sonnentag et al., 2017). Research shows that recovery activities and recovery experiences are interlinked, with activities leading to experiences that often carry over to the next day and may contribute to managing burnout symptoms over time (Xanthopoulou & Meier, 2014).

A phenomenological analysis of consultant doctors in Ireland suggests recovery from burnout may also comprise two types of cognitive reflection, these being situational sense-making and transformative self-reflection (Walsh et al., 2025). Situational sense-making involves making sense of their experience, replaying events, reflecting on emotional reactions, appraising the actions of others, and cognitive reframing. Conversely, transformative self-reflection is theorised as occurring after situational sense-making, over longer recovery durations, and involves deeper reflection, insight and change. The researchers found transformative reflections often led to actions such as establishing strong boundaries at work and re-arranging life priorities. To that end, recovery could be conceptualised as occurring on both micro- and macro- levels, where micro-recovery occurs within or between work days, and macro-recovery occurs cumulatively over longer time periods of months or even years (Sonnentag, 2012).

COR Theory and Burnout Recovery

Along with explaining burnout, COR theory is one of the predominant theoretical frameworks used to explain recovery processes (Steed et al., 2021). From a COR perspective, where burnout is the result of an ongoing depletion of resources, recovery involves the replenishment of resources during non-work time to compensate for work-related strain (Sinval et al., 2021). Importantly, it is conceptualised as an active process influenced by both home and work constraints, rather than simply the absence of work (Hobfoll, 2001).

To that end, burnout and recovery processes are not separate, but rather part of an ongoing cycle, and researchers have noted this can create a recovery paradox (Karabinski, 2021). When this occurs, individuals who are extremely depleted enter a resource-protection mode to conserve their remaining resources and then withdraw from activities that require

resource investment, even though these activities may actually support recovery (such as exercise) (Tu & Chi, 2024). In line with this view, Walsh et al. (2025) found work factors such as a lack of organisational support substantially influenced senior doctors' ability to recover from stressors caused by daily work demands, and from burnout more broadly.

Across researchers, there are differing perspectives on where the greatest change can be achieved within the burnout-recovery process at the individual level. One common perspective argues that long-term recovery, as conceptualised within COR theory, requires the reduction or removal of key stressors to break ongoing resource loss cycles (Demerouti et al., 2009). Indeed, research shows that overall burnout recovery, back to full health, has been reported to take years, even decades, and requires action from both the individual and the organisation (Almén, 2021). Burnout tends to be resistant to change and a study on burnout recovery at the ten year point found that some participants were still experiencing burnout symptoms and mitigation was an ongoing challenge (Aronsson et al., 2024). Other longitudinal studies show improvements between years and then deterioration, which again lends to the persistence of burnout over time, particularly when work demands do not change (Houkes et al., 2011).

In contrast, another common perspective suggests that an inability to recover from daily work stress, rather than the stress itself, is the most important predictor of burnout (Verhavert et al., 2025). This perspective can also be understood through a COR lens, with a greater focus on the effects of daily resource depletion. In this view, when individuals are already depleted, their capacity to initiate recovery and accumulate resources is reduced, increasing the likelihood of ongoing resource loss cycles, which in turn can prolong the burnout experience (Hobfoll, 1989). This is particularly salient, as non-work time is not inherently restorative, and home-related demands such as caregiving often draw on similar resources and contribute to further depletion (Demerouti et al., 2009). In a study of 3,506 doctors across nine hospitals in China, Song et al. (2025) found that those experiencing burnout were more likely to continue in a resource loss cycle that extended into non-work time, often due to limited self-regulation and energy, which in turn reduced engagement in daily recovery activities.

In essence, these two perspectives appear to indicate that both macro- and micro-level recovery are important, although micro-level recovery is likely easier for individuals to influence on a day-to-day basis (Sonnentag, 2012). For senior doctors, evidence shows that

many burnout risk factors are static or systemic and difficult to address, which can make it difficult for them to preserve resources and heighten their vulnerability to continual resource loss cycles (Hobfoll et al., 2018; Kumar, 2016).

Daily Recovery and Psychological Detachment as an Indicator

From a micro-recovery perspective, understanding what facilitates daily recovery and how it can be identified is important for countering ongoing resource loss. Psychological detachment is widely recognised as a central indicator of this process (Agolli & Holtz, 2023; Sonnentag, 2012). Defined as the ability to “switch off” mentally from work for a period, psychological detachment enables individuals to renew energy and motivation for their work the next day while allowing psychobiological systems, previously activated by work, to disengage (Pladdys, 2024; Sonnentag et al., 2014). It is important to note that psychological detachment from work is different from the work disengagement associated with burnout, where the former is considered a healthy psychological state and the latter is a symptom of burnout (Sonnentag, 2012).

Evidence suggests that psychological detachment plays a crucial role in both short- and longer-term health and wellbeing. Low levels of psychological detachment have been linked to emotional exhaustion one year later, while other studies indicate it supports longer-term burnout recovery more broadly (Reis et al., 2024; Sonnentag et al., 2010). Individuals who are able to detach from work tend to report better mental and physical health, including improved sleep quality, as well as lower levels of fatigue, exhaustion, and negative affect (Reis et al., 2024). It has also been positively associated with work-related factors, such as job performance (Agolli & Holtz, 2023).

In terms of mechanisms, psychologically detaching is not just about leaving work or refraining from engaging in work-related tasks during non-work time, but about mentally disengaging from work as well (Sonnentag, 2012). To achieve this, psychological detachment has been theorised to comprise three interrelated processes, being behavioural reactions (i.e., not exposed to work demands), cognitive processes (i.e., no thoughts related to work), and affective reactions (i.e., lower negative affect and higher positive affect) (Wendsche & Lohmann-Haislah, 2017). While growing research recognises the importance of mental boundaries between work and non-work time for recovery, earlier assumptions were that virtually any work-related thoughts during non-work time worsened job performance. However, more recent studies have suggested it was not the thinking about work itself that is

harmful, but the type of thinking (e.g., negative vs positive) about work that matters instead (Pladdys, 2024).

Despite the apparent simplicity of this recovery concept, literature shows psychological detachment can be remarkably difficult to achieve, particularly where there are high work demands such as cognitive demands and time pressures (Bendixen & Scheel, 2024). It is not a particularly stable construct for these reasons, and can be both a mediating and moderating variable (Reis et al., 2024; Safstrom & Hartig, 2013). Agolli and Holtz (2023) conducted a systematic review of 159 studies on psychological detachment and found that the ability to achieve this recovery experience was associated with a wide range of factors across work and non-work time, as well as individual factors such as attitudes, psychological states, and work-non-work boundary management. Work-related spillover factors, including manager and coworker behaviours and technological availability (e.g., access to work email via mobile devices) were salient, particularly in roles involving shift work or on-call responsibilities. Consistent with this, evidence shows that doctors commonly report difficulty achieving psychological detachment from work, with significant implications for their mental health and capacity to recover (Fauzi et al., 2020).

SDM and Daily Recovery

To understand the role of psychological detachment from a theoretical perspective, the SDM by Sonnentag and Fritz (2015) provides a useful framework for explaining its function within the stressor-strain process. Building on COR theory, the SDM offers a more specific lens on the role of psychological detachment within daily recovery processes. At its core, the researchers posit that low psychological detachment from work during non-work time predicts symptoms of strain and poor wellbeing. While it may be possible for this process to also occur in work-time, researchers such as Karabinski (2021) argue that this is likely difficult for individuals to achieve while in close proximity to work demands.

Within the extended version of the SDM are two key appraisals undertaken by the individual, based on the transtheoretical model of stress by Lazarus and Folkman (1984) (Sonnentag & Fritz, 2015). These appraisals are known as primary and secondary. In the primary appraisal, an individual evaluates whether a stressor is harmful to their wellbeing. If it is perceived as a threat, it commands attention, whereas if it is not deemed to be a threat, it does not require further attention. If attention is needed, in the secondary appraisal, the

individual evaluates coping options available. Within this process, factors such as work and non-work social support can influence how individuals choose to respond.

Psychological detachment can therefore be understood as an outcome of where attention is directed. Engaging in non-work recovery activities that shift attention away from work-related stressors can reduce their impact, while managing boundaries between work and non-work time also supports this process (Sonnentag & Fritz, 2015). Evidence supports these mechanisms, with a systematic review of 30 studies involving 3,725 participants, including those in healthcare, finding that interventions targeting primary and secondary appraisals were effective in promoting psychological detachment and, in turn, recovery (Karabinski, 2021). The most effective interventions appeared to focus on boundary management and emotional regulation, along with engagement in recovery activities.

Daily Recovery Interventions within Work and Non-Work Contexts

Across the literature, daily recovery interventions are recognised as a key component of the micro-recovery process. As one participant in a study on long-term burnout recovery shared, “recovery activities are needed every step of the way” (Aronsson et al., 2024). At an individual level, these interventions are typically performed through everyday activities, encompassing cognitive, affective, and behavioural factors across both work and non-work contexts (Demerouti, 2015; Fancourt et al., 2021). These can range from coping strategies at work through to lifestyle modifications and leisure activities in non-work time.

Work Interventions

Within the work environment, researchers have identified a range of practical interventions to support recovery at the individual level, including participation in workplace mindfulness programmes, professional development, and involvement in job redesign (Song et al., 2025). These interventions typically focus on both reducing demands and strengthening individual capacity to cope with ongoing work pressures. While some studies suggest that interventions focused on building individual resilience can also be beneficial, Chambers and Frampton (2016) found that many senior doctors resist the idea that burnout is a problem to be solved by improving individual stress management. Notwithstanding this, studies have identified that workplace interventions that support doctors’ recovery include peer support programmes, promotion of and access to professional support services, and improved support from direct managers, particularly in enabling doctors to take time to recuperate when needed

and reducing expectations to continue working while unwell (National Academies of Sciences et al., 2019; Nielsen et al., 2018).

Non-Work Interventions

In the non-work context, a growing body of research shows that the day-to-day interventions that individuals undertake in non-work time can have a direct influence on their wellbeing and performance at work (Sonnentag et al., 2017). These non-work recovery interventions can encompass a diverse range of social, physical, cognitive, and passive approaches, and include high- or low-effort activities (such as exercise, mindfulness or rest), lifestyle modification (such as sleep or nutrition), social connection (such as professional or peer support), or engagement in other approaches that suit personal needs and preferences such as spirituality, or use of humour (Demerouti, 2015). Coping strategies such as problem-focused and emotion-focused coping are well established in the literature (Montero-Marin et al., 2014), but they are beyond the scope of this thesis, which focuses on practical activities.

Non-work recovery activities have received particular focus in the daily recovery literature (Kuhn & Flanagan, 2016). Commonly referred to as leisure time activities, they are generally self-directed and selected by individuals for the positive affect (e.g., joy, pleasure) and resource replenishment that they provide individuals (Seibel et al., 2021). While some of the most researched non-work recovery activities have been categorised into physical, social, and low-effort, the evidence on their effectiveness for recovery has been mixed (Agolli & Holtz, 2023; Tu & Chi, 2024). Physical activity and social activities tend to be positively related to daily recovery, and have carry-over effects to the next day, whereas other low-effort activities such as being creative or spending time on hobbies have received far less research attention and the links to recovery are less clear (Demerouti et al., 2009; McManus et al., 2011).

Few studies have examined the specific leisure activities doctors engage in to replenish resources. One such study, involving 4,457 UK-qualified doctors, conducted by McManus et al. (2011), found doctors' leisure time activities included listening to music, playing a musical instrument, reading, photography, playing sport, outdoor adventures (such as hiking or skiing), crafts and cooking. However, no significant correlation could be found between the leisure activities and burnout recovery. The researchers theorised that while daily recovery can be supported through diverse activities, the direct link between daily recovery activities and overall burnout recovery remains unclear.

To that end, while a substantial body of literature links leisure activities with improved physical and mental health, the mechanisms through which they facilitate recovery vary across activities may depend on individual factors such as self-identity (e.g., viewing oneself as physically active and capable), personality, and desired outcomes (Brown et al., 2026). Indeed, one multi-level theoretical review identified over 600 mechanisms by which leisure activities may influence health, across a range of categories including psychological, social and behavioural processes (Fancourt et al., 2021). Importantly, the authors posited that the leisure activities should not be viewed as isolated actions. Rather, they are best viewed as occurring within a complex societal system shaped by historical, political, economic factors, all of which influence the opportunities to engage in and benefit from such activities.

Within this broad range of recovery interventions, several categories have received more focused attention in the literature, including physical activity, digital leisure, and sleep and rest.

Physical Activity. Physical activity is commonly defined as any movement produced by the body that requires energy expenditure (Khammissa et al., 2022). Regular physical activity has been associated with broader mental health benefits, such as reduced stress, and the benefits appear to be greater when it is voluntary and undertaken for enjoyment rather than obligation (Verhavert et al., 2025). There is also evidence that interaction with nature, and spending leisure time, such as when exercising, in nature can be beneficial (Agolli & Holtz, 2023).

While studies on the relationship between physical activity and recovery tend to be favourable, research linking it to reductions in burnout has produced mixed results. For example, one diary-based study found that time spent on physical activity was positively associated with daily recovery outcomes (including greater physical energy, cognitive energy, and overall recovery), regardless of burnout level (Oerlemans & Bakker, 2014). Physical activity has been linked to experiences of psychological detachment and relaxation (Verhavert et al., 2025). Longitudinal evidence also suggests a protective relationship between physical activity and burnout, with moderate levels of strenuous activity associated with lower future exhaustion, particularly amongst employees in sedentary roles (Isoard-Gauthier et al., 2019). However, other studies showed no relationship. For example, a cross-sectional study of 496 mid-career doctors in China found regular exercise was not associated with work-related burnout (Ng et al., 2020).

Sleep and Rest. Sleep is an essential biological process that plays a major role in recovery (Clough et al., 2019). Studies have found a complex bi-directional relationship between nonrestorative sleep and burnout, suggesting each facilitates either improvement or decline in the other, and that individuals with burnout do not appear to recover as well through sleep as healthy individuals (Bayes et al., 2021; Sonnenschein et al., 2007b). Researchers also often differentiate between sleep quality and quantity, with the former a subjective evaluation of how well an individual sleeps and the latter being the duration of sleep, and while both are important for recovery, sleep duration has been found to not only impact work performance, but related factors such as job satisfaction as well (Hülshager et al., 2015).

Despite the well-established benefits of sleep and resting passively for health and functioning, the medical profession has been described as having a “pervasive culture that undervalues sleep,” characterised by long shifts, night work, and fragmented on-call sleep, and there is limited research on the extent to which sleep disruption influences doctors’ recovery from burnout (Kancherla et al., 2020). Reviewing the available evidence, Stewart and Arora (2019) found that work-related factors such as control over work time and reduced hours were important determinants of sleep quality and quantity, while limited control over work schedules was associated with compensatory behaviours, such as attempting to make up for lost sleep on weekends or days off. In turn, this reduced opportunities for resource-gaining activities, including family and leisure time.

Digital Leisure. There is increasing interest in digital leisure, such as watching TV or gaming, as a non-work recovery activity, particularly as digital tools and applications have become a necessary part in everyday life (Gellmers et al., 2023). Digital leisure has been characterised as a self-directed activity that provides a subjectively positive experience via digital mediums (such as TV, the internet and related devices), and COR theory has been used to explain its role in facilitating psychological detachment and recovery (Gellmers et al., 2023). Research suggests that digital leisure is complex in terms of recovery, with potential benefits, such as social connectedness and enjoyment in its own right, coexisting alongside well-documented risks, including excessive use, adverse mental health outcomes, and strain on close personal relationships, which are an important source of social support (Collins & Cox, 2014). Few studies have examined digital leisure use amongst doctors, with most studies in this area focused on junior-level doctors (Prakash, 2017).

Social Support as a Recovery Factor

While the preceding sections have focused on individually led recovery interventions, recovery is also shaped by social and relational factors. Social support, in particular, is widely recognised as a vital resource that facilitates psychological detachment and recovery across both work and non-work contexts (Agolli & Holtz, 2023; Maslach & Leiter, 2016). Within the work context, managers play a crucial part in providing recovery support, and research on burnout has consistently emphasised how influential they are in the resolution of burnout (Maslach & Leiter, 2016). In particular, managers can influence recovery through interventions that support work-life balance, flexible work arrangements, regular breaks, and employees' capacity to manage personal demands alongside work (Song et al., 2025). Similarly, social support from work colleagues has been found to reduce demands experienced at work, provide important reassurance, and decrease burnout symptomology overall (Ma et al., 2020). Broader psychosocial work climate factors, such as fairness, supportive communication, recognition, professional development, reduced administrative burden, have been associated with better recovery between shifts and these findings are consistent with research on doctors (Garrick et al., 2014; Khammissa et al., 2022; Patel et al., 2018)

Within the non-work context, research examining social support in relation to recovery is limited, and few studies have explored these amongst doctors (Ma et al., 2020). Emerging qualitative evidence does point to substantial variability in available support when trying to cope. For example, the study by Walsh et al. (2025) found the level of social support varied amongst the hospital doctor participants. Some reported high levels of support from a spouse, friends or family member with whom they could communicate with about their mental health stressors, while others reported low levels of social support with no supportive spouse and limited or no support from friends and family during times of mental illness.

Across varying population groups, diary studies have been increasingly used to track social support, recognising that it can fluctuate over the short and long term and this may impact on recovery (Schulz et al., 2021). As one example, Oerlemans and Bakker (2014) found that individuals with elevated burnout symptoms recovered better on days when they spent more non-work time in social activities. The researchers theorised this may be because burnout is associated with reduced social support at work, partly due to cynicism and social withdrawal. As a result, non-work social interactions may serve as an important alternative

source of meaningful connection, helping to meet core psychological needs and support recovery.

While social support is generally considered to be beneficial, social relationships can also hinder recovery. Interpersonal stressors such as divorce or serious illness of a close family member have been shown to substantially influence both the development of burnout and the recovery process, and may even impair individuals' ability to recognise their own burnout (Salminen et al., 2017). Similarly, studies on abusive supervision from managers at work have found this increases the need for recovery by individuals, and can contribute to the recovery paradox at the same time (Tu & Chi, 2024).

Chapter Summary

In summary, recovery is a vital process through which individuals manage ongoing job demands and sustain wellbeing, motivation, and performance, both on a daily basis and over time in the context of burnout. Drawing on COR theory, recovery can be understood as a mechanism for restoring depleted resources, preventing loss spirals, and, in some cases, enabling resource gain. Recovery is shaped not only by the activities that individuals engage in, but also by their recovery experiences, particularly psychological detachment, which is widely used as a key indicator of daily recovery. While activities such as physical activity and social interaction can support recovery, organisational support also plays an important role. Despite this, responsibility for recovery is often placed on individuals, reinforcing the value of examining how recovery occurs in everyday work and non-work contexts.

Overall, the literature suggests that burnout amongst senior doctors occurs within multifactorial constraints. Although burnout is pervasive and persistent, daily recovery processes may influence doctors' short-term capacity to respond to work and non-work demands within their organisational and social contexts. Accordingly, the present study takes a dual-lens approach to examining burnout amongst senior doctors who continue working in their roles despite their symptomology. First, it investigates the relationship between burnout levels across two time points and their relationships with organisational and social conditions. Second, it investigates daily recovery experiences, operationalised as psychological detachment.

Chapter 4 - Method

Participants

Due to difficulties in recruiting senior doctors, the study aimed to recruit approximately 50 senior doctors with leadership responsibilities working in public or private healthcare settings in New Zealand. Leadership responsibilities were defined as supervising junior doctors (e.g., house officers, house surgeons, interns, or registrars). To use profession nomenclature, in the public hospital system participants were likely to be in Senior Medical Officer (SMO) roles. Eligibility also required participants to self-identify as experiencing burnout and be working during the study period (i.e., not on leave).

To establish an appropriate sample size for the study, a review of diary study meta-analyses was conducted, which showed that sample sizes vary widely, ranging from 24 to more than 1,000 participants (Barreto et al., 2019; Pindek et al., 2024; Wolke et al., 2017). From a methodological perspective, it appears “no golden standard” for diary study sample sizes exists as, it has been argued, it is based on the objectives of the research (Janssens et al., 2018; van de Maat et al., 2024). Accordingly, guidelines by van de Maat and colleagues (2024) recommend accounting for the number of measurements per participant, expected effect size, and random effects when determining the required minimum sample size. As a benchmark, the researchers recommend a minimum of 50 participants to achieve sufficient power to detect a large effect size with approximately 10 measures per participant, and this was used to inform the target sample size for the present study.

Using G*Power 3.1 (Faul et al., 2007), a priori G*Power analysis was then conducted to determine the minimum sample size for the repeated-measures component of this study. The analysis indicated a minimum sample of 16 participants would achieve 80% power to detect a medium effect ($f = 0.25$) with 13 repeated measures per participant for this study.

The final study sample comprised 43 participants (see Table 1), which was a sufficient sample size. Of the sample, 65% were female and 35% were male, with a mean age of just under 50 years. Just over half of participants identified as New Zealand European (56%), with 5% as Māori, 2% as Samoan, and 42% as Other. The mean number of contracted work hours was approximately 40 hours per week. Just over half (51%) of participants reporting their main location of work as being in an urban area (major cities and large towns), 44% in regional areas (smaller cities and towns), and 5% in rural settings (small country towns and surrounding areas).

In terms of main scope of practice, 28% participants worked primarily in internal medicine, 23% in emergency medicine, and 12% in psychiatry. An equal number of participants (7% each) reported their main scope as in anaesthesia, general practice, and paediatrics, while 5% reported working in public health medicine. Finally, 2% each worked in diagnostic and interventional radiology, general surgery, intensive care medicine, orthopaedic surgery, and paediatric surgery. Participants could only choose one scope of practice.

Participants were asked how many years they had been registered as a medical practitioner and had practiced medicine, not including years in provisional registration or periods of more than six months of continuous leave. The average years of registration was 24, and the mean number of years supervising junior doctors was 15.

In terms of relationship status, 74% reported being married or in a civil partnership, 12% were single, 7% were in a relationship (such as de facto), 5% were divorced or separated, and 2% were widowed.

Table 1 presents descriptive statistics (means and standard deviations) for the continuous demographic variables in the sample.

Table 1

Descriptive Statistics for Sample Demographics

Factor	<i>M</i>	<i>SD</i>
Age (years)	49.1	6.7
Contracted work hours per week	40.5	7.6
Years of registration	24.0	7.5
Years of supervising	15.1	8.4

Note. *N* = 43.

Recruitment

Upon obtaining ethics approval from the Massey Human Ethics Committee (approval code: OM1 25/41, see Appendix 1), the researcher contacted colleagues at Te Whatu Ora Health New Zealand, Council of Medical Colleges, individual medical colleges, and through LinkedIn, and asked them to share the research via their communications methods. A sample recruitment email was supplied to support their efforts (see Appendix 2). At Te Whatu Ora Health New Zealand, the research was shared with SMOs via Chief Medical Officers in districts around the country, while the medical colleges shared the research via emails and newsletters to members.

Colleagues were provided with an information sheet for prospective participants (see Appendix 3), outlining the study purpose, procedures, and participation requirements, which they could forward to their own networks. The participant information sheet also included a brief disclosure of the researcher's professional background and lived experience with burnout. This was included to ensure transparency and was reviewed and approved by the Massey University Human Ethics Committee.

Participants self-selected to take part in the study, using a weblink to access the first survey. To enhance recruitment, participants were eligible to enter a draw for one of fifty \$20 Prezzy Card vouchers. This prize draw format was implemented to limit the total expenditure on incentives should the response rate be high.

As part of recruitment, 2 cohorts participated based on their availability, with 48 in the first cohort and 20 in the second cohort ($N = 68$). A total of 26 participants were removed from the dataset: 5 for no data input, 1 for not responding to the eligibility question regarding years supervising junior doctors, 12 for not completing Phase 2, and 13 for not completing Phase 3. The final sample comprised 43 participants who completed all study phases.

Design and Procedure

As the focus of this study was to investigate within and between persons changes, the design comprised three phrases: (1) a baseline survey, (2) a diary study, and (3) a follow-up survey, as shown in Figure 2. The design was informed by consultation with stakeholders within the New Zealand health system, including senior doctors, senior leaders at Te Whatu Ora Health New Zealand, wellbeing leads, psychologists, and academics. These consultations, conducted via in-person meetings, interviews online or by phone, and email and social media direct messaging correspondence, provided guidance on study design,

participant perspectives, cultural considerations, and the practicalities of survey administration.

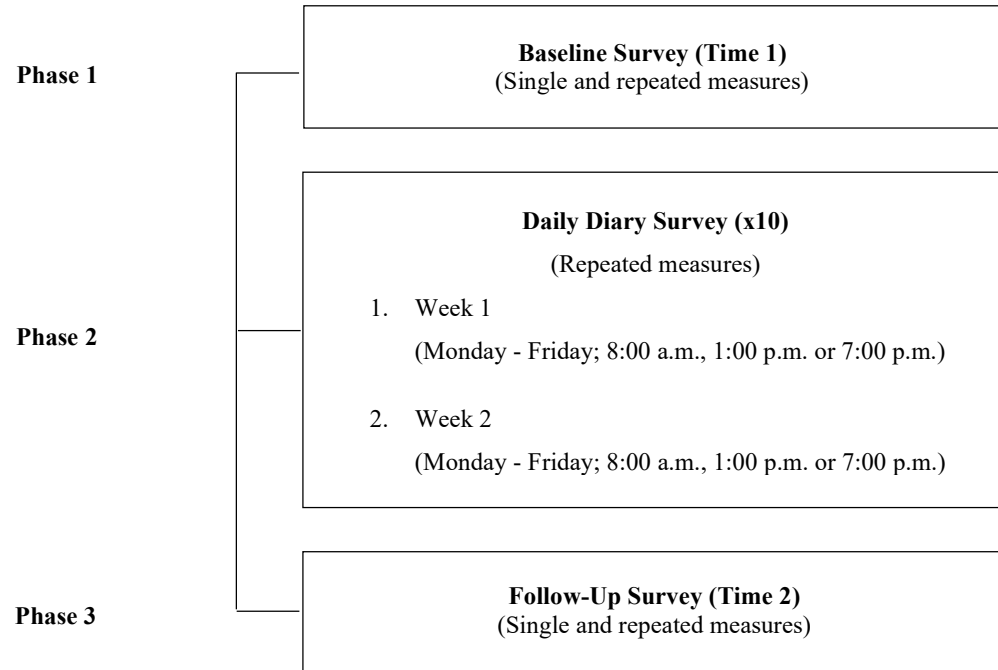
Feedback gathered during the consultation period reiterated the complexity and challenges doctors face when working in the healthcare system. The Safety Attitudes and Safety Climate Questionnaire, which was designed to capture psychosocial factors in healthcare work environments was included in the study after consultation with senior doctors who emphasised the importance of these aspects at the workplace.

Throughout the design process, consideration was also given to potential participant cognitive and time burden. Many of the measures were selected for their reliability, validity, and brevity. For consistency across the surveys, most measures were adapted to be first-person (“I”) statements, rather than second-person (“you”) questions. Where Likert scales were used, response options were aligned so that 1 = a lower or more negative rating, and 5 = a higher or more positive rating. Evidence suggests that using consistent response scales across a survey with multiple measures can reduce participant confusion and cognitive load, which may, in turn, influence data quality (Salzberger & Koller, 2019). A small number of items were reversed again to reduce response bias and maintain standard survey design practices.

The final study design comprised a total of 12 surveys administered across the three phases, over approximately four weeks (see Figure 2). Phase 1 consisted of the baseline survey and was open for two weeks. Phase 2 started immediately after Phase 1. It involved the daily diary component with 10 repeated surveys administered over two consecutive weeks (Monday to Friday). Phase 3 began the following week after Phase 2 closed. This last phase comprised the follow-up survey and was open for one week, completing the study. To assess change across the overall study period, the burnout measure was repeated in the baseline and follow-up surveys, referred to hereafter as Time (T1) and Time 2 (T2) respectively.

Figure 2

Overview of the Three-Phase Study Design



The study was conducted entirely online, via Qualtrics. Participants' responses were treated as confidential. While email addresses were collected to distribute surveys and communicate with participants (i.e., for the report summary and prize draw), the data was de-identified before analysis through use of unique participant identification numbers to ensure individual responses could not be identified. Across the phases, participants were encouraged to seek support from the services listed in the contact information provided, if required.

The following sections describe each phase of the study in detail.

Phase 1 - Baseline Survey (T1)

Participants were first invited to respond to a questionnaire measuring demographics, social support, help-seeking behaviours, burnout, psychosocial work climate, and turnover intentions (see Appendix 4 for the full survey). The survey contained 49 items, including a required criterion that participants were doctors in a senior leadership role, a question regarding email address for communication, and an opt-in to receive the research summary. Participants were also asked their preferred time of day to receive the diary, being one of:

8:00 a.m. (morning), 1:00 p.m. (afternoon), or 7:00 p.m. (evening) to provide flexibility to complete the survey around their work shift.

Measures. The baseline survey started with a series of demographic questions (13 items), which included age, gender, ethnicity, employment status, medical speciality, work tenure as registered medical professionals, geographic work location (i.e., urban, regional, rural, or remote) and relationship status. Participants were also asked the number of years they had supervised doctors.

Burnout was measured using The Copenhagen Burnout Inventory (CBI) work-related burnout scale, using 5 items (Kristensen, Borritz, et al., 2005). While the original scale contains 7 items, 2 items were omitted regarding the degree to which work was emotionally exhausting, and the degree to which work frustrated participants. These items were removed following stakeholder feedback that they are commonly perceived as inherent aspects of medical work, and to reduce overall survey length and participant burden. Responses were on a 5-point Likert scale (1 = always, 5 = never/almost never). Because lower response values reflected higher burnout, items were reverse scored prior to analysis. Following the recommended scoring procedure, responses were then transformed to a 0-100 scale (1 = 0, 2 = 25, 3 = 50, 4 = 75, 5 = 100) and averaged, with higher scores indicating greater burnout. The CBI has good reliability and validity properties and has been widely used by the psychology community in research and therapeutic work. Items included “In general, in the morning, I feel exhausted at the thought of another day at work” and “In general, every working hour feels tiring for me.” The scale demonstrated good internal consistency at T1 ($\alpha = .85$) and T2 ($\alpha = .83$), once the item “I have energy for family and friends” was removed.

Social support in life (non-work) was assessed using the ENRICHD Social Support Inventory (ESSI) (Mitchell et al., 2003). It is a 7-item scale that assesses four key attributes of social support: emotional, instrumental, informational, and appraisal. Responses are measured on a 5-point Likert scale (1 = none of the time, 5 = all of the time). Example items included “In my life, there is someone available whom I can count on to listen to me when I need to talk” and “In my life, I can count on someone to provide me with emotional support, whether it's talking over problems or helping me make a difficult decision.” Individual items are then summed for a total score, with higher scores indicating greater social support. The highest possible score is 25. It has good reliability and validity properties and has been used in other burnout research focused on healthcare workers. Due to overlap with other survey

questions, 2 items were omitted. These items related to support with daily chores at home and relationship status, which was captured separately as a demographic variable. The daily chores item was not included in the analyses of the present thesis. The final scale demonstrated excellent internal consistency in this sample ($\alpha = .91$).

Professional support services usage and barriers were captured using 2 items, drawn from the New Zealand Health Survey (Ministry of Health, 2024). The first item asked participants whether they had consulted professional support services for concerns about emotions, stress, or mental health in the previous three months. For each service accessed, participants were asked to indicate whether it was paid for personally, accessed through work, or was a free or fully funded public service at no personal cost. This distinction was included to account for potential barriers to service utilisation, including financial cost, as well as factors such as confidentiality and trust when services are employer-funded. Participants could select as many professional support services as apply to them, with 20 listed, including “Other”.

The second professional support services item asked participants whether they had needed professional help for emotions, stress, or mental health but had been unable to obtain it. Participants could select as many barriers as apply to them, with 17 options listed, including “Other”. Barriers included a desire to deal with the issue with the support of family and friends only, professional status concerns, and logistical challenges such as service availability. As these items captured frequency rather than a single construct, internal consistency reliability statistics were not calculated.

Social support at work was measured using two scales from the Copenhagen Psychosocial Questionnaire (COPSOQ): social support from supervisor (4 items) and social support from colleagues (3 items) (Kristensen, Hannerz, et al., 2005). Feedback from the stakeholder engagement process identified that senior doctors often report to both an operational and a clinical manager. As a result, one supervisor scale item (“My [manager] is willing to listen to my work-related concerns if needed”) was administered twice: once in relation to the operational manager (e.g., service manager or hospital/practice manager) and once in relation to the clinical manager (e.g., clinical director, lead clinician, or senior physician). An example item for support from colleagues is “In my job, my colleagues are often willing to listen to my problems at work, if needed.” COPSOQ has good reliability and validity properties. While higher scores usually indicate greater risk to mental health,

response options were reversed to align with other measures so that a high score indicated a positive, lower risk response. The scale labels were also changed to be consistent with the Safety Attitudes and Safety Climate Questionnaire (SAQ), with the 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This change was made to maintain consistency across response scales in the survey and reduce cognitive burden for participants. Scores were transformed to a 0-100 scale following standard scoring procedures. All scales demonstrated good internal consistency (social support from supervisor, $\alpha = .70$; social support from colleagues, $\alpha = .82$ once the item regarding feedback from colleagues was removed).

Psychosocial work climate was measured using two scales from the Safety Attitudes and Safety Climate Questionnaire (SAQ): teamwork climate (6 items) and safety climate (7 items) (Sexton et al., 2006). Example items included “Disagreements in my clinical area are resolved appropriately (i.e., not who is right, but what is best for the patient)” for teamwork climate and “I would feel safe being treated where I work as a patient” for safety climate. The questionnaire has good reliability and validity properties and was designed to measure safety climates in healthcare settings. Responses were measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Scores were transformed to a 0-100 scale following standard scoring procedures. Higher scores indicate positive perceptions of a safety climate. All scales demonstrated good internal consistency (teamwork climate, $\alpha = .81$; safety climate, $\alpha = .82$)

Turnover intentions was measured using a single item: “I am likely to leave my job in the next six months.” This item aligns with other studies on turnover intentions that use a single-item measure (e.g., Nicolls et al., 2022). Responses are measured on a 5-point Likert scale (1 = very unlikely, 5 = very likely). Higher scores indicate a higher intention to leave their current job (range = 1-5). A qualitative open-text question was also administered to assess the factors that have influence participants to stay in their job (1 item).

Phase 2 - Daily Diary Study

Next, participants were monitored using a daily diary study. This phase involved 10 brief daily surveys, completed once per day. While it was anticipated that some doctors (such as those in emergency medicine) would work weekend shifts, surveys were scheduled for weekdays (Monday - Friday) to focus on the highest likelihood of work time and reduce overall burden. Each daily diary survey consisted of 12 items, measuring hours worked, on-call hours, work conditions, psychological detachment and non-work recovery activities (see

Appendix 5 for the full diary survey). Participants were only required to complete the diary on the days that they had worked.

During this phase, participants received a daily email at their preferred time containing instructions and a weblink to the survey. The survey remained open for 24 hours to minimise retrospective completion. A copy of the email sent on the first day is provided in Appendix 6. Of the participants, 13 (30%) preferred to receive the diary at 8:00 a.m., 11 (26%) preferred 1:00 p.m., and 19 (44%) preferred 7:00 p.m. Participants were encouraged to complete the diary within a few hours after finishing their shift, while the day's experiences were still fresh. For clarity, "a day" referred to the previous 24-hour period rather than a calendar day.

Measures. The daily diary study began with a screening item to establish whether participants had worked in the past 24 hours. Participants then recorded their approximate hours worked: "The number of hours I worked over the past 24 hours is: ___ hours (include any work completed at home, such as administrative tasks or work-related calls)." Hours on call were measured using the item: "Over the last 24 hours, I was on call (but not actively working) for: ___ hours (include only hours on call but not working)." Responses for both work and on-call hours were provided in an open-ended format.

Daily work conditions was measured using the working conditions scale (4 items) from the SAQ (Sexton et al., 2006). Items included "At work in the last 24 hours, the levels of staffing in my clinical area were sufficient to handle the number of patients," and "At work in the last 24 hours, the junior doctors under my guidance were adequately supervised." Responses were measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Scores were transformed to a 0-100 scale following standard scoring procedures. The scale showed variable internal consistency across measurement days. Cronbach's alpha ranged from .54 (day 7) to .79 (day 5), with most days demonstrating moderate to good reliability. No one item contributed to a lower alpha. While some days (days 1, 7 and 8) showed lower consistency, when combining all diary days, the scale demonstrated excellent internal consistency across items (Cronbach's $\alpha = .94$).

Psychological detachment was measured using the 4-item Recovery Experience Questionnaire (REQ) psychological detachment subscale (Sonnentag & Fritz, 2007). Items included "Once I left work, I didn't think about work at all" and "Once I left work, I forgot about work." The REQ has good reliability and validity properties. Responses were on a 5-

point Likert scale (1 = strongly disagree, 5 = strongly agree). Subscale scores were summed, with higher scores indicating a greater level recovery experience (possible range = 4-20). The scale showed generally good internal consistency across measurement days. Cronbach's alpha ranged from .68 (day 1) to .89 (day 5), with most days demonstrating good reliability. Overall, the scale appeared stable across the diary period, supporting its use for repeated measures analyses. When combining all diary days, the REQ psychological detachment scale demonstrated excellent internal consistency across items (Cronbach's $\alpha = .97$).

Non-work recovery activities were captured using one qualitative question: "In the last 24 hours, did you do anything that supported your recovery from burnout or helped you recharge? If yes, what did you do? (For example: rest, sleep, time with whānau/family, being in nature, watching TV or movies, reading, cooking or baking, physical activity, hobbies or creative activities, mindfulness or meditation, talking to someone you trust, seeing a health professional, socialising, listening to music or podcasts, spiritual or cultural practices, getting outside, doing something just for yourself)." Participants were invited to respond in an open-ended response format.

Phase 3 - Follow-Up Survey (T2)

The third and final phase of the study comprised a follow-up survey containing 7 items (see Appendix 7 for the full survey). A link to the survey was emailed to participants on the Monday following the end of Phase 2, at their preferred time of day from the diary study. A copy of the email is provided in Appendix 8.

Measures. The survey repeated the CBI work-related burnout subscale (5 items) to track change over time. It also included two qualitative questions designed to capture participants' reflections on their daily recovery. These were: "Reflecting on the diary period (the last two weeks), what work or personal factors have supported your recovery the most?" and "Reflecting on the diary period (the last two weeks), what work or personal factors have made recovery more difficult?" Participants were invited to provide open-ended responses to identify the factors most salient to them and capture any additional influences on recovery that were not tracked during the daily diary study.

Data Analysis

The data were analysed using SPSS version 31.0.2.0. Across the three phases, 8,744 raw data points were generated. Each qualitative response was counted as a single data point to reflect the observation of a participant comment rather than its theme or detail.

Prior to analysis, the data were cleaned and prepared. Missing values and outliers were screened and re-coded where necessary. Negatively worded items were reverse-scored, and scale scoring procedures (including transformations where required) were applied in accordance with the respective scale guidelines. Scale scores were then computed as the mean of their items.

To reconcile the duplicate COPSOQ items relating to clinical and operations managers, separate subscale scores were computed for each manager type and then averaged to create a composite manager support variable. Binary variables were created for barriers to help-seeking (yes/no) and access to professional services (yes/no). Daily variables (i.e., work hours, on-call hours, and work conditions) were aggregated to compute mean scores across the diary period. Work and on-call hours were combined to create a single variable representing total work time.

A new dataset was then created with each diary day on a single row to facilitate time-based analysis using psychological detachment as an indicator of recovery. Each row contained a same-day predictor (e.g., work hours) and the next day's psychological detachment score, which allowed for the examination of short-term spillover effects. Only rows with valid next-day data were included to accommodate irregular diary completion patterns. For the non-work recovery activities, activities were coded into broad categories following the guidance of Braun and Clarke (2006), using categorisation schema commonly used in recovery research (Seibel et al., 2021). Where participants reported multiple activities within the same recovery category on the same day (e.g., sleeping and attending a spa appointment), these were coded as a single instance. This decision was made to ensure that frequency counts represented the number of participants engaging in each non-work recovery activity category, rather than inflating counts based on multiple activities of a similar type. For each non-work recovery activity category, new variables were created to indicate whether participants had engaged each activity category (yes/no).

Qualitative participant responses from baseline and follow-up were also analysed following the guidance of Braun and Clarke (2006). Participant responses to questions regarding (1) reasons for continuing in their current role, (2) factors that most supported recovery during the daily diary study, and (3) factors that most hindered recovery during the daily diary study were coded into categories. Responses could be assigned to more than one category. Participant qualitative responses included in this thesis are reported verbatim.

Chapter 5 - Results

Part 1: Relationships Between Organisational and Social Conditions and Burnout

Association Between Burnout at T1 and T2

This section addresses RQ1. Descriptive statistics for burnout at T1 and T2 are shown in Table 2. As per H1, it was hypothesised that burnout at T1 would be positively correlated with burnout at T2, and this was supported ($r(41) = .78, p < .001, 95\% \text{ CI } [.62, .87]$), indicating that burnout measured at two time points within a short period was strongly related.

Associations Between Social Support and Burnout

This section addresses RQ2. Descriptive statistics for social support in life and at work (managers and colleagues) are presented in Table 2. As per H2a, it was hypothesised that greater social support, both in life and at work, would be negatively associated with burnout at T1 and T2. Overall, most participants felt loved, valued, and experienced a high level of support in their personal lives, with a relatively high mean score (positively skewed).

Within the work context, social support from colleagues was also reasonably high while perceived social support from managers was more moderate. To investigate the differences in these work relationships, a paired-samples t -test revealed that participants reported significantly higher levels of support from colleagues than from managers, $t(42) = 7.72, p < .001, 95\% \text{ CI } [22.11, 37.77]$, with a large effect size ($d = 1.18$). This suggests that peer relationships were perceived as a stronger source of support than managers.

However, contrary to the hypothesis, social support in life was not significantly correlated with burnout at T1 ($r(41) = .08, p = .61, 95\% \text{ CI } [-.23, .37]$) or T2 ($r(41) = -.03, p = .88, 95\% \text{ CI } [-.32, .28]$), nor was social support from colleagues at T1 ($r(41) = -.11, p = .50, 95\% \text{ CI } [-.39, .20]$) or T2 ($r(41) = -.03, p = .84, 95\% \text{ CI } [-.33, .27]$). Social support from managers was also not significantly associated with burnout at T1 ($r(41) = -.19, p = .22, 95\% \text{ CI } [-.47, .12]$) or T2 ($r(41) = -.26, p = .09, 95\% \text{ CI } [-.52, .04]$). These findings suggest that, within this sample, social support was not statistically related to burnout, thus hypothesis H2a was rejected.

Table 2

Descriptive Statistics and Correlations Between Burnout, Social Support, Psychosocial Work Climate and Turnover Intentions

Variable	<i>M</i>	<i>SD</i>	Burnout (T1)	Burnout (T2)	Social support in life	Social support from manager	Social support from colleagues	Teamwork climate	Safety climate
Burnout (T1)	56.5	18.4	-						
Burnout (T2)	54.9	17.7	.78**	-					
Social support in life	19.1	4.4	.08	-.03	-				
Social support from managers	42.4	20.9	-.19	-.26	-.03	-			
Social support from colleagues	72.4	19.6	-.11	-.03	.08	.21	-		
Teamwork climate	64.3	17.6	-.12	-.19	-.11	.13	.03	-	
Safety climate	60.6	16.3	-.06	-.14	-.05	.36*	.07	.73**	-
Turnover intentions	1.9	1.1	.03	.15	-.16	-.25	.02	-.08	-.22

Note. $N = 43$. * $p < .05$; ** $p < .001$. Scale ranges: Social support in life = 7-25 (higher scores indicate greater support); Burnout = 0-100 (higher scores indicate greater burnout); Social support from manager and colleagues, teamwork and safety climates = 0-100 (higher scores indicate greater social support or more positive climate); Turnover intentions = 1-5 (higher scores indicate greater intentions).

Second, as per H2b, it was hypothesised that greater perceptions of psychosocial work climate would be negatively associated with burnout at T1 and T2. The two psychosocial climate variables, teamwork climate and safety climate, were generally rated positively by participants, and as shown in Table 2, they were strongly correlated ($r(41) = .73, p < .001$, 95% CI [.55, .85]). This appears to suggest consistent perceptions of the psychosocial work climate across participants. Safety climate was positively related to social support from managers ($r(41) = .36, p = .02$, 95% CI [.07, .60]). However, no significant associations were observed between burnout and teamwork climate at T1 ($r(41) = -.12, p = .46$, 95% CI [-.40, .19]) or T2 ($r(41) = -.19, p = .23$, 95% CI [-.46, .12]). There were also no significant associations between burnout and safety climate at T1 ($r(41) = -.06, p = .69$, 95% CI [-.36, .24]) or T2 ($r(41) = -.14, p = .39$, 95% CI [-.42, .17]). Accordingly, hypothesis H2b was rejected.

Third, as per H2c, it was hypothesised that greater usage of professional support services would be negatively associated with burnout at T1 and T2, and with fewer reported barriers to access. Three in five participants (61%) accessed at least one professional support service in the past three months, as shown in Table 3. Of those participants, just under half (46%) accessed just one service.

Table 3

Number of Professional Support Services Accessed per Participant

Number of services accessed	Overall sample (%)	Amongst service users only (%)
1	27.9	46.2
2	16.3	26.9
3	7.0	11.5
4	4.7	7.7
6	2.3	3.8
7	2.3	3.8
Did not report accessing a service	39.5	-

Note. Overall sample $N = 43$. “Amongst service users only” percentages are based on participants who reported accessing at least one service ($n = 26$).

Table 4 shows the range of professional support services accessed, and who paid for the services, as reported by participants. The most frequently accessed services were mentors or supervisors, GPs, and psychologists. Across payment types, self-funding appeared more frequently, while work-funded support was less commonly used, and publicly funded service usage was very uncommon. A small number of participants reported accessing other services not listed and three services were not used at all, being: helpline or crisis services, Kaumātua or tohunga, and support group for mental health.

An independent samples *t*-test was conducted to compare burnout levels at T1 and T2 between participants who accessed at least one professional support service in the past three months and those who did not, using the binary variable (yes/no). Levene's test indicated that the assumption of homogeneity of variance was met for both T1 burnout, $F(1, 40) = 0.99, p = .33$, and T2 burnout, $F(1, 40) = 0.03, p = .86$. Accessing at least one professional support service was not significantly associated with T1 burnout, $t(40) = 0.26, p = .79$, mean difference = 1.56, 95% CI [-10.46, 13.59], $d = 0.08$, 95% CI [-0.54, 0.71]. Similarly, there was no significant difference for T2 burnout, $t(40) = 0.18, p = .86$, mean difference = 1.05, 95% CI [-10.50, 12.61], $d = 0.06$, 95% CI [-0.57, 0.68]. This component of H2c was not supported.

A series of analyses were then conducted to examine barriers to accessing professional support services. An independent *t*-test revealed participants who reported experiencing at least one barrier to accessing support reported significantly lower levels of perceived manager support than those who did not report barriers, $t(41) = 2.50, p = .02$. Levene's test indicated that the assumption of homogeneity of variance was met ($p > .05$). The mean difference between groups was 15.34, 95% CI [2.92, 27.75]. The effect size was moderate to large, Cohen's $d = 0.78$, 95% CI [0.14, 1.41], indicating a substantial difference in perceived manager support between participants who reported barriers and those who did not.

The greatest barriers to accessing professional support services, as shown in Table 5, were a lack of time and a desire to handle it themselves or by talking to family, whānau, or friends. A lack of trust in workplace support was also reported across the overall participant sample. These barriers were also the highest amongst those who had not accessed any services. The other main barriers amongst this subgroup represented access and psychological challenges: not knowing where to go and experiencing difficulty in opening up.

Table 4*Professional Support Service Usage and Payment Type*

Service	Overall sample (%)	By payment type (%)		
		Self-funded	Work-funded	Publicly-funded
Mentor or supervisor	27.9	7.0	18.6	2.3
GP	20.9	20.9	-	-
Psychologist	16.3	4.7	9.3	2.3
Physiotherapist	11.6	11.6	-	-
Other service	9.3	9.3	-	-
Counsellor or psychotherapist	7.0	2.3	-	4.7
Religious or spiritual advisor	7.0	2.3	-	4.7
Peer support worker	7.0	2.3	-	4.7
Wellbeing lead at work	7.0	-	2.3	4.7
Nurse	4.7	4.7	-	-
Occupational health worker	4.6	-	2.3	2.3
Psychiatrist or another specialist	2.3	2.3	-	-
Social worker	2.3	2.3	-	-
Online mental health chat	2.3	2.3	-	-
Workplace injury support service	2.3	2.3	-	-
Helpline or crisis service	-	-	-	-
Kaumātua or tohunga	-	-	-	-
Support group for mental health	-	-	-	-

Note. $N = 43$. Participants were invited to select “not applicable” or leave blank any service they had not used. Payment type percentages are based on participants who reported using each service.

Table 5*Frequency of Reported Barriers to Accessing Professional Support*

Barrier	Overall sample (%)	Amongst those who did not access a service (%)
I didn't have time	34.9	43.8
I wanted to handle it myself or talk to family, whānau, or friends	30.2	43.8
I didn't trust the support offered through work (like EAP)	16.3	18.8
I wasn't sure where to go or who to see	11.6	18.8
I didn't think treatment would help	9.3	12.5
I couldn't get an appointment at a time that suited me	7.0	-
It felt too hard to open up	7.0	18.8
Other reason	7.0	6.3
It was too expensive	4.7	-
It took too long to get an appointment	4.7	-
I was worried what others might think	4.7	6.3
I was worried about the impact on my professional life	4.7	-
I didn't find the health professionals helpful	2.3	-
I wasn't satisfied with the services available	2.3	-
My workplace didn't offer support (like EAP), or it wasn't enough	2.3	-
I had problems with transport or childcare	-	-
The service didn't meet my cultural or language needs	-	-
This has not been a problem for me, or I have not needed professional help	37.2	25.0

Note. $N = 43$. Participants could select as many barriers as applied to them. "Amongst those who did not access a service" percentages are based on participants who did not report accessing any services ($n = 16$).

An independent samples *t*-test was conducted to compare burnout levels between participants who reported experiencing at least one barrier to accessing support and those who did not, using the binary variable (yes/no). Levene's test indicated that the assumption of homogeneity of variance was met for both T1 burnout, $F(1, 41) = 0.45, p = .51$, and T2 burnout, $F(1, 41) = 0.21, p = .65$. Experiencing at least one barrier to accessing support was not significantly associated with T1 burnout, $t(41) = -0.93, p = .36$, mean difference = -5.35, 95% CI [-16.95, 6.26], $d = -0.29$, 95% CI [-0.90, 0.33]. For T2 burnout, there was also no statistically significant difference, $t(41) = -1.75, p = .09$, mean difference = -9.39, 95% CI [-20.25, 1.47], $d = -0.55$, 95% CI [-1.16, 0.08]. Thus, this part of hypothesis H2c was not supported either.

In sum, these findings suggest that contrary to the hypothesis, burnout was not associated with the use of professional services, nor barriers to access. H2c was therefore rejected.

Associations Between Burnout and Turnover Intentions

This section addresses the RQ3. Descriptive statistics for turnover intentions are presented in Table 2. As per H3, it was hypothesised that burnout would be positively associated with turnover intentions amongst doctors at T1 and T2. A review of the data showed turnover intentions were negatively skewed, with participants, on average, indicating they were very unlikely to leave their job in the next six months. As shown in Table 2, burnout was not significantly correlated with turnover intentions at T1 ($r(41) = .03, p = .84$, 95% CI [-.27, .33]) or T2 ($r(41) = .15, p = .35$, 95% CI [-.16, .43]). Hypothesis H3 was therefore rejected.

An exploratory thematic analysis was then conducted to understand the reasons doctors reported continuing in their roles despite experiencing burnout. Participants described a complex mix of personal and professional reasons for staying. While some comments were positive, focusing on supportive colleagues or satisfaction in the work, others indicated they continued on due to factors that limited their ability to change or leave jobs.

The analysis indicated that participant commentary could be categorised into four main themes: (1) purpose and commitment, (2) financial and job security, (3) geographic and family considerations, and (4) team and collegial relationships. These are described below.

Purpose and Commitment. Despite systemic pressures and dissatisfaction with leadership and work demands, 24 participants (56%) expressed ongoing enjoyment and meaning in their clinical work. They described medicine as rewarding and purposeful, with Participant 043 writing, “I love my patients and my colleagues, and I still feel that I am making a difference.” Others referred to a sense of duty and pride. Participant 005 wrote, “I find ways to support others to do their jobs well.”

Financial and Job Security. Financial stability and job security were also key reasons participants reported choosing to continue, as reported by 19 participants (44%). Several identified being the sole income earner or having significant financial commitments such as mortgages or family expenses. Participant 030 noted, “I have just started building a house and need to pay my bills and the mortgage,” while Participant 038 wrote, “I need the money and I have yet to come up with an adequate diversification strategy or alternative career.” For some, job security was particularly important given limited alternative opportunities within New Zealand.

Geographic and Family Considerations. Sixteen participants (38%) mentioned family or life commitments and geographic constraints as influencing their decision to continue in their current role. Participant 031 wrote, “I have children at school and do not want to move them again.” Indeed, many comments reflected the perceived challenges of balancing their career with family stability. The desire to remain close to family and community often outweighed the potential benefits of pursuing other opportunities. Participant 004 wrote, “I have had multiple international opportunities that would have paid better and been intellectually more stimulating and probably less stressful work that I have turned down to stay in NZ with my family.”

Team and Collegial Relationships. Fourteen participants (33%) emphasised the importance of positive, supportive, and enjoyable workplace relationships. They described valuing their colleagues and teams, often viewing these relationships as a key reason for continuing in their current role despite ongoing pressures. For example, Participant 024 wrote, “My colleagues are fantastic - friendly, supportive, knowledgeable, pursue excellence, always trying to put the patient first (i.e., dedicated). Work is a sociable place - I enjoy the social contact.” Others reflected on the social aspect, enjoying working in teams and leading, rather than working in solo practice.

Many comments combined themes, describing motivating factors alongside the complex challenges and the toll of the work. Participant 040 wrote:

I genuinely love my job but find the resource limitation and access block and increasing patient safety concerns due to overloaded systems is depressing and tiring and upsetting. The moral distress of treating patients in corridors, seeing patients who have waited 12 hours, seeing patients sent to ED because no one else has the time to help is well past crisis point. The successive governments and the heads of our hospital glossing over the issues for political reasons and the empty promises of extra resource are bringing the feelings of hopelessness to the fore.

Participant 023 wrote that the pressures were multi-faceted and largely system-based, with a lack of opportunity to contribute to improvements:

I like patient care. I have a good work environment. The stresses come from outside: unreasonable expectations demands from secondary and tertiary care, unreasonable expectations from the [professional body] with recertification requirements. Lack of consultation with the doctors in the trenches is behind much of my dissatisfaction.

The overall findings showed that participants' decisions to continue in their current roles were often shaped by a complex combination of purpose, personal circumstances, and structural constraints, amid significant frustration with the broader system.

Part 2: Individual Daily Recovery

Daily Work-Related Factors, Non-Work Recovery Activities and Psychological Detachment

This section addresses RQ4. First, as per H4a, it was hypothesised that work demands (i.e., work hours, on-call hours, and perceived work conditions) would be negatively associated with same-day and next-day psychological detachment. Descriptive statistics for work-related factors and psychological detachment are shown in Table 6.

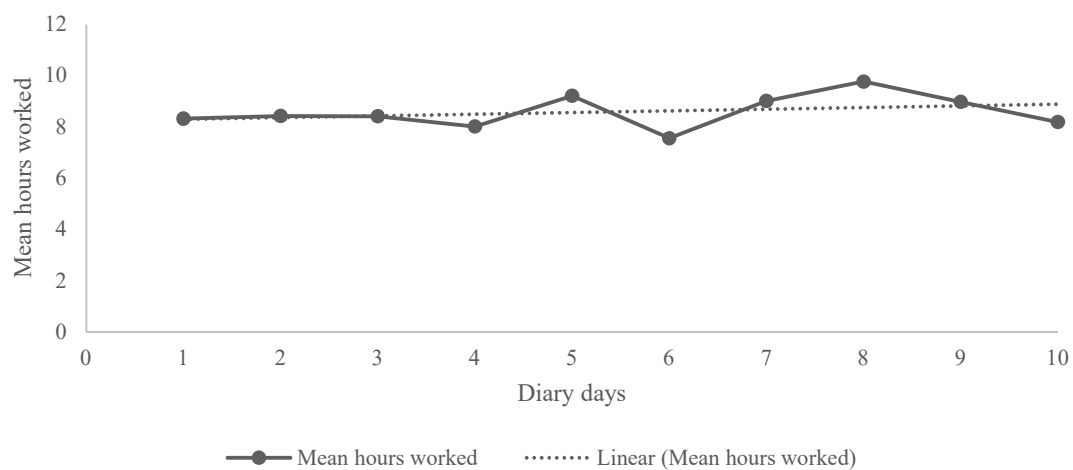
The daily diary period covered two working weeks, with days 1-5 representing Monday to Friday of the first week and days 6-10 representing Monday to Friday of the second week. Within that time, participants generally worked full-time hours each day and also spent additional time on-call, suggesting a high overall workload. Once hours worked and on-call hours were combined, participants reported working an average of 10.4 hours per day ($SD = 5.7$).

Table 6*Descriptive Statistics for Daily Work Variables and Psychological Detachment*

Variable	<i>M</i>	<i>SD</i>
Hours worked	8.7	1.5
On-call hours	1.9	3.1
Working conditions	51.3	13.8
Psychological detachment	10.3	2.3

Note. Scale ranges: Working conditions = 0-100 (higher scores indicate more positive conditions); Psychological detachment = 4-20 (higher scores indicate greater detachment).

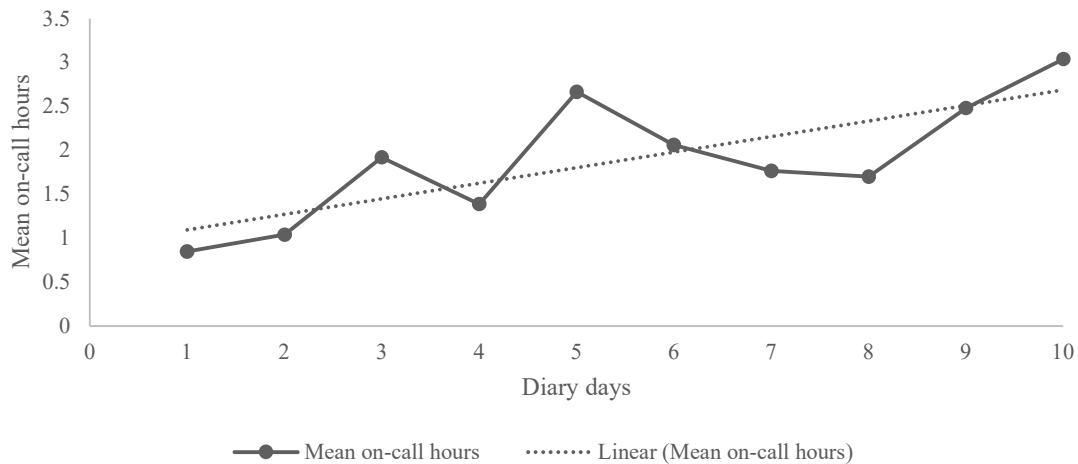
A review of the work hours means over the diary period shows very little change day-to-day (as shown in Figure 3). However, on-call hours showed a more dramatic pattern (as shown in Figure 4), with greater on-call hours at the end of the week (days 5 and 10, both Fridays). For reference, being on call reflected time not directly working but being available.

Figure 3*Mean Hours Worked Across Diary Days*

Note. $N = 23-37$ across the diary days. Days 1-5 represent Monday to Friday of Week 1 and days 6-10 represent Monday to Friday of Week 2.

Figure 4

Mean On-Call Hours Worked Across Diary Days



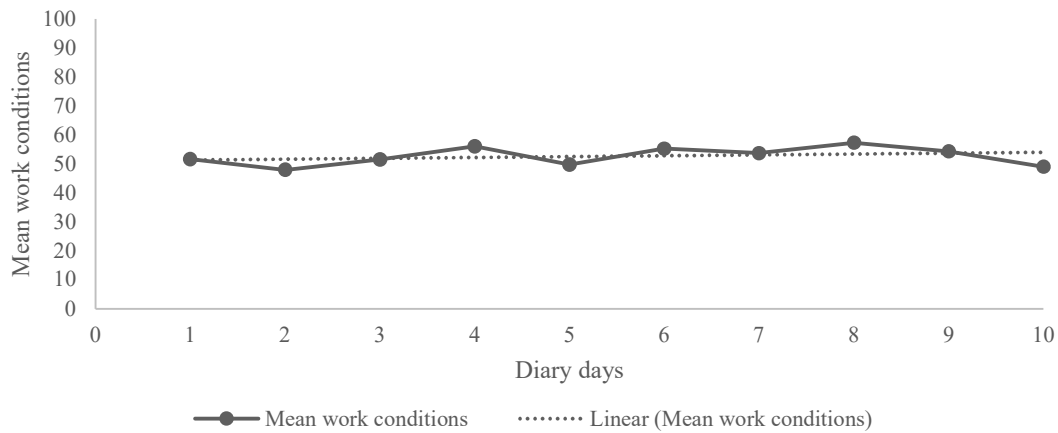
Note. $N = 20-37$ across the diary days. Days 1-5 represent Monday to Friday of Week 1 and days 6-10 represent Monday to Friday of Week 2.

Daily work conditions reflected perceptions of staffing adequacy, patient information availability, and the ability to adequately supervise and train junior doctors. Mean levels were moderate across the diary period (as shown in Figure 5), indicating some psychosocial strain but not at extreme levels. In turn, participants reported, on average, moderate levels of psychological detachment during non-work time (as shown in Figure 6), suggesting that most were able to switch off from work to some extent across most diary days.

Correlations between daily work conditions, work hours, and psychological detachment are presented in Table 7. Correlations were conducted at the observation level, with diary days treated as units of analysis. Given the nested structure of the data and the exploratory nature of the diary analyses, multilevel modelling was not undertaken, and analyses were conducted at the observation level.

Figure 5

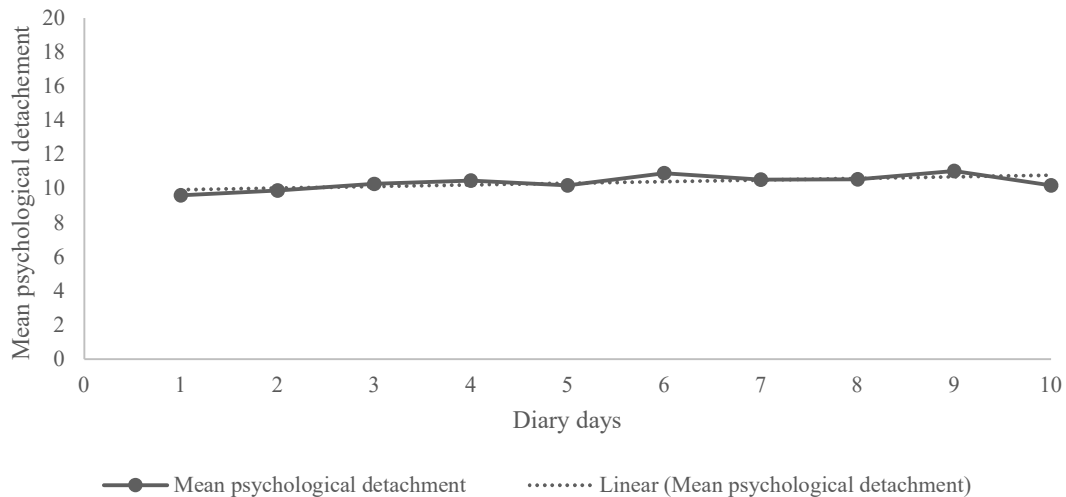
Mean Work Conditions Across Diary Days



Note. $N = 21-37$ across the diary days. Scale range for work conditions = 0-100 (higher values reflect more positive work conditions). Days 1-5 represent Monday to Friday of Week 1 and days 6-10 represent Monday to Friday of Week 2.

Figure 6

Mean Psychological Detachment Across Diary Days



Note. $N = 22-37$ across the diary days. Scale range for psychological detachment = 4-20, (higher values reflect greater recovery experience). Days 1-5 represent Monday to Friday of Week 1 and days 6-10 represent Monday to Friday of Week 2.

Table 7*Correlations Amongst Daily Work Factors and Psychological Detachment*

Variable	1	2	3	4
1. Hours worked	-			
2. On-call hours	.11	-		
3. Work conditions	-.14*	.10	-	
4. Psychological detachment (same day)	-.18**	-.08	.23**	-
5. Psychological detachment (next day)	-.10	.09	.16*	.51**

Note. *N* ranged from 179-307 across variables. * $p < .05$; ** $p < .001$.

To examine whether working hours influenced recovery day-to-day, Pearson correlations were calculated between hours worked and same-day and next-day psychological detachment. Hours worked were negatively associated with same-day psychological detachment ($r(304) = -.18, p = .001, 95\% \text{ CI } [-.29, -.07]$). However, hours worked were not significantly related to next-day psychological detachment ($r(235) = -.10, p = .14, 95\% \text{ CI } [-.22, .03]$). On-call hours were not significantly associated with either same-day psychological detachment ($r(294) = -.08, p = .16, 95\% \text{ CI } [-.20, .03]$), or next-day psychological detachment ($r(228) = .09, p = .18, 95\% \text{ CI } [-.04, .22]$).

Work conditions were positively associated with both same-day psychological detachment ($r(297) = .23, p < .001, 95\% \text{ CI } [.12, .33]$), and next-day psychological detachment ($r(229) = .16, p = .02, 95\% \text{ CI } [.03, .28]$). Finally, same-day detachment strongly predicted next-day detachment, suggesting that effective recovery tends to carry over to the following day ($r(235) = .51, p < .001, 95\% \text{ CI } [.41, .60]$). A follow-up correlation analysis showed that poorer work conditions were associated with longer work hours ($r(297) = -.14, p = .02, 95\% \text{ CI } [-.25, -.02]$).

In sum, more positive work conditions were associated with better same- and next-day psychological detachment. Conversely, longer work hours were associated with lower psychological detachment same-day, but not next-day. On-call hours were not significantly related to either same- or next-day detachment. Hypothesis H4a was therefore only partially supported.

Second, as per H4b, it was hypothesised that engagement in non-work recovery activities (e.g., high- or low-effort leisure activities) would be positively associated with same-day psychological detachment, and some activities (e.g., physical and social activities) would also be positively associated with next-day psychological detachment. As shown in Table 8, participants reported engaging in a wide range of non-work recovery activities across the diary period to support their wellbeing. Of the 675 diary observations, digital leisure, social, and physical activities were most frequently reported. Less frequently reported activities included creative or organising tasks, working from home, and professional support services.

Table 8

Frequency of Participation in Non-Work Recovery Activity Categories Across Diary Days

Recovery categories	Total frequency	Percentage
Digital leisure	126	19%
Social	112	17%
Physical	81	12%
Restoration activities/sleep	70	10%
Reading	60	9%
Outdoor activities	48	7%
Cooking/food enjoyment	43	6%
Mindful/spiritual	37	5%
No activity	27	4%
Creative/organising	26	4%
Pets	17	3%
Unclear/barriers	16	2%
Worked from home	7	1%
Professional support services	5	1%

Note. N = observations (not unique participants).

As shown in Table 9, relationships between engagement in non-work recovery activities during the diary period and daily recovery were examined using psychological detachment as an indicator and the binary variable (yes/no) for recovery activity engagement.

Some entries illustrated days where participants combined multiple strategies: “Sleep, meditation, listening to podcast and comedy audiobook, supportive conversations with partner, running with dog” (Participant 037) or “Planning vacation, mindful walking, walking around the wetland, sharing stories with friends” (Participant 016). In these cases, participants’ responses were categorised across multiple activities. In the latter example, this response was categorised as creative/organising, mindful/spiritual, physical, outdoor, and social activities.

A series of independent samples *t*-tests were conducted for each recovery activity comparing same-day and next-day psychological detachment between days when activities were reported versus not reported. The results are reported below under their respective category.

Activities Associated with Same- and Next-Day Psychological Detachment.

Digital Leisure Activities. The most frequently reported activity was digital leisure, encompassing both low-effort engagement (e.g., TV, streaming, YouTube, podcasts, and music) and more interactive activities such as gaming. Examples included: “Spent time with my children and listened to their music” (Participant 013), “Watching TV and playing mindless phone games” (Participant 001), “Scrolled Instagram for 30 mins” (Participant 022), or “Played Gears of War on PS5” (Participant 018). While these activities were not always framed as explicitly restorative, participants reported these as activities that provided a break from life and work demands.

Levene’s test indicated that the assumption of homogeneity of variance was met for both same-day psychological detachment, $F(1, 304) = 0.95, p = .33$, and next-day psychological detachment, $F(1, 304) = 0.04, p = .85$. Participants who engaged in digital leisure reported significantly greater same-day psychological detachment than those who did not, $t(304) = -4.10, p < .001$, mean difference = -1.50, 95% CI [-2.21, -0.78], $d = -0.48$, 95% CI [-0.71, -0.25]. A significant difference was also observed for next-day psychological detachment, $t(304) = -2.58, p = .01$, mean difference = -1.00, 95% CI [-1.76, -0.24], $d = -0.31$, 95% CI [-0.55, -0.07].

Table 9*Same- and Next-Day Psychological Detachment by Daily Recovery Activity Categories*

Categories	Engagement	Same-day			Next-day		
		<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Digital leisure	Yes	126	11.3	3.1	102	11.0	3.2
	No	180	9.7	3.2	204	10.0	3.2
Social	Yes	112	11.4	2.6	82	11.3	2.6
	No	194	9.8	3.3	224	10.0	3.4
Physical	Yes	81	11.5	2.9	64	11.5	2.7
	No	225	10.0	3.2	242	10.1	3.3
Restorative/sleep	Yes	70	10.9	3.1	52	10.8	3.0
	No	236	10.2	3.3	254	10.3	3.3
Reading	Yes	60	11.3	3.1	50	11.1	3.1
	No	246	10.2	3.2	256	10.2	3.2
Outdoor	Yes	48	11.1	3.1	38	11.1	3.2
	No	258	10.2	3.2	268	10.3	3.2
Cooking/food enjoyment	Yes	43	11.3	3.1	35	11.1	3.5
	No	263	10.2	3.2	271	10.3	3.2
Mindful/spiritual	Yes	37	10.1	3.1	32	10.3	3.1
	No	269	10.4	3.2	274	10.4	3.2

Categories	Engagement	Same-day			Next-day		
		<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Creative/organising	Yes	26	10.5	2.5	19	11.0	2.5
	No	280	10.4	3.3	287	10.3	3.3
Pets	Yes	17	10.1	2.5	13	10.3	2.5
	No	289	10.4	3.3	293	10.4	3.3
Worked from home	Yes	7	10.0	2.4	6	9.1	3.9
	No	299	10.4	3.2	300	10.4	3.2
Professional support services	Yes	5	12.0	1.4	5	9.6	3.8
	No	301	10.6	3.2	301	10.4	3.2

Note. Correlations are based on *N* = observations (not unique participants).

Social Activities. Connection with others was a recurring theme, often combined with other activities. Many entries referred to time spent with family or partners, such as “Time with whānau” (Participant 004). Similarly, Participant 011 wrote: “Laughed with colleagues, had dinner with my family.” Many social interactions were low-energy activities, such as talking with a spouse, video-calling a parent, or having coffee with a friend, and involved food or digital leisure. For others, social interaction was paired with activities such as exercise.

Levene’s test indicated that the assumption of homogeneity of variance was violated for both same-day psychological detachment, $F(1, 304) = 4.53, p = .03$, and next-day psychological detachment, $F(1, 304) = 11.07, p < .001$. Therefore, results from the equal variances not assumed test was used. Participants who engaged in social activities reported significantly greater same-day psychological detachment than those who did not, $t(262.28) = -4.68, p < .001$, mean difference = -1.66, 95% CI [-2.36, -0.96], $d = -0.53$, 95% CI [-0.77, -0.30]. A significant difference was also observed for next-day psychological detachment, $t(182.75) = -3.39, p < .001$, mean difference = -1.24, 95% CI [-1.97, -0.52], $d = -0.39$, 95% CI [-0.65, -0.14].

Physical Activities. Participants reported a range of high-effort activities, including walking, running with a dog, cycling, and attending classes such as Pilates. Mindfulness or reflective practices were also commonly noted. For example, Participant 016 wrote: “Mindful walking outside instead of lunch break, going for a run with my dog on the beach.”

Levene’s test indicated that the assumption of homogeneity of variance was met for same-day psychological detachment, $F(1, 304) = 0.12, p = .73$, but violated for next-day psychological detachment, $F(1, 304) = 4.84, p = .03$. Participants who engaged in physical activities reported significantly greater same-day psychological detachment than those who did not, $t(304) = -3.57, p < .001$, mean difference = -1.46, 95% CI [-2.27, -0.65], $d = -0.46$, 95% CI [-0.72, -0.21]. A significant difference was also observed for next-day psychological detachment using the equal variances not assumed test, $t(116.59) = -3.69, p < .001$, mean difference = -1.47, 95% CI [-2.26, -0.68], $d = -0.46$, 95% CI [-0.74, -0.19].

Activities Associated with Same-Day Psychological Detachment Only.

Reading. A small number of participants reported reading as a recovery activity. Levene’s test indicated that the assumption of homogeneity of variance was met for both same-day psychological detachment, $F(1, 304) = 0.62, p = .43$, and next-day psychological

detachment, $F(1, 304) = 0.40, p = .53$. Participants who engaged in reading reported significantly greater same-day psychological detachment than those who did not, $t(304) = -2.57, p = .01$, mean difference = -1.18, 95% CI [-2.09, -0.29], $d = -0.37$, 95% CI [-0.65, -0.09]. However, there was no significant difference for next-day psychological detachment, $t(304) = -1.73, p = .09$, mean difference = -0.86, 95% CI [-1.84, 0.12], $d = -0.27$, 95% CI [-0.57, 0.04].

Cooking and Food Enjoyment. Some participants reported cooking as a non-work recovery activity, along with enjoyable food experiences. Food experience examples included: “Drank Baileys and ate chips” (Participant 041), “Had fish and chips and a paua fritter” (Participant 032), and “Ate chocolate brownie” (Participant 018). Levene’s test indicated that the assumption of homogeneity of variance was met for both same-day psychological detachment, $F(1, 304) = 0.02, p = .90$, and next-day psychological detachment, $F(1, 304) = 1.03, p = .31$. Participants who cooked or enjoyed food as a recovery activity reported significantly greater same-day psychological detachment than those who did not, $t(304) = -2.13, p = .03$, mean difference = -1.12, 95% CI [-2.16, -0.09], $d = -0.35$, 95% CI [-0.67, -0.03]. However, there was no significant difference for next-day psychological detachment, $t(304) = -1.37, p = .17$, mean difference = -0.79, 95% CI [-1.93, 0.34], $d = -0.25$, 95% CI [-0.60, 0.11].

Activities Not Associated with Same- and Next-Day Psychological Detachment.

Analysis showed that there were no significant relationships between restorative activities, outdoor activities, mindful/spiritual practices, creative/organising activities, pets, working from home, or professional support services, and same- or next-day psychological detachment.

Restorative activities and sleep (e.g., massage, resting on the couch, sleep) appeared as both as planned and reactive non-work recovery activities. A small number of participants reported catching up after long or disrupted shifts over a 24-hour period. Participant 011 wrote: “I had 2 hours sleep to catch up from the lack of sleep when I was on call and in the hospital all night”, while Participant 039 shared: “Got home at 2am post shift so slept despite still being on call.” For same-day psychological detachment, Levene’s test indicated that the assumption of homogeneity of variance was met, $F(1, 304) = 0.69, p = .41$. Engagement in restorative or sleep activities was not significantly associated with same-day psychological detachment, $t(304) = -1.58, p = .12$, mean difference = -0.69, 95% CI [-1.55, 0.17], $d = -0.22$,

95% CI [-0.48, 0.05]. For next-day psychological detachment, homogeneity of variance was also met, $F(1, 304) = 0.89, p = .35$, and engagement in these activities was not significantly associated with detachment, $t(304) = -1.09, p = .28$, mean difference = -0.54, 95% CI [-1.50, 0.43], $d = -0.17$, 95% CI [-0.47, 0.13].

Some participants reported spending time outdoors as a recovery activity. Participant 018 wrote: “Sat in hot tub with my daughter and looked at the stars.” Often being outdoors was combined with other activities such as running or being mindful. Levene’s test indicated that the assumption of homogeneity of variance was met for both same-day psychological detachment, $F(1, 304) = 0.82, p = .37$, and next-day psychological detachment, $F(1, 304) = 0.21, p = .65$. Engagement in outdoor activities was not significantly associated with same-day psychological detachment, $t(304) = -1.74, p = .08$, mean difference = -0.88, 95% CI [-1.87, 0.11], $d = -0.27$, 95% CI [-0.58, 0.04]. There was also no significant difference for next-day psychological detachment, $t(304) = -1.54, p = .13$, mean difference = -0.86, 95% CI [-1.95, 0.24], $d = -0.27$, 95% CI [-0.61, 0.08].

A small number of participants described spending time with pets, namely dogs. For example, Participant 016 wrote: “Going for a run with my dog on the beach.” Levene’s test indicated that the assumption of homogeneity of variance was met for both same-day psychological detachment, $F(1, 304) = 1.82, p = .18$, and next-day psychological detachment, $F(1, 304) = 1.88, p = .17$. Engagement in pet-related activities was not significantly associated with same-day psychological detachment, $t(304) = 0.43, p = .67$, mean difference = 0.34, 95% CI [-1.24, 1.93], $d = 0.11$, 95% CI [-0.38, 0.60]. There was also no significant difference for next-day psychological detachment, $t(304) = 0.09, p = .93$, mean difference = 0.08, 95% CI [-1.72, 1.88], $d = 0.02$, 95% CI [-0.53, 0.58].

Mindful and spiritual activities (such as meditation and prayer), and creative and organising activities (such as housework or knitting) were less frequent. For mindful activities, Levene’s test indicated that the assumption of homogeneity of variance was met for both same-day psychological detachment, $F(1, 304) = 0.33, p = .57$, and next-day psychological detachment, $F(1, 304) = 0.09, p = .77$. Engagement in mindful activities was not significantly associated with same-day psychological detachment, $t(304) = 0.50, p = .62$, mean difference = 0.28, 95% CI [-0.83, 1.39], $d = 0.09$, 95% CI [-0.26, 0.43]. There was also no significant difference for next-day psychological detachment, $t(304) = 0.13, p = .90$, mean difference = 0.08, 95% CI [-1.11, 1.26], $d = 0.02$, 95% CI [-0.34, 0.39].

For creative and organising activities, Levene's test indicated that the assumption of homogeneity of variance was met for both same-day psychological detachment, $F(1, 304) = 1.86, p = .17$, and next-day psychological detachment, $F(1, 304) = 2.62, p = .11$. Engagement in creative activities was not significantly associated with same-day psychological detachment, $t(304) = -0.13, p = .90$, mean difference = -0.09, 95% CI [-1.39, 1.22], $d = -0.03$, 95% CI [-0.43, 0.38]. There was also no significant difference for next-day psychological detachment, $t(304) = -0.86, p = .39$, mean difference = -0.66, 95% CI [-2.16, 0.84], $d = -0.20$, 95% CI [-0.67, 0.26].

A small number of participants described working from home. For example, Participant 021 wrote: "Working from home yesterday afternoon and this morning." For one participant, this appeared to be a preferred style of working, whereas Participant 039 reported working from home due to illness: "I have been off sick for the last 2 days. Read work related papers." Levene's test indicated that the assumption of homogeneity of variance was met for both same-day psychological detachment, $F(1, 304) = 0.91, p = .34$, and next-day psychological detachment, $F(1, 304) = 0.01, p = .91$. Working from home was not significantly associated with same-day psychological detachment, $t(304) = 0.32, p = .75$, mean difference = 0.39, 95% CI [-2.04, 2.82], $d = 0.12$, 95% CI [-0.63, 0.87]. There was also no significant difference for next-day psychological detachment, $t(304) = 0.93, p = .35$, mean difference = 1.24, 95% CI [-1.38, 3.86], $d = 0.39$, 95% CI [-0.42, 1.19].

Very few participants sought help from professional support services. Of those who did, examples include: "Supervision" (Participant 036), "Counsellor" (Participant 042), and "Headache clinic appointment" (Participant 022). Levene's test indicated that the assumption of homogeneity of variance was violated for same-day psychological detachment, $F(1, 304) = 5.18, p = .02$, but met for next-day psychological detachment, $F(1, 304) = 0.01, p = .93$. Therefore, the equal variances not assumed test was interpreted for same-day psychological detachment only. Engagement in professional support was not significantly associated with same-day psychological detachment, $t(4.73) = -2.49, p = .06$, mean difference = -1.64, 95% CI [-3.37, 0.08], $d = -0.51$, 95% CI [-1.40, 0.38]. There was also no significant difference for next-day psychological detachment, $t(304) = 0.55, p = .59$, mean difference = 0.80, 95% CI [-2.07, 3.66], $d = 0.25$, 95% CI [-0.64, 1.13].

Overall, non-work recovery activities rarely involved engagement in a single activity over the week. Rather, participants appeared to combine low- and high-effort activities

according to their daily work and life demands, energy levels, and personal preferences. Hypothesis H4b therefore had partial support with some activities associated with higher same-day and next-day psychological detachment, but not all.

Further, recovery as an outcome tended to be activity-specific rather than time-specific and simply taking non-work time to rest did not always lead to the daily indicator, psychological detachment. Of the activities, social, physical, and digital leisure activities were all associated with same- and next-day detachment, compared to the other activities, which did not show the same outcomes. Some participants also reported barriers and days with few non-work activities, whether due to illness, workload, or other responsibilities. Participant 039 was ill, reporting:

I have been off sick for the last 2 days, severe gastro struggling to hydrate or walk. Husband is now also sick resulting in little sleep. Unable to attend scheduled teaching activities. Did manage some remote paperwork. Focussed on managing to rehydrate and keep some food down. Read work related papers then watched Netflix.

Participant Reflections on What Helped and Hindered Recovery

An exploratory analysis was then conducted to understand what factors participants perceived helped and hindered their recovery the most over the diary period as captured in the follow-up survey. In terms of what helped the most, a thematic analysis revealed six major themes, which were very similar to the findings in H4b. Most frequently mentioned were family and close relationships (26 participants; 60%), with emphasis on the time with family, partners, children, and friends, and colleagues. For example, Participant 011 wrote: “Spending time with family and friends”, and Participant 013 shared: “Supportive happy family at home”. Physical and outdoor activities were also common (21 participants; 49%), including exercise, walking, skiing, golfing, and gardening. For example, Participant 022 enjoyed the challenge of being active, writing: “The intense workout I do with a personal trainer for 30-40 mins once weekly,” while Participant 026 valued “Golf with colleagues”.

Hobbies, personal interests, and spirituality were cited by 15 participants (35%), encompassing activities such as reading, gaming, creative pursuits, mindfulness, and spiritual practices. Participant 018 wrote, “PS5 - dog - kids - wife - in that order.” Rest, relaxation, and downtime were mentioned by 12 participants (28%), including sleep, quiet time, and watching TV. For example, Participant 001 wrote, “Time to relax and just be still”.

Workplace support, collegiality, and satisfaction were referenced by 12 participants (28%), reflecting the importance of supportive teams and positive interactions at work. For example, Participant 025 wrote, “Being able to debrief socially with a colleague and good friend, put things in perspective and have a good laugh.”

Finally, planning and mental coping strategies were highlighted by 5 participants (12%). For example, Participant 032 wrote, “Thinking about having a holiday”. Only 2 participants (5%) reported nothing had been helpful for recovery.

These findings suggest that participants felt the most protective were multi-faceted, often combining social, physical, leisure, and mental coping components. Many participants also described overlapping activities, such as engaging in outdoor activities with family or friends, or combining exercise with spiritual or creative practices. Thus, recovery appeared to be both social and individual, high-effort and low-effort. Conversely, participants also reported challenges. For example, Participant 004 wrote: “Love spending time with my family but also feel so drained that I feel I don’t give them my best self.”

Factors hindering recovery the most over the diary period were also multi-faceted, and participants generally listed three or more issues in greater depth, compared to factors that helped. Workload and staffing pressures emerged as the most frequent issue (25 participants; 58%), with many feeling constantly overwhelmed by short staffing, high patient volumes, and the inability to complete administrative tasks, with some reporting moral distress due to substandard patient care. Participant 001 wrote:

Thinking constantly of the state of the department and the overwhelming pressure our ED is facing at the moment. Feeling the pressure of the poor morale, moral injury and being overwhelmed. Being called to ask about escalation plans and feeling guilty for not going to work on time off to help. Constantly feeling not doing enough and feeling terrible for staff and our patients who get poor care due to shortages in resources.

Other participants reflected on the impact of recent political pressures, Participant 025 shared: “Not feeling trusted/valued/respected at work; feeling a lack of hope in our future due to things I read being said by politicians and healthcare leaders - in the news and in social media.” Participant 035 reflected: “Dealing with a bullshit patient complaint. Too many

people with ridiculous expectations [at work] take way too seriously. Fed up of bearing the brunt of an under resourced system.”

Distress related to organisational issues was also common (mentioned by 19 participants; 44%), including toxic management, bullying, and systemic inefficiencies. Participants described feeling powerless to address these issues, leading to frustration and emotional strain. Shift work, disrupted sleep, and blurred boundaries between work and personal time were highlighted by 12 participants (28%), particularly those working night shifts or on-call. Concern for patient care was raised by 5 participants (12%), reflecting anxiety over patients receiving substandard care due to systemic limitations. Participant 027 wrote:

Finishing work in the early hours of the morning then being on call leads to a poor night's sleep and recovery the next day is all but impossible. [The] business of work - lack of ability to take proper break during shift making later recovery also more difficult.

Participant 011 reflected that shift work and being on call impacted opportunities for sleep and other recovery activities:

I sleep well when I am at home but at work it is disrupted (I stay in the hospital when I'm on-call). It takes days to recover from only getting 2-4hr sleep and I'm often irritable. No formal “recovery” days.

Family and personal responsibilities were cited by 11 participants (26%), encompassing childcare, caring for relatives, and other personal commitments. Competing priorities and external pressures were noted by 8 participants (19%), reflecting busy schedules, travel, and other external demands. For example, Participant 018 wrote, “Kids, evening meetings, dad being unwell,” while Participant 024 shared:

Having to work a weekend which I did yesterday and the day before. I find working the weekends incredibly tiring and stressful, which I think has to do with being so busy and being older. All the competing demands in my life - children, husband, other family, housework, grocery shopping etc.”

Health and wellbeing concerns were mentioned by 5 participants (12%), including illness, fatigue, and physical conditions such as arthritis. For example, Participant 022 wrote, “Let’s not forget menopause and mental health, and migraines which I take medication for.”

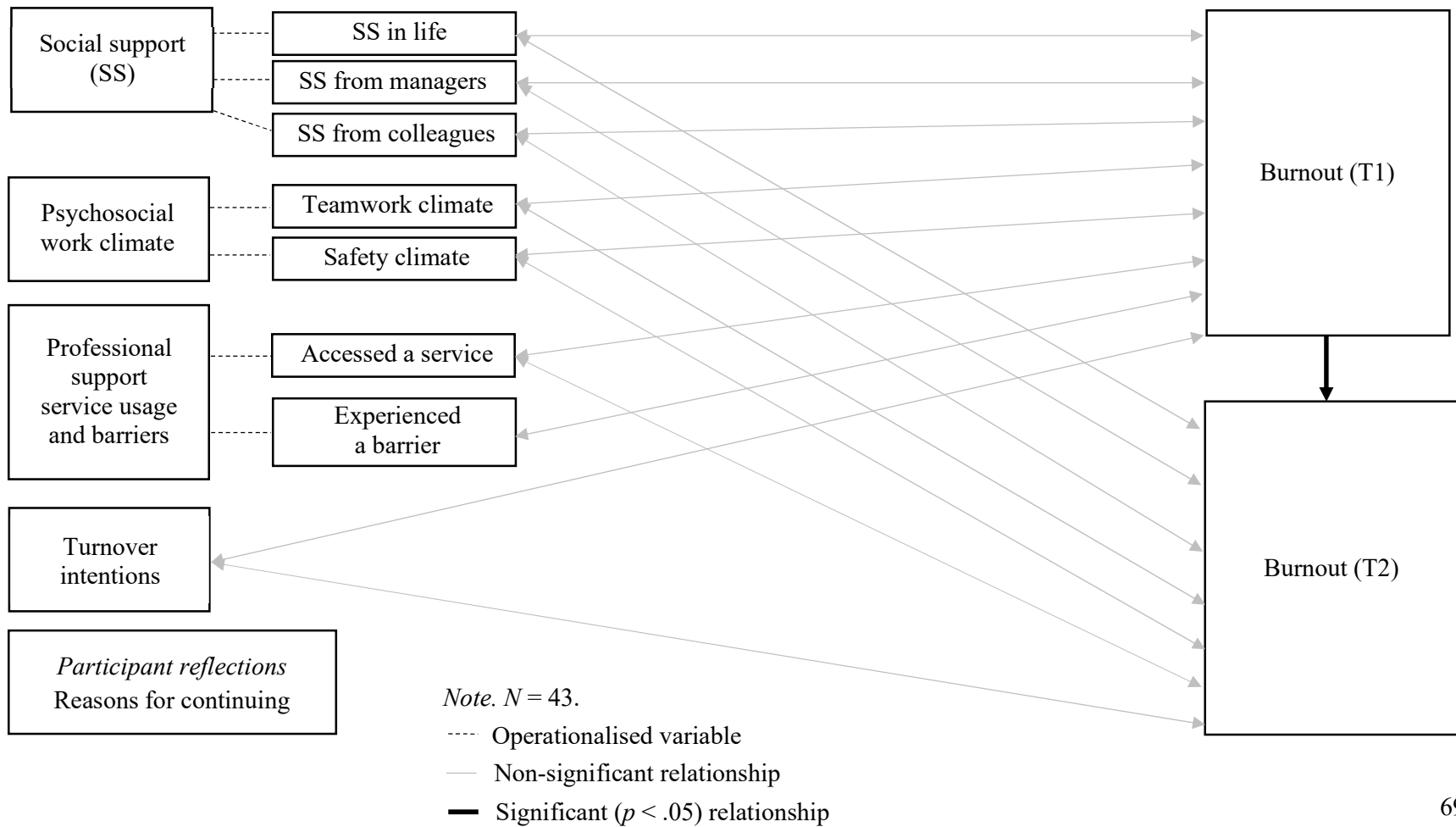
In sum, doctors reported proactively engaging in non-work activities, which appeared to support day-to-day functioning at work and home as well psychological detachment some of the time. Social support was also identified by participants as an important resource for daily recovery while work demands, political pressures, and organisational issues were dominant factors that hindered recovery.

The final diagram for the study is presented in Figure 7. Across Part 1 and Part 2, bold lines indicate statistically significant relationships ($p < .05$), while thin grey lines represent non-significant relationships. Dashed lines denote the operationalised variables. Overall, the results indicate that while burnout was strongly related over the two time points, there were no associations with social support (in life and work), psychosocial work factors, professional support usage or barriers, or turnover intentions. Daily recovery showed clearer relationships, with work hours and work conditions associated with psychological detachment, along with some but not all non-work recovery activities.

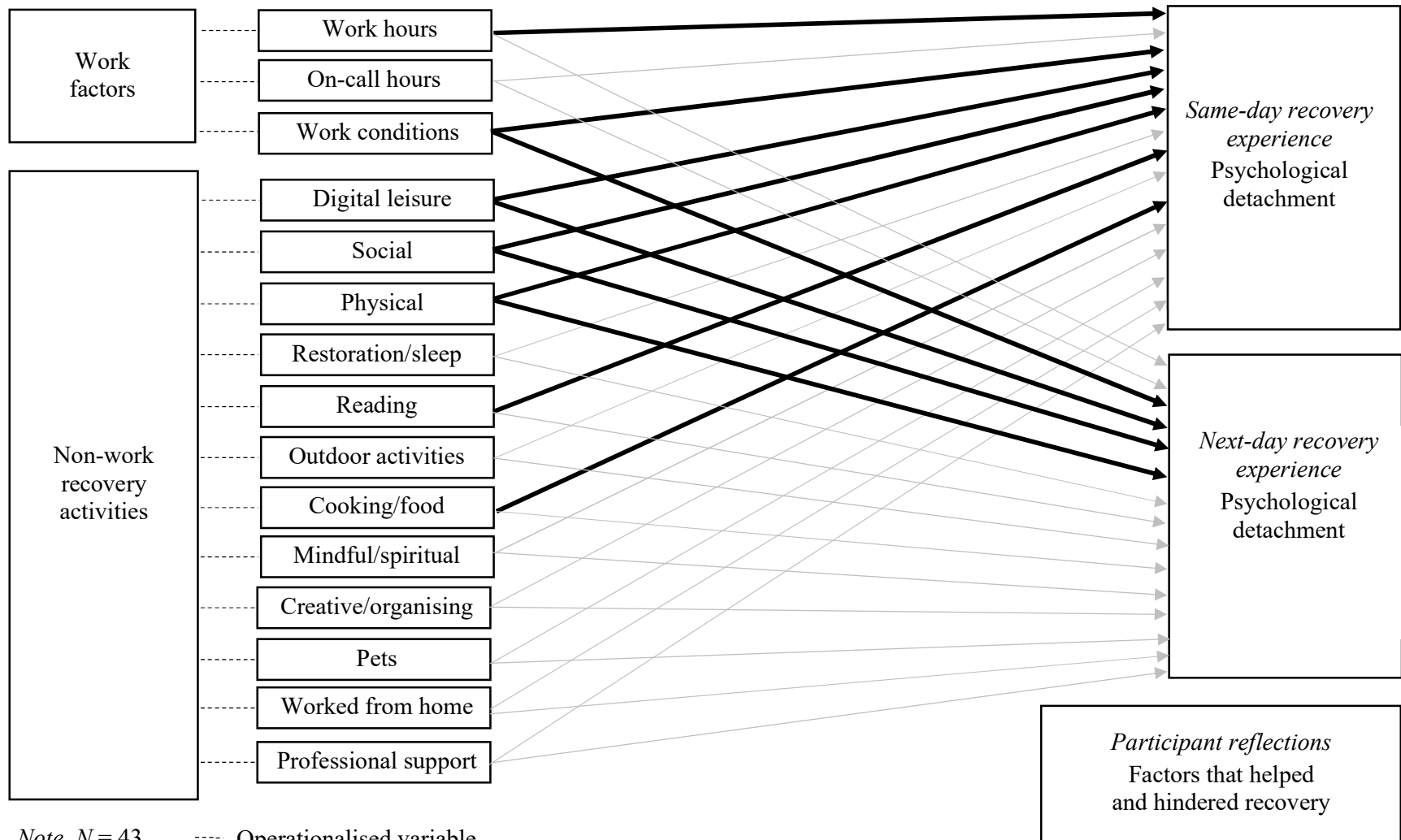
Figure 7

Final Research Framework

Part 1: Relationships Between Organisational and Social Conditions and Burnout



Part 2: Individual Daily Recovery



Note. $N = 43$.

Chapter 6 - Discussion

This study examined how burnout levels change over time in senior doctors with leadership responsibilities, and how their non-work recovery activities relate to day-to-day recovery while continuing to work. It adopted a dual-lens approach, examining (1) organisational and social conditions that relate to burnout, and (2) individual recovery interventions in managing burnout, underpinned by COR theory and the SDM. The findings showed that average burnout levels in this sample were higher than those reported in general population samples and were consistent with previous research in doctor populations (e.g., Ng et al., 2020; Wood et al., 2020). Overall, the findings were mixed across the two parts of the study, presenting a complex and somewhat paradoxical picture.

Relationships Between Organisational and Social Conditions and Burnout

Part 1 of the study examined the associations between organisational and social conditions and burnout, beginning with an analysis of the relationship between burnout measured at the start and end of the research period. As hypothesised, burnout at the two time points was strongly and positively associated, indicating that levels were largely unchanged. While findings from other studies examining burnout over brief periods have been mixed, this result supports evidence that burnout scores tend to be relatively consistent over short timeframes (Xanthopoulou & Meier, 2014).

The study also examined how organisational and social support conditions relate to burnout over time. First, it was predicted that greater social support, both in life and at work (from managers and colleagues), would be negatively associated with burnout at the two time points. However, this was not supported. While participants reported relatively high levels of social support in life and from colleagues, and more moderate levels of support from managers, none of these factors were related to burnout at either T1 or T2.

These results regarding social support present somewhat of a quandary. They are contrary to COR theory's conceptualisation of social relationships as key resources that can support recovery (Hobfoll, 1989), and they are inconsistent with other studies that have found non-work- and work-related social support can be protective from burnout (Blanco-Donoso et al., 2017; McLinton et al., 2023).

From a non-work perspective, while participants appeared to have access to resources through supportive relationships, it is possible that other factors, such as work-life balance,

moderated or mediated the relationship between non-work social support and burnout (Haar & Harris, 2023). It may also be that non-work social support provides resources at a day-to-day level, whereas burnout reflects a more cumulative state requiring the substantial reduction of work-related factors driving ongoing resource loss (Demerouti et al., 2009). Consistent with this notion, another possible explanation is that non-work social support may not directly address the underlying causes of burnout, which the World Health Organisation (2019) defines as a work-related phenomenon.

From a work perspective, the finding that relationships with managers and colleagues were not associated with burnout scores is unexpected, as it is also inconsistent with COR theory (Blanco-Donoso et al., 2017; Hobfoll et al., 2018; Thomas & Lankau, 2009). While negative factors such as conflict and poor co-worker support have been linked to burnout (Al-Ghunaim et al., 2022; McLinton et al., 2023), it is possible that the relationship between social support at work and burnout is not bi-directional, meaning that poor relationships contribute to burnout, whereas positive relationships do not necessarily reduce it. Further, many of the factors that contribute to burnout may reflect system-level work demands that sit outside the control of doctors and their immediate managers and colleagues (Kumar, 2016).

Within work relationships, participants reported higher levels of social support from colleagues compared to managers, which is consistent with previous research identifying challenges often exist in relationships between senior doctors and more senior levels of healthcare management (Denis & Van Gestel, 2016). Lower perceived support from managers, while not associated with burnout in this study, may indicate levels of strain, and a potential gap in available social resources at work. Conversely, peer relationships may represent a more reliable source of social resources within the workplace (Rogers et al., 2016).

Second, it was predicted that psychosocial work climates (being teamwork and safety climates) would be negatively associated with burnout at T1 and T2. However, there was no evidence supporting this hypothesis either. While teamwork climate and safety climate were strongly and positively related, neither was significantly associated with burnout at either time point. Similar to the findings for social support, this may suggest that, while favourable psychosocial work climates support collaboration, cohesive team relationships, and a learning environment where it is safe to share mistakes, climate alone may not be sufficient to influence burnout levels (Seidler et al., 2014).

From a COR perspective, positive psychosocial workplace climates are generally conceptualised as resources that can help individuals cope with demanding work environments (Hobfoll et al., 2018). However, their ability to be protective and promote resource gain may be contingent on other factors such as work hours and workload (Lu et al., 2022; Sousa et al., 2023; Wilbanks et al., 2025). To that end, while investment in team-based interventions may be beneficial for increasing doctors' perceived psychosocial work climate, the effectiveness of that investment may well be constrained by the broader system in operation (Chang et al., 2023). It is worth noting that safety climate was positively associated with social support from managers, which is consistent with literature on the important role managers play in shaping workplace culture, team processes, and safety behaviours (Thomas & Lankau, 2009).

Within the research question examining social support and burnout, it was also predicted that the use of professional support services would be negatively associated with burnout over time, and with fewer reported barriers to accessing support. The results showed that around 60% of participants accessed one or more services in the previous three months. This is substantially higher than rates reported in previous New Zealand research on professional support service usage amongst doctors (e.g., Cunningham & Cookson, 2009), and may reflect broader social shifts towards more positive attitudes to mental health and help-seeking over the decades (Haslam & Tse, 2024).

Notwithstanding this encouraging result, the hypothesis was not supported, as accessing professional support was not significantly associated with burnout levels at T1 or T2. It is unclear why this may be the case, and whether this reflects the quality or relevance of the support service accessed, the frequency of use, the limited capacity of professional support services to counter the underlying factors contributing to burnout, or the need for such support to be embedded within a broader biopsychosocial approach (Jaworska-Burzyńska et al., 2016). From a COR perspective, individual-level help-seeking may be limited in its impact when ongoing work demands continue to deplete resources (Hobfoll et al., 2018).

With regard to barriers, the greatest barrier was lack of time, which is thematically consistent with other studies on help-seeking in doctor populations (Clough et al., 2019; Cunningham & Cookson, 2009). From a COR perspective, this aligns with the recovery paradox, when individuals are already experiencing significant resource depletion, their

motivation or capacity to actively seek support is often reduced (Tu & Chi, 2024). This may also be reflected in the fact that most participants reported they preferred to manage recovery themselves, or with family and friends, although that too may be influenced by the professional norms within medicine, which promote concepts such as heroism through stress (Clough et al., 2019).

Given that 16% of participants reported that they did not trust the support offered through work (such as work-funded counselling services), it is notable that those who reported experiencing at least one barrier to accessing support also reported significantly lower levels of perceived manager support than those who did not. Consistent with previous research, this may reflect a lack of trust and support within the work environment to access professional support (Clough et al., 2019; Kay et al., 2008).

This lack of support at work may also help explain why self-funded access appeared more common across professional support service usage. Encouraging doctors to seek employer-funded support services without addressing the organisational and social conditions within the workplace may limit the uptake and effectiveness of such services. Furthermore, the lack of trust and the tendency towards self-funded support may reinforce the perception that individuals are solely responsible for managing their recovery (Korhonen & Komulainen, 2023).

Finally, the last research question in Part 1 examined the relationships between burnout and turnover intentions, and the reasons doctors continue in their roles while experiencing burnout. It was hypothesised that burnout at T1 and T2 would be positively associated with turnover intentions. However, this hypothesis was not supported. This is contrary to evidence in other studies that has linked burnout to turnover or an intention to quit amongst doctors (Stehman et al., 2019; Wilbanks et al., 2025).

Turnover intentions in this study were generally very low, suggesting that burnout does not always translate into immediate intentions to leave. Many participants' responses reflected multiple factors, indicating that the decision to continue in their current role was based on a complex mix of factors. Within this sample, financial commitments, family responsibilities, and limited alternative roles were notable constraints, while a strong sense of purpose and moral obligation to patient care appeared to reinforce decisions to stay at the same time. The role of professional identity in medicine, and the sense of moral duty also appeared to play a role (Giannoudi, 2025; Guille & Sen, 2024). As such, low turnover intent

amongst doctors should be interpreted with caution, as it may not necessarily indicate wellbeing or sustainable work. Certainly, commentary throughout the study demonstrated considerable dissatisfaction with organisational and system-wide factors, including relationships with management and unrealistic workplace expectations.

Individual Daily Recovery

Part 2 of this study, the daily diary component, sought to examine how work-related factors and non-work recovery activities were associated with doctors' daily recovery, operationalised as psychological detachment. It was predicted that work-related factors (i.e., work hours, on-call duties, and work conditions) would be negatively associated with same-day and next-day psychological detachment, and this was partially supported. First, longer work hours were associated with reduced same-day, but not next-day, psychological detachment. The same-day finding is consistent with the SDM (Haun et al., 2018), which posits that high work demands can spill over into cognitive and physical activation in non-work time. However, the absence of a next-day association suggests that the impact of longer hours alone as a factor may be brief rather than cumulative in its effect on daily recovery.

In contrast, on-call hours were not significantly associated with either same- or next-day psychological detachment. In this study, being on-call meant being available for work but not actively working, presenting a potential grey area in which participants were neither fully engaged in work nor fully detached from it. These non-significant results may reflect the variable and uncertain nature of on-call work, where the impact likely depends on whether calls are received and the demands of the work required (Kancherla et al., 2020). Being on-call has been linked to other issues such as work-family conflict, sleep disturbance and anxiety, which may indicate that the relationship between being on-call and psychological detachment, and daily recovery more generally, is influenced by other related variables (Heponiemi et al., 2014).

Finally, better work conditions were associated with both same- and next-day psychological detachment, reinforcing the role of work conditions in supporting resource gain, as proposed by COR theory (Hobfoll et al., 2018). Across the week, participants reported moderate work condition scores, with little change over time, indicating that they were only able to manage patient demand, supervise and train junior doctors, and access the information required for clinical decision-making some of the time. Nonetheless, higher work condition scores were associated with daily recovery, which is consistent with the appraisal

component of the SDM (Sonnentag & Fritz, 2015). Poorer perceived work conditions, conversely, were associated with longer work hours, suggesting that even moderate reductions in work conditions may contribute to ongoing resource depletion, and longer hours may limit opportunities for doctors to recover.

Within the daily diary study, it was also predicted that engaging in daily non-work recovery activities (e.g., physical and social) would be positively associated with same- and next-day psychological detachment. On average, participants reported moderate levels of psychological detachment during non-work time, meaning they tended to experience some difficulty in being able to mentally switch off from work. Notably, same-day psychological detachment was a strong predictor of next-day psychological detachment, suggesting that when achieved, it appears to carry over into the following day. From a COR perspective, this finding is consistent with the notion that, while resource loss cycles can be difficult to disrupt, recovery activities may contribute to short-term resource gains (Hobfoll et al., 2018).

In terms of specific recovery activities, the most frequently reported were digital leisure, social, and physical activities and all were associated with greater same- and next-day psychological detachment, with effect sizes ranging from small to moderate. Given the diverse nature of these activities, it is possible they each represent different daily recovery mechanisms, including immersion through digital leisure, psychological support through social connection and physiological recovery through movement (Agolli & Holtz, 2023; Demerouti, 2015; Fancourt et al., 2021). Interestingly, reading and cooking appeared to facilitate a recovery experience that shifted attention away from work on the same day. However, this effect did not carry over to the next day, suggesting that these activities may not be strongly associated with sustained recovery.

Conversely, several practices commonly promoted as restorative activities, such as mindfulness and restorative rest (Hülshager et al., 2015), were not associated with either same-day or next-day psychological detachment. It is possible that the low frequency with which these activities were reported influenced these results. Similarly, they may have been difficult for doctors to engage in alongside demanding work and home responsibilities. Uptake of professional support services was also very low during the two-week diary period, which is notable given participants' reported concerns about seeking professional support and lack of time as identified in Part 1 of this study. Given that participants worked, on average, 10 hours per day when combining work hours and on-call time, seeking professional support

may have been difficult to organise around competing demands. Equally, other barriers, as discussed earlier, may also have influenced this low uptake.

To that end, while many activities were not associated with same- or next-day detachment, participants often reported combining activities within a single recovery period (e.g., exercising outdoors with family and pets while engaging in reflective practices). Daily recovery may therefore be better understood as a complex process embedded within social and environmental contexts, rather than as a series of discrete individual actions. This view is consistent with COR theory (Hobfoll, 1989), which conceptualises resources as interconnected, accumulating in combination, rather than operating independently.

At the same time, some participants reported workplace and systemic pressures as substantial barriers to daily recovery. For example, a small number described working from home as a non-work recovery activity, suggesting that work pressures may be so persistent that completing work tasks at home temporarily alleviated work-related strain. However, this was not associated with same- or next-day psychological detachment, and recovery may therefore be limited by ongoing resource loss.

Finally, an analysis was conducted on participants' reflections regarding the factors that most helped or hindered their recovery over the diary period. Overall, the qualitative findings suggested that recovery was not solely an individual experience. Rather, it was strongly influenced by social support at home and within the workplace, as well as broader organisational and system-level conditions. Consistent with the daily diary findings, participants described the factors that supported recovery as multi-faceted, often combining social, physical, leisure, and mental coping components. Many reported engaging in overlapping activities, with social support frequently identified as a particularly valuable resource. Engagement in non-work recovery activities such as physical exercise and hobbies, was also valued.

Factors hindering recovery over the diary period were also multi-faceted, with participants typically identifying multiple issues, often in greater depth than factors that supported recovery. Workload and staffing pressures, organisational challenges, and system-level issues such as political pressures were amongst the most frequently reported barriers. Shift work, being on-call, work inefficiencies, and concerns about substandard patient care were also identified as barriers to recovery. These issues are consistent with previous research on doctors' work experiences in New Zealand (Chambers & Frampton, 2016; Kumar, 2016).

Overall, given the mixed findings across the evidence base on non-work recovery activities and psychological detachment (Kuhn & Flanagan, 2016; Sonnentag et al., 2010), these results add useful insights on the factors that support daily recovery for doctors experiencing burnout. Consistent with the SDM and COR theory, the findings indicate that recovery is not only shaped by individual behaviours and activities, but also by the broader psychosocial work environment. In particular, they suggest that for daily recovery to occur, the overall experience of work needs to be supportive enough to enable it (Hobfoll et al., 2018; Sonnentag et al., 2017).

Summary of Overall Findings

On review, the findings across the two parts of the study were mixed, reflecting a complex and at times somewhat paradoxical picture. In Part 1, burnout scores were strongly associated over time, yet social support factors were not related to it, despite broader evidence suggesting social relationships are typically protective (Ma et al., 2020; Rogers et al., 2016). When considered alongside Part 2, doctors reported proactively engaging in non-work activities, which appeared to support day-to-day functioning at work and home, and recovery some of the time. Social support was also identified by participants in retrospect as an important resource for daily recovery over the diary period. Cumulatively, these findings suggest that burnout can coexist with active recovery efforts, high levels of social support, and continued engagement in work and home life. This has important implications for how burnout recovery is understood within healthcare organisations, and the types of interventions required, and it reinforces the notion that burnout recovery cannot be an individual's responsibility alone (Korhonen & Komulainen, 2023). Rather, these findings indicate that burnout in this population is closely linked to structural and organisational factors, and that individual strategies alone are unlikely to be sufficient to address it (Maslach & Leiter, 2016).

Notwithstanding, individual recovery activities clearly played some role in buffering the day-to-day impact of work demands. Senior doctors in this study were able to psychologically detach from work, although detachment fluctuated across the week depending on work conditions and the non-work activities they engaged in. From a COR perspective, the findings suggest that senior doctors experiencing burnout who continue to work may operate within a persistent cycle of resource loss with only limited resource gain. Non-work recovery activities may provide enough resource renewal to maintain functioning at work and home on a day-to-day basis, but not enough to reverse broader levels of burnout within New Zealand's highly demanding healthcare system. To realistically reduce burnout

prevalence amongst senior doctors, sustained effort focused on organisational and system-level factors is likely required (Nielsen et al., 2018).

Strengths, Limitations, and Future Directions

Strengths

This study makes several valuable contributions to the evidence base. Certainly, a key strength is its mixed-methods design, with both cross-sectional and longitudinal diary components, which allowed for a richer understanding of burnout and recovery than would have been possible using a single method (Gochmann et al., 2022; Seathu Raman et al., 2024). In particular, the diary component enabled daily recovery experiences to be captured within 24 hours of when they occurred, providing a more accurate reflection of participants' day-to-day experiences than can typically be achieved using retrospective methods (Gochmann et al., 2022; Seathu Raman et al., 2024).

Similarly, the inclusion of qualitative data alongside quantitative data strengthened the overall depth of the findings with participants' reflections on factors such as turnover, or the things that helped and hindered recovery. These narratives helped to explain trends observed in the quantitative results and provided important context that illustrated the very human experience of burnout while continuing to work and function in life.

In terms of the population focus, this study builds on existing burnout research by focusing specifically on senior doctors with leadership responsibilities. Research on doctors often concentrates on junior doctors or samples with varying years of experience and responsibilities. Senior doctors represent a distinct group with direct influence on team culture, patient safety outcomes, organisational functioning, and frontline medical care (Denis & Van Gestel, 2016; Loh et al., 2016). By focusing specifically on this group, this study contributes to a growing body of research that recognises the distinct pressures they face and provides insight into their burnout and recovery experiences.

Finally, this research addresses specific areas with limited research. In particular, the research provides greater insights into the reasons doctors continue working in their current role despite experiencing burnout, their self-reported quality of social support in life, and their daily recovery activities (McManus et al., 2011; Moura et al., 2020) (Seathu Raman et al., 2024). Cumulatively, these findings contribute to a deeper understanding of the lived

experience of burnout and recovery, and they show that burnout can persist not due to a lack of individual effort, but despite it.

Limitations

This study has several limitations that should be considered when interpreting the results, many of which are consistent with repeated-measures and diary study designs (Frick et al., 2024; Iida et al., 2012). First, recruitment was based on self-identification of burnout, meaning that participation required a degree of insight into one's own symptoms (Xanthopoulou & Meier, 2014). As a result, some individuals may not have participated, either because they did not recognise burnout symptoms in themselves or because they were experiencing more severe burnout and felt too exhausted to engage. Both factors may have influenced the research results (Ahola et al., 2017). The sample size was also relatively small, potentially undermining the statistical power and the generalisability of the findings (van de Maat et al., 2024). As with all observational designs, causation cannot be inferred from the associations observed (Maslach & Leiter, 2016).

From a methodological perspective, the study relied entirely on self-report measures, which are subject to social desirability (Xanthopoulou & Meier, 2014). The diary component imposed a daily reporting burden, which may have contributed to reasonable decline in entries over time, and participant attrition may have limited the completeness of the data (Gochmann et al., 2022). External environmental factors may have also influenced both burnout levels and diary participation. Data collection occurred during industrial action in the public health system (Association of Salaried Medical Specialists, 2025), which may have had an impact on participants' workload, recovery opportunities, and ability to partake in the study. Finally, the short timeframe also likely limited the ability of the study to detect longitudinal changes in burnout or recovery, and longer research periods may be required to adequately observe change (Frick et al., 2024; Janssens et al., 2018). Overall, despite the limitations, the design and methodology used was appropriate for the study, and the findings provide a useful contribution to the evidence base on burnout and recovery in senior doctors.

Future Research

While there are many gaps across the burnout and recovery literature, several areas warrant further investigation as related to this study. Given the mixed relationships of social support with burnout and daily recovery further research examining social support for doctors within non-work and work contexts would be helpful. From a non-work perspective, it would

be useful to better understand the role of partners, family, and wider community networks in creating recovery opportunities and psychological detachment, along with the potential crossover or spillover effects of burnout on partners and close support people.

Within the work context, research examining leader-follower crossover effects would be particularly valuable. Future research could explore whether improvements in senior doctors' burnout recovery are associated with corresponding improvements in burnout in colleagues or junior doctors, or conversely, whether reduced opportunities for burnout recovery in senior doctors amplifies burnout within their team or department. Further, the dual responsibilities held by senior doctors deserve attention. The heightened responsibility as a leader and clinician may both intensify burnout risk and constrain recovery.

From a daily recovery perspective, it would also be beneficial to examine lifestyle factors in greater depth within this group. Incorporating objective measures, such as digital health tracking devices, may strengthen measurement accuracy of factors like physical activity and sleep. In addition, exploring maladaptive coping strategies would contribute to a more comprehensive understanding of the options doctors apprise, as per the SDM, when trying to manage burnout symptoms.

Finally, greater evidence on what actually supports micro- and macro-level recovery for doctors working in a system slow to change would be beneficial. Future research should examine organisational practices and system-level interventions that enable recovery to occur during the workday - not solely outside of work or solely focused on the individual changing. This shift would help address the systemic constraints highlighted in this study and reinforce the need for solutions that support long-term workforce sustainability.

Practical Implications

Four main practical implications can be drawn from the results of this study. First, overall, this study provides evidence that despite experiencing burnout, many senior doctors do proactively try to manage their recovery day-to-day. However, their individual actions cannot be enough. Burnout is not simply the result of individual behaviour. Rather, it is a workplace phenomenon that requires system-level change (World Health Organisation, 2019). Addressing burnout therefore requires healthcare organisations to address the broader political, bureaucratic, and technological pressures that place unrealistic demands on doctors (Kumar, 2016; Maslach & Leiter, 2016). In short, as noted by the Office of the Surgeon

General (2022), healthcare organisations have a “moral obligation” to act - this is not an individual problem to solve, but one that requires system-level reform.

Second, organisations need to treat daily recovery as a core component of work conditions, with psychological detachment as a key indicator of necessarily day-to-day recovery from work demands. This will likely require proactive interventions that reduce excessive work hours, protect non-work time, and enable recovery both during and outside of work time. To assess for changes over time, psychological detachment should be actively monitored through mechanisms such as regular wellbeing pulse surveys, structured check-ins between managers and staff, and organisational oversight of workload and working hours.

Third, while social support was not directly associated with burnout, it was consistently described as important for daily recovery. Organisations should therefore invest in strengthening key relationships, including improving manager relationships, addressing work-family conflict, and reducing barriers to accessing professional support (e.g., trust, confidentiality, and accessibility). These initiatives should be developed in consultation with doctors to ensure they reflect the realities of clinical work and are perceived as credible and safe to use. Building trust in support mechanisms is particularly important in the medical profession, where stigma and concerns about professional consequences may discourage help-seeking (Clough et al., 2019).

Finally, for doctors, while individual daily recovery activities cannot resolve the underlying structural drivers of burnout, these activities can play an important role in providing short-term relief. Activities such as physical exercise, social connection, and digital leisure were associated with improved psychological detachment, and engaging in these regularly may help doctors manage the ongoing demands of work and maintain functioning in the short term. Importantly, the findings also suggest that recovery often occurs through a combination of behaviours and social interactions within everyday life, and that prioritising it, even when difficult, is worthwhile.

Conclusion

In sum, this study examined how burnout levels change over time in senior doctors with leadership responsibilities, and how their non-work recovery activities relate to day-to-day recovery while continuing to work. It adopted a dual-lens approach examining individual recovery interventions alongside organisational and social conditions, using a two-part mixed-methods design. Certainly, the overall picture showed that although participants

proactively engaged in recovery activities during the diary period and were often able to psychologically detach from work in the short term, their daily recovery efforts did not coincide with reductions in overall burnout levels during the longitudinal aspect of the study. Rather, ongoing systemic pressures, work-family demands, and the sustained nature of clinical and leadership work within a complex system appeared to play a key role in sustaining burnout and limiting opportunities for resource gain.

From a COR perspective, the results suggest that senior doctors experiencing burnout while continuing to work may function within a persistent cycle of resource depletion and partial restoration. A review of the findings show that daily recovery activities supported enough resource gain to enable day-to-day functioning, but were perhaps not enough to counter the system-level workplace pressures that contribute to burnout. Proactive reduction in burnout amongst senior doctors therefore depends on system-level actions that address the real workplace constraints of modern healthcare. For sustained recovery to occur, healthcare organisations cannot rely on individual action alone.

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Appendix 1:
Human Ethics Committee Approval



30/07/2025

Dear: Sarah McGuinness

Re: Ethics Application - OM1 25/41 - Caring for self while caring for others: How senior doctors with leadership responsibilities work through burnout recovery when still on the job

Thank you for the above application that was considered by the Massey University Human Ethics Committee:

Ohu Matatika 1

at their meeting held on **Tuesday, 10 June 2025**

On behalf of the Committee I am pleased to advise you that the ethics of your application are approved.

Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Professor Tracy Riley,
Acting Chair, Research Ethics Chair's Committee

Appendix 2:

Sample Recruitment Email

Subject: Invitation to Participate in Research on Senior Doctors' Burnout Recovery

Kia ora colleagues,

Burnout is a common challenge in healthcare, and I recognise that many of you, as senior doctors, are managing competing demands in your roles. Understanding your experience is really important and could help improve support for others in similar roles. With that in mind, I warmly invite you to take part in a voluntary research study exploring how senior doctors recover from burnout while continuing to work.

The study is led by Sarah McGuinness, a master's researcher at Massey University, supervised by Dr Michelle Lee. Sarah brings both lived experience and professional expertise in psychosocial safety and wellbeing. This research forms part of her master's thesis and is independent, with no commercial interests or predetermined outcomes.

What's involved

The study includes a few simple steps, including a short diary phase, and you can complete each part at a time that suits your life and your roster.

You're eligible if you:

- Are a senior doctor working in New Zealand's public or private healthcare, and
- Supervise junior doctors (e.g., house officers, registrars, or interns), and
- Feel you're experiencing burnout, and
- Are not on leave and don't plan to be over the next few weeks

Why it matters

As [title e.g., Chief Wellbeing Officer], I encourage you to consider participating. Your insights will help us better understand and support senior doctors facing burnout.

Questions or support

If you have any questions, feel free to contact the researchers directly. You can find more details in the attached Participant Information Sheet.

To take part, click here: [Start the Survey](#)

Or you can copy this link and paste it in your browser:

https://massey.au1.qualtrics.com/jfe/form/SV_cwLtKibFBoPO6xg

This first survey closes on [UPDATE DATE]. Please note that individual participation in this research is confidential, and I will not be informed of who has taken part.

Support

Support is available at any time through our EAP services or the Wellbeing Team - please don't hesitate to reach out [INSERT DETAILS].

Thank you in advance for your support.

Ngā mihi,
[ENTER NAME]

Appendix 3: Participant Information Sheet

Call for participants PARTICIPANT INFORMATION SHEET - COHORT 2



Introduction

My name is Sarah McGuinness, and I'm a master's researcher at Massey University, supervised by Dr Michelle Lee.

I'm conducting a study to better understand how senior doctors recover from burnout while continuing to work. We've had such strong interest in the study, we've opened a second cohort. We'd like to invite you to participate.

Why we want to hear from you

Burnout is a serious challenge in healthcare. I know from my own burnout experience how difficult recovery can be while still working.

Through my advocacy and work with organisations on psychosocial safety, I also know how important it is to hear directly from people about their own experiences.

This study aims to better understand your experience as a senior doctor so we can improve how burnout in healthcare is addressed and ensure support is provided where it's needed most.

Note: Already in the first cohort? Just continue as usual - no need to join this second cohort.

You're eligible to participate if you:

- ✓ Are a senior doctor working in New Zealand's public or private healthcare system, and
- ✓ Supervise junior doctors (e.g. house officers, registrars, or interns), and
- ✓ Feel you're experiencing burnout, and
- ✓ Are not on leave and don't plan to be in the coming weeks, during the study period.

Research transparency

I often share my story and expertise through media and events. However, this research is different - it's part of my master's thesis and isn't connected to any commercial interests or set outcomes.

I will be maintaining a clear distinction between that and my role as a researcher, to protect your privacy and uphold the rigour of this study.

Gesture of gratitude

As a thank you, you'll be entered into a draw to win one of 50 \$20 Prezzy vouchers. Winners will be randomly selected and contacted by email after the study ends.

What's involved

Here's what you'll do as a study participant in the coming weeks:

- Weeks 1 & 2 (18 - 30 August)**
Initial survey open
Time: 15 - 20 mins
- Week 3 & 4 (1 - 12 September)**
Daily diary- 10 entries total
Time: 5 - 10 mins/day (Mon-Fri)
- Week 5 (15 - 19 September)**
Final survey
Time: 5-10 mins

Research findings

The results will contribute to my master's thesis and may be published in academic journals, at conferences, or in the media.

If you'd like a summary of the findings, you can opt in via the initial survey.

[START THE STUDY](#)



PAGE ONE

Your wellbeing

We recognise burnout is a difficult experience and your personal wellbeing is a priority for us.

At any point during or after the study you have feelings of being overwhelmed or distressed, we urge you to reach out to any of the support services below:

- Mental Health Foundation of New Zealand: visit www.mentalhealth.org.nz to access different types of support and resources.
- Lifeline New Zealand: Call 0800 543 354 or free text 4357 (available 24/7)
- Depression Helpline: Call 0800 111 757 or free text 4202 (available 27/7)
- Community Mental Health Team: 0800 800 717
- Call or text 1737 for support
- If it's an emergency dial 111

We also encourage you to talk to someone you trust or a healthcare provider (e.g. GP).

Data security and management

As a valued participant, your involvement in this study is completely voluntary. Your responses will remain confidential, and all data will be managed in line with Massey University's Research Data Management Policy and Code of Responsible Research Conduct.

Your data will be analysed alongside other participants' responses and reported as grouped results. Quantitative responses will be coded, and only the researchers will have access to any identifiable information, if required. A system-generated ID will be used to link your responses across the different parts of the study.

We'll ask for your email so we can send you the diary study, follow-up survey, a summary of results, and contact you if you win a Prezzy card.

Your email will be securely stored within Qualtrics and linked to a random ID that will also sit with your responses. The email address will not be associated with your answers, only the researcher and the supervisor will have access to that information.

All data will be securely stored for seven years, then destroyed in accordance with university policy.

Confidentiality and privacy

If you volunteer to take part, you have the right to:

- Decline to answer any question.
- Withdraw at any time by unsubscribing, ceasing participation, or emailing us. Unless you ask us otherwise, your data will still be included. Note, after data collection closes, we won't be able to remove your data as it will be completely anonymised.
- Ask any questions about the study at the time of participation.
- Be given access to a summary of the study findings.

Committee approval statement

This project has been reviewed and approved by the Massey University Human Ethics Ohu Matatika 1, Application OM1 25/41.

If you have any concerns about the conduct of this research, please contact the Chairperson, Massey University Human Ethics Ohu Matatika 1, email humanethics1@massey.ac.nz.

Contact

Questions or concerns? Reach out to the research team:

- Sarah McGuinness, School of Psychology, +64 21 183 9822, sarah.mcguinness.2@uni.massey.ac.nz
- Dr Michelle Lee, School of Psychology, +64 9 212 7054, m.lee2@massey.ac.nz

[START THE STUDY](#)



PAGE TWO

Appendix 4:

Baseline Survey

Invitation to Participate

My name is Sarah McGuinness, and I'm a master's researcher at Massey University, supervised by Dr Michelle Lee. I'm conducting a study to better understand how senior doctors recover from burnout while continuing to work. I'd like to invite you to take part.

Why We Want to Hear From You

Burnout is a serious challenge in healthcare. I know from my own burnout experience how difficult recovery can be while still working. Through my advocacy and work with organisations on psychosocial safety, I also know how important it is to hear directly from people about their own experiences. This study aims to better understand your experience as a senior doctor so we can improve how burnout in healthcare is addressed and ensure support is provided where needed most.

Research Transparency

I often share my story and expertise through media and events. However, this research is different - it's part of my master's thesis and isn't connected to any commercial interests or set outcomes. I will be maintaining a clear distinction between that and my role as a researcher, to protect your privacy and uphold the rigour of this study.

You're Eligible to Participate if You:

- Are a senior doctor currently working in New Zealand's public or private healthcare system, and
- Supervise junior doctors (e.g., house officers, registrars, or interns), and
- Feel you're experiencing burnout, and
- Are not on leave and don't plan to be during the next few weeks of the study.

What's Involved

Here's what you'll do as a study participant in the coming weeks:

- **Week 1 [DATES]: Initial questionnaire.** Time: 15 - 20 minutes.
- **Weeks 2 & 3 [DATES]: Diary study** Time: 5 - 10 minutes per day for 10 consecutive workdays (Mon - Fri across two weeks).

- **Week 4 [DATES]: Final questionnaire.** Time: 5 - 10 minutes.

Gesture of Gratitude

To say thank you for your time and contribution, you'll be entered into a draw to win one of 50 \$20 Prezzy vouchers. Winners will be randomly selected and contacted by email after the study ends.

Research Findings

The results will contribute to my master's thesis and may be published in academic journals, at conferences, or in the media. If you'd like a summary of the findings, you can opt in via the initial survey.

Your Wellbeing

We recognise burnout is a difficult experience and your personal wellbeing is a priority for us. At any point during or after the study you have feelings of being overwhelmed or distressed, we urge you to reach out to any of the available support services below:

- Mental Health Foundation of New Zealand: visit www.mentalhealth.org.nz to access different types of support and resources.
- Lifeline New Zealand: Call 0800 543 354 or free text 4357 (available 24/7)
- Depression Helpline: Call 0800 111 757 or free text 4202 (available 27/7)
- Community Mental Health Team: 0800 800 717
- Call or text 1737 for support If it's an emergency dial 111

We also encourage you to talk to someone you trust or a healthcare provider (e.g., GP).

Data Security and Management

As a valued participant, your involvement in this study is completely voluntary. Your responses will remain confidential, and all data will be managed in line with Massey University's Research Data Management Policy and Code of Responsible Research Conduct. Your data will be analysed alongside other participants' responses and reported as grouped results. Quantitative responses will be coded, and only the researchers will have access to any identifiable information, if required. A system generated ID will be used to link your

responses across the different parts of the study. We'll ask for your email so we can send you the diary study, follow-up survey, a summary of results, and contact you if you win a Prezzy card. The email address will not be associated with your answer, only the researcher and the supervisor will have access to that information. All data will be securely stored for seven years, then destroyed in accordance with university policy.

Confidentiality and Privacy

If you volunteer to take part, you have the right to:

- Decline to answer any question.
- Withdraw at any time by unsubscribing, ceasing participation, or emailing us.
- Unless you ask us otherwise, your data will still be included. Note, after data collection closes, we won't be able to remove your data, as it will be fully de-identified.
- Ask any questions about the study at the time of participation.
- Be given access to a summary of the study findings.

Contact

Questions or concerns? Reach out to the research team:

- Sarah McGuinness, School of Psychology, +64 21 183 9822, sarah.mcguinness.2@uni.massey.ac.nz
- Dr Michelle Lee, School of Psychology, +64 9 212 7054, m.lee2@massey.ac.nz

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Ohu Matatika 1, Application OM1 25/41. If you have any concerns about the conduct of this research, please contact the Chairperson, Massey University Human Ethics Ohu Matatika 1, email humanethics1@massey.ac.nz.

To get started, you'll need to tick both boxes below to confirm your understanding and consent. You'll then be taken to Phase 1: Initial Questionnaire.

- ☐ By ticking this box, I confirm I have read and understood the information provided.
- ☐ By ticking this box, I confirm that I consent to participate.

Phase 1: Demographic Questions

Welcome to Phase 1. This first questionnaire is much longer than the others, but your insights here are especially important. We would like to start by understanding a bit about you.

1. Are you a senior doctor in a leadership role? For the purpose of this survey, leadership is defined as supervising junior doctors (i.e., house officers, house surgeons, interns or registrars).

- ☐ Yes
- ☐ No

2. What is your email address? We'll use this to send you the diary check-ins, follow-up survey, and to contact you if you win a Prezzy card. Your email will be stored securely on Massey University servers and kept separate from your survey responses.

3. Would you like us to email you a summary of the results once the research is complete? We'll send it to the email address you provided above.

- ☐ Yes
- ☐ No

4. What time of day would work best for you to receive the daily diary over the next two weeks? Select the time you're most likely to be able to complete it.

- ☐ Around 8:00 a.m. (morning)
- ☐ Around 1:00 p.m. (early afternoon)
- ☐ Around 7:00 p.m. (evening)

5. What is your age (in years)?

6. What is your gender?

- ☐ Male
- ☐ Female
- ☐ Prefer not to say
- ☐ Another gender (please specify if you are comfortable to do so)

7. What best describes your ethnicity? Select as many as apply.

- ☐ New Zealand
- ☐ European
- ☐ Māori
- ☐ Samoan
- ☐ Cook Island
- ☐ Māori
- ☐ Tongan
- ☐ Niuean
- ☐ Chinese
- ☐ Indian

8. How many hours are you contracted to work each week as a senior doctor? (If your hours vary, please estimate your average contracted hours.)

9. Which best describes your main location of work?

- ☐ Urban (Major cities and large towns, e.g., Auckland, Wellington, Christchurch)
- ☐ Regional (Smaller cities and towns that serve as regional hubs, e.g., Tauranga, Napier, Invercargill)
- ☐ Rural (Small towns and countryside areas, e.g., Wairoa, Murchison, Lumsden)
- ☐ Remote (Isolated areas or very sparsely populated regions, e.g., Chatham Islands, Fiordland, rural West Coast)

10. What is your main scope of practice? Please select one.

- | | |
|--|---|
| ☐ Anaesthesia | ☐ Otolaryngology Head and Neck Surgery |
| ☐ Cardiothoracic Surgery | ☐ Paediatric Surgery |
| ☐ Clinical Genetics | ☐ Paediatrics |
| ☐ Dermatology | ☐ Pain Medicine |
| ☐ Diagnostic and Interventional Radiology | ☐ Palliative Medicine |
| ☐ Emergency Medicine | ☐ Pathology |
| ☐ Family Planning and Reproductive Health | ☐ Plastic and Reconstructive Surgery |
| ☐ General Practice | ☐ Psychiatry |
| ☐ General Surgery | ☐ Public Health Medicine |
| ☐ Intensive Care Medicine | ☐ Radiation Oncology |
| ☐ Internal Medicine | ☐ Rehabilitation Medicine |
| ☐ Medical Administration | ☐ Rural Hospital Medicine |
| ☐ Musculoskeletal Medicine | ☐ Sexual Health Medicine |
| ☐ Neurosurgery | ☐ Sport and Exercise Medicine |
| ☐ Obstetrics and Gynaecology | ☐ Urgent Care |
| ☐ Occupational Medicine | ☐ Urology |
| ☐ Ophthalmology | ☐ Vascular Surgery |
| ☐ Oral and Maxillofacial Surgery | |
| ☐ Orthopaedic Surgery | |

11. How many years have you been registered as a medical practitioner and been practicing medicine? (Do not include years in provisional registration, or periods of more than 6 months continuous leave - such as taking parental leave)

12. How many years have you supervised junior doctors?

13. What is your current relationship status?

- ☐ Single
- ☐ In a relationship
- ☐ Married or civil partnership
- ☐ Divorced or separated
- ☐ Widowed
- ☐ De facto relationship
- ☐ Never been married or in a civil relationship
- ☐ Prefer not to answer

WELLBEING & WORK

Now, we'd like to ask you about your health and wellbeing.

14. In my life, there is someone available whom I can count on to listen to me when I need to talk.

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

15. In my life, there is someone available to give me good advice about a problem.

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

16. In my life, there is someone available who shows me love and affection.

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

17. In my life, I can count on someone to provide me with emotional support, whether it's talking over problems or helping me make a difficult decision.

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

18. In my life, there is someone available to give me good advice about a problem.

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

19. In my life, there is someone available who shows me love and affection.

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

20. In my life, I can count on someone to provide me with emotional support, whether it's talking over problems or helping me make a difficult decision.

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

21. In my life, I have as much contact as I would like with someone I feel close to, someone I can trust and confide in.

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

22. In the past three months, I have accessed the following services for support with emotions, stress, or mental health. (For each service used, please select how it was accessed, i.e., I paid for it, my work paid for it, or it was a free/fully funded service and there was no cost to me (such as public health, not for profit or community-based or volunteer services). If you have not used a particular service, leave it blank.)

Service	I paid	Work paid	Fully funded/free
GP Nurse	☐	☐	☐
Psychiatrist or other medical specialist	☐	☐	☐
Social worker	☐	☐	☐
Psychologist	☐	☐	☐
Counsellor or psychotherapist	☐	☐	☐
Telephone helpline or crisis service (e.g., 1737)	☐	☐	☐
Religious or spiritual advisor, like a minister, priest or tohunga	☐	☐	☐
Kaumātua or tohunga	☐	☐	☐
Professional mentor or supervisor	☐	☐	☐
Peer support worker	☐	☐	☐
Online mental health service (e.g., forum or chat service)	☐	☐	☐
Support group for mental health or addiction (peer-led or professionally facilitated)	☐	☐	☐
Wellbeing lead at work	☐	☐	☐
Workplace injury support service (e.g., return to work rehabilitation)	☐	☐	☐
Occupational health worker	☐	☐	☐
Physiotherapist	☐	☐	☐
Other person or service (please specify)	☐	☐	☐
No, none of the above	☐	☐	☐

23. In the past three months, I needed professional help for my emotions, stress, or mental health but was unable to get it. (This may have been due to personal reasons, such as cost, or factors beyond your control, such as no available appointments. Select as many as apply to you.)

- ☐ I wanted to handle it myself or talk to family, whānau, or friends
- ☐ I didn't have time
- ☐ It was too expensive
- ☐ I had problems with transport or childcare
- ☐ I wasn't sure where to go or who to see
- ☐ I couldn't get an appointment at a time that suited me
- ☐ It took too long to get an appointment
- ☐ The service didn't meet my cultural or language needs
- ☐ I didn't find the health professionals helpful
- ☐ I wasn't satisfied with the services available
- ☐ I didn't think treatment would help
- ☐ I was worried what others might think
- ☐ I was worried about the impact on my professional life
- ☐ It felt too hard to open up
- ☐ My workplace didn't offer support (like EAP), or it wasn't enough
- ☐ I didn't trust the support offered through work (like EAP)
- ☐ Another reason (please specify)
- ☐ This has not been a problem for me, or I have not needed professional help

24. In general, I feel burned out because of my work.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

25. In general, at the end of a working day, I feel worn out.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

26. In general, in the morning, I feel exhausted at the thought of another day at work.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

27. In general, every working hour feels tiring for me.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

28. In general, I have enough energy for family and friends during leisure time.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

Now, we'd like to ask you about your general experience at work.

29. In my job, my operational manager (e.g., service manager or hospital/practice manager) is willing to listen to my work-related concerns if needed.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

30. In my job, my clinical manager (e.g., clinical director, lead clinician, or senior physician) is willing to listen to my work-related concerns if needed.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

31. In my job, I often get help and support from my immediate superior, if needed.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

32. In my job, my immediate superior talks with me often about how well I carry out my work.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

33. In my job, I often get help and support from my colleagues, if needed.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

34. In my job, my colleagues are often willing to listen to my problems at work, if needed.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

35. In my job, my colleagues talk with me about how well I carry out my work.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

36. In my clinical area, it is difficult to speak up if I perceive a problem with patient care.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

37. Disagreements in my clinical area are resolved appropriately (i.e., not who is right, but what is best for the patient).

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

38. I have the support I need from other personnel in the healthcare system to care for patients.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

39. It is easy for doctors here to ask questions when there is something that they do not understand.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

40. The doctors and nurses here work together as a well-coordinated team.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

41. I would feel safe being treated where I work as a patient.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

42. Medical errors are handled appropriately in my clinical area.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

43. I know the proper channels to direct questions regarding patient safety in my clinical area.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

44. I receive appropriate feedback about my performance.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

45. In my clinical area, it is difficult to discuss errors.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

46. I am encouraged by my colleagues to report any patient safety concerns I may have.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

47. The culture in my clinical area makes it easy to learn from the errors of others.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

48. I've stayed in my current role because...

(Include any work-related or personal reasons that feel relevant.)

49. I am likely to leave my job in the next six months.

- ☐ Very unlikely
- ☐ Unlikely
- ☐ Neither likely nor unlikely
- ☐ Likely
- ☐ Very likely

Thank You for Completing Phase One!

We really appreciate you completing the first part of the study - we know how busy life is right now. Your perspective is invaluable in helping us understand burnout and improve support for senior doctors.

What Happens Next

Next: Your diary study will start next week on [DATE]. You'll get your first diary on Monday. There will be 10 diaries in total, completed Monday to Friday over the coming fortnight.

Last step: After the diary studies, we'll send you a short survey on [DATE] to complete the final part of the study.

Your Wellbeing

We recognise burnout is a difficult experience and your personal wellbeing is a priority for us. At any point during or after the study you have feelings of being overwhelmed or distressed, we urge you to reach out to any of the available support services below:

- Mental Health Foundation of New Zealand: visit www.mentalhealth.org.nz to access different types of support and resources.
- Lifeline New Zealand: Call 0800 543 354 or free text 4357 (available 24/7)
- Depression Helpline: Call 0800 111 757 or free text 4202 (available 27/7)

- Community Mental Health Team: 0800 800 717
- Call or text 1737 for support If it's an emergency dial 111

We also encourage you to talk to someone you trust or a healthcare provider (e.g., GP).

Confidentiality and Privacy

Just a friendly reminder: your participation is completely voluntary. You have the right to:

- Decline to answer any question.
- Withdraw at any time by unsubscribing, ceasing participation, or emailing us.
- Unless you ask us otherwise, your data will still be included. Note, after data collection closes, we won't be able to remove your data, as it will be fully de-identified.
- Ask any questions about the study at the time of participation.
- Be given access to a summary of the study findings.

Contact

Questions or concerns? Reach out to the research team:

- Sarah McGuinness, School of Psychology, +64 21 183 9822, sarah.mcguinness.2@uni.massey.ac.nz
- Dr Michelle Lee, School of Psychology, +64 9 212 7054, m.lee2@massey.ac.nz

Appendix 5:

Daily Diary Survey

Your First [UPDATE PER SURVEY e.g., 'Second'] Daily Check-In

Welcome back, and thanks again for being part of the study. As a quick reminder, my name is Sarah McGuinness, and I'm a master's researcher at Massey University, supervised by Dr Michelle Lee. I'm conducting a study to better understand how senior doctors recover from burnout while continuing to work.

Today's Diary

Today is day 1 [UPDATE # PER SURVEY]. Below are a few short questions about your experiences over the past 24 hours. This check-in should only take 5-10 minutes.

A few things to know:

- When we say “a day,” we mean the last 24 hours - not a calendar day. [UPDATE from day 2 onwards: add in "since you last completed the survey"]
- Please complete your diary within a few hours of your shift ending. While it will stay open for 24 hours, it's best to fill it out while the day is still fresh in your mind.
- If you haven't worked today, you only need to complete the first question.

Thank you very much again for your time and valuable contribution.

Let's get started.

1. I have worked over the last 24 hours.

☐ Yes

☐ No

We'd like to understand your day over the past 24 hours.

2. The number of hours I worked over the past 24 hours is: __ hours. (Include any hours where you work from home, e.g., catching up on work admin, taking work phone calls.)

3. Over the last 24 hours, I was on call (but not actively working) for: __ hours. (Only include the hours you were on call but not actually working.)

The next questions are about your experiences at work over the last 24 hours.

4. At work in the last 24 hours, the level of staffing in my clinical area was sufficient to handle the number of patients.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

5. At work in the last 24 hours, I was able to do a good job of training junior doctors.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

6. At work in the last 24 hours, all the necessary information for diagnostic and therapeutic decisions was available to me.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

7. At work in the last 24 hours, the junior doctors under my guidance were adequately supervised.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

8. Once I left work, I forgot about work.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

9. Once I left work, I didn't think about work at all.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

10. Once I left work, I distanced myself from my work.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

11. Once I left work, I got a break from the demands of work.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

12. In the last 24 hours, did you do anything that supported your recovery from burnout or helped you recharge? If yes, what did you do? (For example: rest, sleep, time with whānau/family, being in nature, watching TV or movies, reading, cooking or baking, physical activity, hobbies or creative activities, mindfulness or meditation, talking to someone you trust, seeing a health professional, socialising, listening to music or podcasts, spiritual or cultural practices, getting outside, doing something just for yourself.)

Thank you for Completing Today's Diary Study!

We are hugely appreciative of your time and contribution to this research. Your input is greatly valued and will help shape strategies to support senior doctors in their recovery from burnout - both personally and within the organisations they work in.

What Happens Next: [UPDATE PER DIARY AS BELOW]

- *Days 1 to 4 (Mon-Thu):* Thanks for completing today's diary. You'll receive an email tomorrow with a link to your next diary entry. Day 5 (Fri): This is the last diary entry for this week. We'll be back in touch on Monday with your next daily diary.
- *Day 6 - 9 (Mon- Thu):* Thanks for completing today's diary. You'll receive an email tomorrow with a link to your next diary entry.
- *Day 10 (Fri):* This is the final diary entry for this phase of the study. Soon, we'll send you a short final survey to complete. Thanks again for taking part. What you've shared will help build a better picture of how to support doctors and tackle burnout in the future.

Your Wellbeing

We recognise burnout is a difficult experience and your personal wellbeing is a priority for us. At any point during or after the study you have feelings of being overwhelmed or distressed, we urge you to reach out to any of the available support services below:

- Mental Health Foundation of New Zealand: visit www.mentalhealth.org.nz to access different types of support and resources.
- Lifeline New Zealand: Call 0800 543 354 or free text 4357 (available 24/7)
- Depression Helpline: Call 0800 111 757 or free text 4202 (available 27/7)
- Community Mental Health Team: 0800 800 717
- Call or text 1737 for support If it's an emergency dial 111

We also encourage you to talk to someone you trust or a healthcare provider (e.g., GP).

Contact

Questions or concerns? Reach out to the research team:

- Sarah McGuinness, School of Psychology, +64 21 183 9822, sarah.mcguinness.2@uni.massey.ac.nz
- Dr Michelle Lee, School of Psychology, +64 9 212 7054, m.lee2@massey.ac.nz

Many thanks again for your time and contribution. We'll be back in contact tomorrow/next week [UPDATE AS PER SURVEY].

Appendix 6:

Sample Diary Email Communications to Participants

Burnout Recovery Study: Daily Diary 1 of 10

Hi there,

Welcome back, and thank you again for being part of this study. We know how busy your days are, and we're enormously grateful that you're taking the time to share your experiences.

As a quick reminder, my name is Sarah McGuinness, and I'm a master's researcher at Massey University, supervised by Dr Michelle Lee. I'm conducting a study to better understand how senior doctors recover from burnout while continuing to work.

Overview

- This is Phase 2: daily diaries. There are 10 diaries in total - five this week, and five next week.
- Each diary takes around 5 - 10 minutes.
- Your responses help us understand your experiences during this period.

Instructions: Click the link below to start your diary. Important study information is on the first page, so please read it before beginning.

Timing tip: If you can, please complete the diary within a few hours of finishing your shift, while your day is still fresh. This diary will close 24 hours after this email is sent.

[Start Survey](#)

If the link above doesn't work, copy and paste this URL into your browser:

https://massey.au1.qualtrics.com/jfe/form/SV_0jlsRc1i9x10lNo?Q_DL=iydQZERfZJ8vq15_0jlsRc1i9x10lNo_CGC_fKE6AXpay6actes&Q_CHL=email

Many thanks again for your valuable contribution.

Best wishes,
Sarah McGuinness
Masters Student

Dr Michelle Lee
Supervisor
Massey University

Appendix 7:

Follow-Up Survey

Final step!

Welcome back, and thanks again for being part of the study. This is the final questionnaire. As a quick reminder, my name is Sarah McGuinness, and I'm a master's researcher at Massey University, supervised by Dr Michelle Lee. I'm conducting a study to better understand how senior doctors recover from burnout while continuing to work.

Final phase

This is the last step in the study, and your input here is especially important. This very short survey should take just 5-10 minutes to complete. It will close for responses on Sunday [UPDATE DATE]. Thank you very again for your time and valuable contribution.

Let's get started.

1. In general, I feel burned out because of my work.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

2. In general, at the end of a working day, I feel worn out.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

3. In general, in the morning, I feel exhausted at the thought of another day at work.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

4. In general, every working hour feels tiring for me.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

5. In general, I have enough energy for family and friends during leisure time.

- ☐ Never almost never - 0%
- ☐ Seldom - 25%
- ☐ Sometimes - 50%
- ☐ Often - 75%
- ☐ Always - 100%

6. Reflecting on the diary period (the last two weeks), what work or personal things have supported your recovery the most?

7. Reflecting on the diary period (the last two weeks), what work or personal things have made recovery more difficult?

Thank You for Completing the Final Survey of This Study

This marks the end of your participation in this study. We're incredibly grateful for the time, insight, and energy you've contributed over these past weeks - thank you again. Your input will play an important role in helping us better understand how senior doctors navigate burnout recovery while continuing in leadership roles. These findings will help inform how individuals, organisations, and systems can better support recovery and wellbeing in healthcare.

What Happens Next

If you're one of our prize draw winners, you'll receive a \$20 Prezzy card by email in the coming weeks. Once the study is complete, the findings will be compiled into a written report for my master's thesis, and if you've opted in, you'll get a summary by email. The results may also be shared through academic journals, at conferences, and in media articles to share the findings more broadly.

Your Wellbeing

We recognise burnout is a difficult experience and your personal wellbeing is a priority for us. At any point during or after the study you have feelings of being overwhelmed or distressed, we urge you to reach out to any of the available support services below:

- Mental Health Foundation of New Zealand: visit www.mentalhealth.org.nz to access different types of support and resources.
- Lifeline New Zealand: Call 0800 543 354 or free text 4357 (available 24/7)
- Depression Helpline: Call 0800 111 757 or free text 4202 (available 27/7)
- Community Mental Health Team: 0800 800 717
- Call or text 1737 for support If it's an emergency dial 111

We also encourage you to talk to someone you trust or a healthcare provider (e.g., GP).

Contact

Questions or concerns? Reach out to the research team:

- Sarah McGuinness, School of Psychology, +64 21 183 9822, sarah.mcguinness.2@uni.massey.ac.nz
- Dr Michelle Lee, School of Psychology, +64 9 212 7054, m.lee2@massey.ac.nz

Appendix 8:

Follow-Up Survey Email Communications to Participants

Follow-Up Survey Email:

Burnout Recovery Study: Final Survey

Hi there,

Welcome back! This is the very last step in this study.

Thank you again for being part of this research. We know how busy your days are, and we're enormously grateful that you're taking the time to share your experiences.

As a quick reminder, my name is Sarah McGuinness, and I'm a master's researcher at Massey University, supervised by Dr Michelle Lee. I'm conducting a study to better understand how senior doctors recover from burnout while continuing to work.

Overview

- This is the final survey, and your input here is especially important as it will help us to understand patterns across the study.
- It should take just 5 - 10 minutes to complete.
- It will close for responses at 11.59pm on Friday 5 September.

Instructions: Click the link below to start.

Timing tip: If you can, we suggest completing it earlier in the week while the last two weeks are fresh in your mind.

[Start Survey](#)

If the link above doesn't work, copy and paste this URL into your browser:

[https://massey.au1.qualtrics.com/jfe/form/SV_7R2XYHitvYQGJ4G?
Q_DL=QYbvZkmWfB45PX7_7R2XYHitvYQGJ4G_CGC_fKE6AXpay6actes&Q_CHL=email](https://massey.au1.qualtrics.com/jfe/form/SV_7R2XYHitvYQGJ4G?Q_DL=QYbvZkmWfB45PX7_7R2XYHitvYQGJ4G_CGC_fKE6AXpay6actes&Q_CHL=email)

Many thanks again for your valuable contribution.

Best wishes,
Sarah McGuinness
Masters Student

Dr Michelle Lee
Supervisor
Massey University