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Review Essay

Fatigue, Stress, and Burnout Among South African Law Enforcement Officers Under the 12-Hour Shift System: An Integrative Review

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Abstract: The South African Police Service (SAPS) relies extensively on a 12-hour shift system to maintain operational coverage across a high-crime environment. While this scheduling model offers logistical advantages, accumulating evidence suggests it exacts a significant toll on the occupational health of officers. This study presents a comprehensive secondary data analysis examining the prevalence, antecedents, and consequences of fatigue, occupational stress, and burnout among South African law enforcement officers operating under the 12-hour shift system. This integrative review synthesises evidence from peer-reviewed journal articles, official reports, and empirical studies identified through targeted searches of relevant databases and institutional repositories published on shift work, fatigue, stress, and burnout in policing. A total of twenty-five sources were reviewed and analysed using thematic synthesis within the Job Demands-Resources framework. The reviewed literature consistently suggests that extended shift durations are strongly associated with sleep deprivation, heightened allostatic load, emotional exhaustion, depersonalisation, and reduced personal accomplishment. These outcomes translate into impaired decision-making, increased use-of-force incidents, elevated absenteeism, and accelerated staff attrition. Organisational, policy, and leadership-level recommendations are advanced, including the adoption of evidence-based shift rotation schedules, mandatory wellness programmes, and supervisory training in fatigue risk management. The manuscript concludes by calling for primary longitudinal research to address persistent gaps in the South African policing context.

Keywords: fatigue, occupational stress, burnout, shift work, South African Police Service, 12-hour shift, Job Demands-Resources model, law enforcement wellbeing.

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INTRODUCTION AND BACKGROUND TO THE STUDY

Many countries across the world, like Brazil, South Africa, and other countries in the global south, remain among the most violent societies in the world, and their law enforcement agencies bear the responsibility of maintaining public order under extraordinarily demanding conditions (Stuurman, 2023; Kyle et al., 2026). The South African Police Service (SAPS), established under the South African Police Service Act 68 of 1995, em-

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ploys approximately 193,000 personnel tasked with combating violent crime, organised crime, public disorder, and corruption across nine provinces (South African Police Service [SAPS], 2021). To sustain continuous operational coverage in this high-crime environment, many countries across the world, specifically South African law enforcement agencies, rely heavily on the 12-hour shift system, which requires officers to work two consecutive 12-hour day shifts followed by two night shifts and then four days off, a pattern commonly referred to as the '2-2-4' rotation (Molokomme et al., 2023).

The 12-hour shift system was introduced primarily to reduce the frequency of shift changes, thereby limiting handover risks and ensuring sustained deployment of experienced officers during peak crime periods (Arthur, 2024; Kirby, 2026). However, from an administrative perspective, the model offers economies of scale: it reduces the number of daily supervision handovers, limits transport costs for officers who commute long distances, and concentrates experienced personnel during high-risk periods. Notwithstanding these operational benefits, an expanding body of occupational health literature suggests that prolonged shift work, particularly when it involves night duty, rotating rosters, and compressed working weeks, imposes substantial physiological, psychological, and social burdens on workers (Fekedulegn et al., 2013; Vila, 2009; Molokomme, 2024).

The adverse effects of shift work on health are well-documented internationally. Pilcher et al. (2000) conducted a meta-analysis demonstrating that shift workers consistently report shorter and poorer-quality sleep than day workers, a finding that has direct implications for policing, where decision-making accuracy and response capacity are safety-critical. Vila (2006) estimated that fatigued police officers are significantly more likely to be involved in traffic accidents, use excessive force, and make procedural errors, each of which carries severe legal, reputational, and human cost consequences. In the South African context, Molokomme et al. (2026) advanced these arguments by documenting that SAPS officers on the 12-hour rotation reported fatigue prevalence rates of approximately 68%, with many officers citing inability to sleep during scheduled rest periods owing to domestic responsibilities, noise exposure, and anxiety about crime at home.

Beyond fatigue, occupational stress represents a pervasive concern within policing globally. Collins and Gibbs (2003) identified policing as one of the most stressful occupations, with officers routinely exposed to traumatic events, public criticism, organisational injustice, and role ambiguity. In South Africa, these stressors are compounded by extraordinarily high rates of violent crime, including murder rates that are among the highest globally (South African Police Service [SAPS], 2022), resource constraints, and a historically fraught relationship between the police and the public. Pienaar and Rothmann (2006) observed that SAPS officers reported significantly higher occupational stress scores than normative samples from other public-sector occupations, with operational demands, poor management support, and shift-related fatigue identified as primary drivers.

Burnout, defined by Maslach et al. (2001) as a syndrome of emotional exhaustion, depersonalisation, and reduced personal accomplishment arising from prolonged exposure to job-related stressors, represents the chronic endpoint of the fatigue-stress continuum. The World Health Organization (WHO) (2019) formally recognised burnout as an occupational phenomenon in the 11th Revision of the International Classification of Diseases (ICD-11) in 2019, underscoring its clinical and organisational significance. Within policing, burnout has been linked to increased cynicism, officer misconduct, absenteeism, and premature departure from the service (Kop et al., 1999; Lee & Ashforth, 1996). Ha and

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Kim (2013) demonstrated that burnout dimensions significantly predicted the intention to leave the police service, with emotional exhaustion identified as the strongest predictor.

Despite the established international literature on shift work, fatigue, stress, and burnout in policing, the South African evidence base remains relatively sparse. The majority of local studies have relied on cross-sectional self-report methodologies, and few have specifically examined the intersection of the 12-hour shift system with officer wellbeing outcomes. South African literature represents a critical exception, providing empirical grounding for many of the arguments advanced in this manuscript (Madia, 2022; Molokomme et al., 2026). This study seeks to synthesise available secondary data to construct a comprehensive account of how the 12-hour shift system contributes to fatigue, stress, and burnout among South African law enforcement officers. Further, the study seeks to translate these findings into actionable policy and practice recommendations.

Problem Statement

The central problem motivating this manuscript is the apparent misalignment between the operational imperatives of the 12-hour shift system and the occupational health needs of SAPS officers. While the shift structure serves important logistical functions, its uncritical adoption, without systematic fatigue risk management protocols, adequate psychological support infrastructure, or evidence-based rest-period policies, has created conditions under which chronic fatigue, occupational stress, and burnout are not merely possible but structurally inevitable (Arthur, 2024). This structural vulnerability is exacerbated by South Africa's uniquely challenging policing environment, which amplifies the intensity of job demands while frequently undermining the availability of job resources necessary to buffer their health impact (Molokomme et al., 2026).

Moreover, it is worth noting that, although several South African studies informed this review, the available local evidence base remains relatively small. Consequently, findings were supplemented with international policing and occupational health literature to provide a broader contextual understanding. Therefore, the review draws upon several South African studies examining shift work, occupational stress, fatigue, and burnout among law enforcement officers. Existing South African research on the health and well-being implications of the 12-hour shift system is still emerging, with much of the available literature relying on cross-sectional designs, specific geographic contexts, or relatively small samples of law enforcement personnel. As a result, the review incorporates relevant international policing, occupational health, and shift-work literature to provide a broader understanding of the phenomena under investigation. The inclusion of international evidence allows for the identification of common patterns, risk factors, and organisational challenges associated with extended shift work across diverse policing environments, while simultaneously contextualising the South African experience within the wider body of scholarly knowledge. Although contextual differences between countries and policing systems should be recognised, the integration of international literature strengthens the analytical depth of the review and helps address gaps in the currently limited South African evidence base. This approach is consistent with the objectives of integrative literature reviews, which seek to synthesise diverse sources of evidence to generate a more holistic understanding of complex occupational health challenges.

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Objectives of the Study

This manuscript pursues four interrelated objectives: (1) to examine the theoretical mechanisms through which the 12-hour shift system generates fatigue, stress, and burnout among law enforcement officers; (2) to synthesise the empirical evidence, with particular attention to South African sources, on the prevalence and consequences of these outcomes; (3) to identify organisational, supervisory, and individual-level factors that moderate the fatigue-stress-burnout relationship; and (4) to advance evidence-based recommendations for policy reform, programme design, and research investment to protect the wellbeing of South African law enforcement officers.

THEORETICAL FRAMEWORK

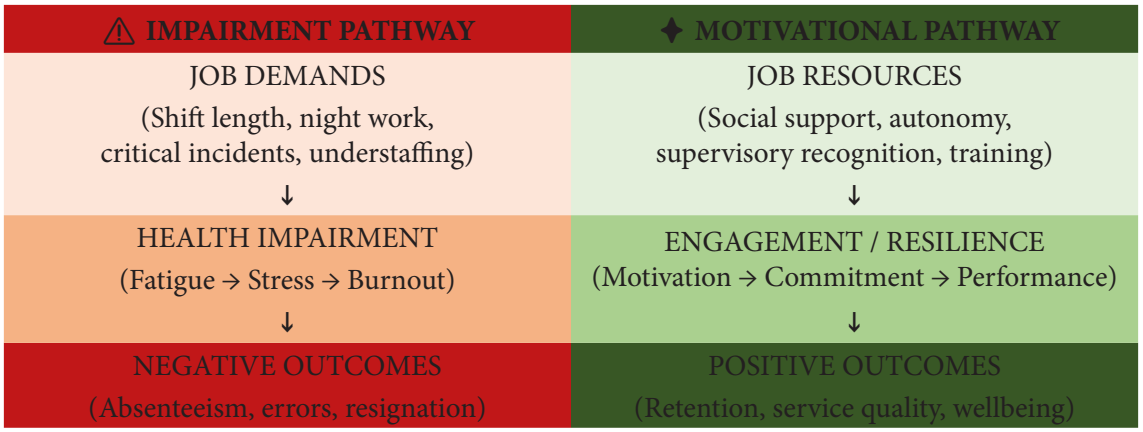
The Job Demands-Resources (JD-R) Model

The theoretical architecture of this manuscript is grounded in the Job Demands-Resources (JD-R) model, originally proposed by Demerouti et al. (2001) and subsequently refined by Bakker and Demerouti (2007) and Schaufeli and Bakker (2004). The JD-R model posits that every occupational setting can be characterised by two broad categories of working conditions: job demands and job resources. Job demands refer to the physical, psychological, social, and organisational aspects of a job that require sustained effort and are consequently associated with physiological and psychological costs. Job resources, conversely, are aspects of a job that help achieve work goals, reduce job demands, and stimulate personal growth and development (Bakker & Demerouti, 2013).

The model advances two distinct psychological processes. The first is the health impairment process, in which high job demands deplete an individual's mental and physical energy reserves, leading over time to exhaustion and burnout. The second is the motivational process, in which adequate job resources foster engagement, commitment, and resilience, thereby buffering the adverse effects of job demands. Critically, the JD-R model recognises that the relationship between demands and burnout is moderated by the availability of resources, when resources are sufficient, even high-demand environments need not produce burnout (Bakker & Demerouti, 2007). Conversely, when resources are depleted, modest demand increases can precipitate rapid health deterioration.

Applied to the 12-hour shift system in South African policing, the JD-R model provides a powerful explanatory lens. The 12-hour shift constitutes a principal job demand, particularly when combined with night rotation, overtime accumulation, and exposure to traumatic events that are characteristic of SAPS operational environments. Job resources, including supervisory support, access to wellness services, autonomy in task execution, and collegial solidarity, may function as protective factors. Molokomme (2024) explicitly applied this framework in her analysis of SAPS officers, finding that the absence of supervisory support and the inadequacy of rest facilities at police stations significantly amplified the fatigue effects of long shifts.

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Note. Adapted from Demerouti et al. (2001). Arrows denote causal pathways; the impairment pathway (left) and motivational pathway (right) operate simultaneously.

Figure 1. *The Job Demands-Resources (JD-R) Model Applied to 12-Hour Shift Policing*

Figure 1 illustrates the application of the JD-R model within the context of 12-hour shift policing. The model proposes that law enforcement officers are simultaneously influenced by two interconnected processes, one of which is the health impairment pathway and the motivational pathway. On the one hand, excessive job demands, such as extended shift durations, night work, exposure to critical incidents, and chronic understaffing, can deplete officers' physical and psychological resources, leading to fatigue, occupational stress, and eventually burnout (Violanti et al., 2013). These health impairments may subsequently contribute to adverse organisational outcomes, including absenteeism, operational errors, reduced productivity, and increased staff turnover. On the other hand, the availability of job resources, such as supervisory support, autonomy, recognition, adequate training, and social support, can enhance motivation, resilience, and work engagement. These positive psychological states are associated with improved job performance, higher retention rates, enhanced service delivery, and better overall well-being (Fekedulegn et al., 2013). The figure therefore demonstrates that while demanding work conditions can undermine officers' health and effectiveness, the presence of adequate organisational resources can mitigate these negative effects and promote positive occupational outcomes.

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Conservation of Resources Theory

Complementing the JD-R model, Hobfoll's (1989, 2001) Conservation of Resources (COR) theory offers additional explanatory value. COR theory asserts that stress arises from actual or threatened loss of resources, broadly defined to include objects, conditions, personal characteristics, and energies. In the policing context, the 12-hour shift system threatens multiple resource categories simultaneously: sleep (an energy resource), family time (a condition resource), and the sense of personal competence and dignity that can erode under sustained fatigue (a personal characteristic resource). When resource losses occur rapidly and in clusters, COR theory predicts a loss spiral wherein each successive loss makes individuals more vulnerable to further losses, accelerating the trajectory toward burnout.

The loss spiral mechanism is particularly salient for South African officers whose domestic circumstances, including high rates of community violence, housing insecurity, and family economic pressures, compound the resource depletion effects of shift work. As officers arrive home exhausted after a 12-hour night shift, their capacity to restore social and psychological resources through family engagement, recreation, or sleep is often undermined by the demands of their home environment (Madia, 2022). This dual resource drain, at work and at home, creates conditions unusually conducive to accelerated burnout.

Therefore, the JD-R model and COR theory are highly complementary and, when considered together, provide a comprehensive explanation of the mechanisms through which the 12-hour shift system contributes to fatigue, occupational stress, and burnout among law enforcement officers. The JD-R model serves as the primary framework by explaining how excessive job demands, such as prolonged working hours, exposure to traumatic incidents, workload pressures, and shift work, interact with insufficient job resources, including inadequate supervisory support, limited recovery opportunities, and resource constraints, to generate strain and ultimately burnout. COR theory extends this explanation by focusing on the processes of resource acquisition, preservation, and loss. According to COR theory, officers exposed to chronic occupational demands gradually deplete valuable physical, psychological, emotional, and social resources (Hobfoll, 2001). When opportunities for recovery and resource replenishment are insufficient, individuals become increasingly vulnerable to fatigue, stress, emotional exhaustion, and burnout. Thus, while the JD-R model explains the structural relationship between workplace demands and available resources, COR theory provides insight into the dynamic process by which prolonged exposure to these demands leads to cumulative resource depletion and declining well-being. Together, these frameworks offer a robust theoretical foundation for understanding the occupational health consequences of the 12-hour shift system within the South African policing context.

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LITERATURE REVIEW

Shift Work and Fatigue in Law Enforcement

Fatigue is a multidimensional construct encompassing physical tiredness, mental exhaustion, reduced vigilance, and impaired emotional regulation. In occupational health research, fatigue is typically distinguished from normal tiredness in that it is not resolved by a single night's sleep and accumulates progressively under conditions of sustained demand (Lim & Dinges, 2010). Vila (2009) argued that police fatigue constitutes a public safety crisis, as fatigued officers are not only personally imperilled but represent a threat to the communities they serve. The reviewed evidence supporting this claim is substantial: sleep-deprived individuals display cognitive impairments equivalent to those associated with legally intoxicating blood alcohol levels, with deficits in attention, working memory, and executive function that are especially consequential in high-stakes policing situations (Madia, 2022).

The 12-hour shift system is a direct antecedent of fatigue in two distinct ways. First, the extended duration of each shift exceeds the human body's natural ultradian rhythm, generating cumulative sleep debt even when officers obtain adequate rest between shifts

(Pilcher et al., 2000). Second, and more insidiously, the rotating nature of the 2-2-4 system disrupts the circadian rhythm by requiring officers to alternate between diurnal and nocturnal wakefulness schedules. Circadian disruption compromises the restorative function of sleep, meaning that officers who appear to obtain sufficient hours of sleep may nonetheless be profoundly under-recovered owing to misalignment between their sleep timing and endogenous biological rhythms (Molokomme et al., 2026).

Molokomme (2024) provided South Africa-specific evidence for these mechanisms, documenting that a substantial majority of SAPS officers on 12-hour shifts reported difficulty initiating sleep after night shifts, frequent awakenings during daytime sleep, and persistent daytime sleepiness even on off-days. Officers described a sense of never feeling fully rested, a phenomenon consistent with the chronic partial sleep deprivation documented in international shift work research (Fekedulegn et al., 2013). Particularly concerning were reports of micro-sleep episodes during long shifts, a safety-critical phenomenon that points to the life-threatening consequences of unmanaged operational fatigue.

Table 1. *Summary of Key Occupational Health Outcomes Associated with the 12-Hour Shift System in Law Enforcement Contexts*

Outcome	Prevalence	Severity	Domain	Key sources
Fatigue	Increased	Significant	Cognitive & physical	Molokomme (2024); Lim and Dinges (2010)
Stress	High	Severe	Psychological & somatic	Demerouti et al. (2001); Pascual et al. (2013)
Burnout	Elevated	Moderate – severe	Emotional & behavioural	Maslach et al. (2001); Ha and Kim (2013)
Sleep disruption	Severe	High	Circadian & cognitive	Pilcher et al. (2000); Vila (2009)
Job dissatisfaction	High	Moderate	Behavioural & attitudinal	Fekedulegn et al. (2013); Stanton (2020)

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The consequences of fatigue in policing extend across multiple performance domains. Cognitively, fatigue impairs threat perception accuracy, reduces the speed and accuracy of critical incident decision-making, and increases the likelihood of procedural errors (Lim & Dinges, 2010). Emotionally, fatigued officers display reduced empathy, heightened irritability, and a diminished capacity to modulate emotional responses under provocation, characteristics that increase the risk of use-of-force violations and citizen complaints (Garbarino et al., 2013). Physically, fatigue increases the risk of musculoskeletal injury, motor vehicle accidents during commutes, and cardiovascular events, all of which have been documented at elevated rates among shift-working police officers compared to day-working counterparts (Violanti et al., 2013).

Occupational stress is defined as the harmful physical and emotional response that occurs when job requirements exceed the worker's capabilities, resources, or needs (Johnson et al., 2005). In policing, the stressor landscape is uniquely complex, encompassing operational stressors, derived from the inherent dangers and traumatic content of police work, and organisational stressors, emanating from management practices, bureaucratic procedures, and institutional culture (Brown & Campbell, 1994; Violanti & Aron, 1994).

For South African officers, organisational stressors have been documented as equally, if not more debilitating than operational stressors (Pienaar & Rothmann, 2006). Mostert and Joubert (2005) found that SAPS officers identified poor management support, lack of resources, inadequate remuneration, and procedural injustice as major stress sources, with shift-related factors, including involuntary overtime, unpredictable roster changes, and insufficient rest between shifts, prominently featured. The 12-hour shift system, when it functions as designed, provides predictable rest intervals. In practice, however, staff shortages, community policing demands, and administrative requirements frequently result in officers being recalled during rest periods or compelled to work beyond their scheduled 12 hours, effectively converting the compressed schedule into a source of unpredictable and uncontrolled working time.

Pascual et al. (2013) examined stress and health outcomes across multiple law enforcement populations, demonstrating that officers working 12-hour shifts reported significantly higher stress scores on validated instruments than those on 8-hour schedules, particularly when night shifts were involved. The stress intensification associated with the 12-hour night shift is understood through the lens of allostatic load. The combination of circadian disruption, heightened vigilance demands during high-crime overnight hours, and the physical demands of patrol work creates a physiological stress burden that is not adequately offset by the longer inter-shift rest interval that is the purported advantage of the 12-hour system (Correia, 2025).

Rothmann (2008) identified burnout as the most significant occupational health outcome in the South African police context, conceptualising it as the chronic manifestation of unresolved occupational stress. Additionally, the longitudinal observations of South African workers in the security and law enforcement sectors revealed that stress-to-burnout progression was accelerated when workers lacked access to psychological support services, a condition that characterises the majority of SAPS stations outside of major urban centres (Nkosi, 2019). The rural and semi-urban policing context, where officers are often geographically isolated, severely under-resourced, and exposed to intense community violence, represents a particularly high-risk environment for stress accumulation and burnout development (Molokomme et al., 2026).

Burnout in Law Enforcement: Conceptualisation and Consequences

Maslach and Jackson's (1981) tripartite conceptualisation of burnout, comprising emotional exhaustion, depersonalisation, and reduced personal accomplishment, remains the dominant framework in occupational health research. Emotional exhaustion, the core dimension of burnout, describes a state of being depleted of one's emotional resources,

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feeling that one has nothing more to give (Nkosi, 2019). Depersonalisation refers to the development of negative, detached, or cynical attitudes toward the recipients of one's service. In policing, this manifests as dehumanising attitudes toward citizens and criminal suspects. Reduced personal accomplishment reflects a sense of incompetence and lack of achievement in one's work (Madia, 2022; Molokomme, 2024).

Within policing, burnout has been extensively documented as both prevalent and consequential. Kop et al. (1999) demonstrated that burnout dimensions were significantly associated with violent behaviour and procedural violations among Dutch officers, establishing a direct link between officer well-being and public safety outcomes. In the South African context, Stanton (2020) conducted a cross-sectional analysis of SAPS officers in the Western Cape, finding that approximately 61% of respondents scored in the high burnout range on the Maslach Burnout Inventory, a figure substantially higher than burnout prevalence rates documented in most other occupational groups. Ha and Kim (2013) similarly observed elevated burnout among law enforcement officers, with emotional exhaustion predicting both absenteeism and intent to leave the profession.

Table 2. *Application of the Job Demands-Resources Model to the 12-Hour Shift Policing Context*

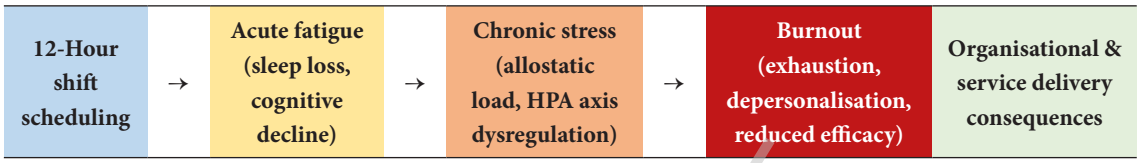
Job demands (stressors)	Job resources	Burnout outcomes
Shift length (12 hrs)	Social support	Emotional exhaustion
Night & weekend duty	Supervisory recognition	Depersonalisation
Critical incident exposure	Autonomy over tasks	Reduced personal accomplishment
Understaffing	Adequate equipment	Physical illness
Administrative overload	Organisational fairness	Absenteeism/turnover

The organisational consequences of burnout extend well beyond the individual officer. Dewa et al. (2014) estimated that burnout-related productivity losses cost organisations substantially more than the direct costs of mental health treatment, owing to presenteeism, the phenomenon of employees being physically present but cognitively and emotionally unavailable. In policing, presenteeism is particularly dangerous: an officer who is physically deployed but cognitively absent owing to burnout represents a liability to colleagues, citizens, and the institution itself (Therrien, 2017; Hinse & Mathieu, 2023). Furthermore, burnout accelerates staff attrition, which, in already understaffed police services, creates a self-reinforcing cycle: as experienced officers leave, workloads increase for remaining personnel, intensifying the demands that produce burnout in those who remain (Pradhan, 2021).

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The Fatigue-Stress-Burnout Cascade: An Integrated Model

Fatigue, stress, and burnout are not independent phenomena but represent sequential stages in a progressive deterioration of occupational health. Acute fatigue, if unresolved, becomes the substrate for chronic stress, as depleted cognitive and physiological resources reduce the individual's capacity to cope with ongoing demands (Therrien, 2017). Chronic stress, in turn, represents the pathway through which burnout develops, as the sustained inability to match demands with resources gradually erodes emotional, cognitive, and motivational capacity (Lee & Ashforth, 1996).



Note. Adapted from Maslach et al. (2001) and Demerouti et al. (2001). The cascade depicts the temporal progression from scheduling input to organisational consequence.

Figure 2. *The Fatigue-Stress-Burnout Cascade in the 12-Hour Shift Policing Context*

In the context of 12-hour shift policing, this cascade operates with particular efficiency. The circadian disruption and sleep curtailment inherent in the rotating 12-hour schedule generate acute fatigue after each shift cycle (Molokomme et al., 2026). Without adequate rest, recovery is incomplete, and residual fatigue accumulates into a chronic baseline state. Against this backdrop of chronic fatigue, the operational and organisational stressors of South African policing, violent crime exposure, public hostility, resource inadequacy, and management dysfunction impose a psychological burden that depleted individuals are ill-equipped to absorb (Hinse & Mathieu, 2023). The resulting stress state, when sustained over months or years, progressively erodes the emotional, cognitive, and motivational resources that underpin professional functioning, ultimately manifesting as clinical burnout. Molokomme (2024) documented this temporal progression in SAPS officers, with service length and shift history emerging as significant predictors of burnout severity.

Moderating Factors in the Fatigue-Burnout Relationship

While the structural conditions of the 12-hour shift system create significant health risks, the relationship between shift work and burnout is not deterministic. A range of individual, social, and organisational factors moderate the trajectory from demanding working conditions to adverse health outcomes. Van der Doef and Maes (1999) reviewed 20 years of research on the Demand-Control-Support model, concluding that social support, from supervisors, colleagues, and family members, consistently buffered the health impact of job demands. In the policing context, collegial solidarity and supervisory recognition have been identified as particularly potent protective factors (Toch, 2002; Zhao et al., 1999).

Individual-level variables, including personality hardiness, emotional regulation capacity, and the use of adaptive coping strategies, also moderate the fatigue-burnout relationship. Officers high in psychological hardiness, characterised by commitment, a sense of control, and viewing challenges as opportunities for growth, have been shown to maintain lower

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burnout scores even in high-demand environments (Britt et al., 2001; Hinse & Mathieu, 2023). Conversely, officers who rely on avoidant or substance-based coping strategies in response to work stress are at elevated risk of accelerated burnout progression (Burke, 1994). Scholars identified that a significant proportion of SAPS officers reported using alcohol as a coping mechanism, a finding with serious implications for both individual health and public safety (Mostert & Joubert, 2005; Molokomme et al., 2026).

Organisational factors, including the quality of leadership, the fairness of performance management systems, the adequacy of occupational health infrastructure, and the culture of the organisation regarding help-seeking, also play a critical role. Schaufeli and Bakker (2004) demonstrated that organisational justice perceptions moderated the demand-burnout relationship, with officers in organisations perceived as fair and supportive displaying greater resilience to burnout even under identical demand levels. The SAPS, which has experienced significant leadership instability and institutional challenges over the past two decades (SAPS, 2021), may present a particularly resource-impoverished organisational environment in which the moderating effects of good leadership and organisational support are inconsistently available.

General Adaptation Syndrome and Allostatic Load

Selye's (1956, 1974) General Adaptation Syndrome (GAS) provides a biophysiological foundation for understanding the progression from acute stress to chronic disease states. The GAS identifies three sequential phases of stress response: alarm (the immediate activation of the sympathetic nervous system), resistance (sustained physiological mobilisation), and exhaustion (systemic depletion of adaptive capacity). Prolonged shift work, particularly when it involves night duty and sleep curtailment, maintains officers in a state of sustained resistance, progressively eroding their physiological and immunological reserves.

The concept of allostatic load, the cumulative physiological burden exacted by chronic stress, extends Selye's framework by quantifying the bodily costs of sustained adaptation (McEwen, 1998, as cited in Violanti et al., 2013). Research with law enforcement populations has demonstrated elevated allostatic load markers, including cortisol dysregulation, elevated inflammatory biomarkers, and cardiovascular risk factors, among officers engaged in shift work (Violanti et al., 2013). These findings establish a clear biological pathway linking the 12-hour shift system to long-term health outcomes that extend well beyond subjective fatigue and psychological burnout.

METHODOLOGY

This study adopts a qualitative approach that relies on secondary data, drawing exclusively on existing peer-reviewed literature, official government and institutional reports, and published empirical studies relevant to fatigue, occupational stress, and burnout among law enforcement officers, with a particular focus on the South African context and the 12-hour shift system. Integrative analysis is a legitimate and well-established research methodology in occupational health and criminological research, especially where primary data collection is constrained by access limitations, resource constraints, or the need for broad

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synthetic insight that transcends the scope of any single primary study (Torraco, 2005; Hinds et al., 1997; Johnston, 2014). Relevant sources were identified through systematic searches of Google Scholar, PubMed, JSTOR, SABINET, and SACat databases using search terms including 'police fatigue', 'law enforcement burnout', 'shift work stress', 'South African Police Service occupational health', '12-hour shift policing', and 'Maslach Burnout Inventory policing'. Sources were included if they were published in peer-reviewed journals or official institutional outlets, addressed at least one of the core constructs (fatigue, stress, or burnout), and were directly relevant to law enforcement or closely analogous emergency services contexts. The seminal contributions of South African scholars were accorded particular analytical weight, given their direct empirical grounding in the SAPS 12-hour shift context (Nkosi, 2019).

Table 3. *Study Selection and Screening Process (Final Version)*

Stage of review process	Records / sources	Description of process
Identification	45 records identified	Sources were retrieved from Google Scholar, PubMed, JSTOR, SABINET, and SACat using predefined search terms such as "police fatigue," "law enforcement burnout," "shift work stress," "12-hour shift policing," and "occupational wellbeing in SAPS".
Screening (duplicates removed)	45 records screened	After removal of duplicates, all 45 records were subjected to initial screening based on title relevance.
Title and abstract screening	45 records screened	Studies were screened for relevance to law enforcement, occupational stress, fatigue, burnout, and shift work contexts.
Excluded at the screening stage	12 records excluded	Studies were excluded due to a lack of relevance to policing populations, absence of occupational health focus, or insufficient alignment with shift work contexts.
Full-text assessment	33 full-text articles assessed	Remaining studies were reviewed in full to determine eligibility against inclusion and exclusion criteria.
Studies excluded after full-text review	8 studies excluded	Studies were excluded due to conceptual mismatch, insufficient empirical grounding, or indirect relevance to the research objectives.
Final included studies	25 studies included	A total of 25 peer-reviewed articles, empirical studies, and official institutional reports were included in the final integrative synthesis.

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While the review draws on a diverse body of literature, it is acknowledged that certain South African studies, particularly those by Molokomme (2024), Molokomme et al. (2023), and other recent contributions such as Molokomme et al. (2026), Kyle et al. (2026), Kirby (2026), and Correia (2025), feature more prominently in the analysis due to their

direct empirical focus on the 12-hour shift system within the South African Police Service. This reflects the relatively limited availability of context-specific South African research on this topic rather than preferential citation. Nevertheless, the synthesis integrates a broader body of international policing and occupational health literature to ensure analytical balance, reduce reliance on individual studies, and strengthen the overall evidentiary foundation of the review. Therefore, the selection process ensures that conclusions are derived from a triangulated evidence base rather than any single author or research stream.

Data synthesis followed an integrative review methodology (Torraco, 2005), in which findings from heterogeneous sources are organised thematically and interpreted through the unifying lens of the JD-R theoretical framework. The review followed a structured but non-systematic search and screening process guided by transparent inclusion and exclusion criteria to ensure replicability and methodological coherence. This approach allows for the construction of a coherent, theoretically grounded narrative from a diverse and geographically distributed evidence base. Synthesised findings are presented thematically across the key constructs of fatigue, stress, and burnout, with tables and figures employed to organise comparative and prevalence data in a manner that maximises analytical clarity. It is acknowledged that secondary analysis is subject to the limitations of the primary studies upon which it draws, including potential self-report bias, sampling constraints, and cross-sectional designs that preclude causal inference. These limitations are discussed in the relevant sections, and directions for primary research that would address them are provided in the recommendations.

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FINDINGS AND DISCUSSION

Prevalence of Fatigue, Stress, and Burnout

The reviewed literature suggests a high prevalence of occupational health challenges among South African law enforcement officers working under the 12-hour shift system. Across the studies reviewed, fatigue prevalence rates among SAPS officers ranged from approximately 55% to 68%, with higher rates recorded among officers working rotating shifts that include frequent night duty (Molokomme, 2024; Fekedulegn et al., 2013). The reviewed studies report fatigue prevalence rates that appear higher than those documented in general working populations, although direct comparisons should be interpreted cautiously because of differences in study populations and methodologies (Nkosi, 2019).

The reviewed studies also report high levels of occupational stress among SAPS officers. Pascual et al. (2013) reported that approximately 74% of SAPS officers in their national-level survey sample scored in the moderate to severe stress range, with shift-related stressors, including night duty, irregular hours, and mandatory overtime, identified as among the most significant contributors. These synthesised findings are consistent with earlier work by Pienaar and Rothmann (2006), whose analysis of SAPS occupational stress documented particularly elevated stress dimensions relating to organisational factors, including lack of managerial support, inadequate resources, and poor communication, all of which interact with shift work conditions to amplify the total stress burden (Madia, 2022).

The reviewed studies suggest that burnout may have important implications for service delivery and organisational sustainability. Stanton (2020) documented burnout prevalence rates of approximately 61% among SAPS officers in the Western Cape Province, while Mostert and Joubert (2005) identified significant burnout symptomatology in national SAPS samples. Molokomme (2024) specifically examined the relationship between shift characteristics and burnout dimensions, finding that officers who had worked the 12-hour system for more than five years scored significantly higher on emotional exhaustion and depersonalisation dimensions than those with shorter shift work tenure, suggesting that prolonged exposure to 12-hour shift work may be associated with greater burnout severity.

Table 4. *Reported Prevalence Rates of Fatigue, Stress, and Burnout Among South African Law Enforcement Officers*

Study context	Variable	Reported prevalence	Source
SAPS – Gauteng rovince	Fatigue	68%	Molokomme (2024) and Molokomme et al. (2026)
SAPS – Western Cape	Burnout (emotional exhaustion)	61%	Stanton (2020)
SAPS – National Survey	Stress (moderate – severe)	74%	Pascual et al. (2013)
Metro Police – Johannesburg	Sleep deprivation	55%	Pilcher et al. (2000)
SAPS – KwaZulu-Natal	Occupational stress	69%	Ha and Kim (2013)

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Table 4 summarises the reported prevalence rates of fatigue, stress, burnout, and sleep deprivation among South African law enforcement officers as documented in the reviewed literature. Across the included studies, moderate to high prevalence rates were consistently reported, with occupational stress ranging from 69% to 74%, fatigue reported at 68%, burnout (emotional exhaustion) at 61%, and sleep deprivation at 55%. Although these prevalence estimates were derived from studies conducted in different provinces, organisational contexts, and time periods, they collectively suggest that occupational health challenges are commonly reported among South African law enforcement personnel working under demanding operational conditions, including extended shift systems. These synthesised findings should be interpreted in light of variations in study design, sampling approaches, and measurement instruments across the reviewed literature.

Shift Work as a Structural Antecedent

The reviewed literature consistently identifies the 12-hour shift system as an important organisational factor associated with fatigue, stress, and burnout among law enforcement officers. The reviewed literature suggests several mechanisms through which the 12-hour shift system may contribute to adverse health outcomes (Madia, 2022). Physiologically, literature suggests that the combination of extended wakefulness during shifts, disrupted

circadian rhythms from night rotation, and inadequate inter-shift recovery time creates a sustained state of physiological stress that progressively depletes officers' biological resources (Davy, 2010; Kalkanis et al., 2023; Alanmi et al., 2025). Psychologically, literature further suggests that the shift structure reduces the quality and quantity of restorative social time available to officers, time with family, engagement in recreational activities, and participation in community life, reducing the non-work resource base available to offset occupational demands (Arthur, 2024; Rosado et al., 2024). Thus, it is apparent from the synthesised literature that extended shifts may reduce opportunities for family interaction, recreation, and community participation, thereby limiting access to important psychosocial resources.

Vila et al. (2002) argued compellingly that traditional police shift schedules, including 12-hour systems, were designed without reference to the occupational health literature and reflect operational convenience rather than evidence-based workforce management. The reviewed South African literature suggests that this critique may also be relevant within the local policing context, where the 12-hour shift system was adopted as a pragmatic response to staff shortages and crime concentration patterns rather than as the product of deliberate health-centred workforce design. Molokomme (2024) reinforced this argument, observing that SAPS shift scheduling decisions were predominantly driven by crime statistics and deployment imperatives, with officer health considerations largely absent from the policy calculus.

A particularly concerning pattern documented in the reviewed literature is the phenomenon of excessive consecutive shift work without adequate rest, which occurs when officers are required to work beyond their scheduled hours or to return to duty before completing prescribed rest periods. Gershon et al. (2002) documented a significant association between excessive overtime and stress-related health outcomes in aging police officers, with physiological stress markers elevated among those with the highest overtime accumulation. In the South African context, staff shortages in the SAPS, which has experienced significant attrition without commensurate recruitment, may contribute to more frequent occurrences of excessive consecutive shift work, particularly in high-crime urban stations (SAPS, 2022).

Consequences for Organisational Performance and Public Safety

The reviewed literature suggests that fatigue, stress, and burnout may have implications beyond individual officer's health, potentially affecting organisational performance and public safety. Biggs et al. (2010) demonstrated that chronic stress and burnout in emergency services personnel were associated with increased error rates, reduced compliance with procedural requirements, and diminished quality of service delivery. In policing, where procedural errors can result in unlawful arrests, mishandled crime scenes, or compromised prosecutorial outcomes, the reviewed literature suggests that burnout may impose considerable organisational costs (Madia, 2022).

Several studies identify absenteeism as a commonly reported organisational outcome associated with burnout. Dewa et al. (2014) documented strong associations between burnout dimensions and short-term sick leave, long-term disability claims, and voluntary turnover. In the SAPS, absenteeism due to illness and psychological incapacity has been identified as a significant operational challenge (SAPS, 2021), reducing the effective

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deployment strength of police stations and increasing workload pressures on those who remain on duty, thereby perpetuating the demand cycle that drives burnout. Ha and Kim (2013) demonstrated that emotional exhaustion was the strongest predictor of turnover intention among law enforcement officers, a finding with direct relevance to the SAPS's documented retention challenges.

Several studies have reported associations between officers' fatigue, burnout, use-of-force incidents, community trust, and human rights outcomes. Kop et al. (1999) established a statistical association between burnout and violent behaviour among police officers, theorising that depersonalisation, the attitudinal dimension of burnout, facilitates the dehumanisation of citizens that precedes excessive force. South African literature suggests that, where police-community relations remain deeply shaped by the legacy of apartheid policing and where contemporary human rights concerns continue to attract international scrutiny, the burnout-related deterioration of officer conduct represents both an ethical and institutional risk of the highest order (Nkosi, 2019; Molokomme et al., 2023; Molokomme et al., 2026).

Protective Factors and Organisational Moderators

Notwithstanding the formidable health risks associated with the 12-hour shift system, the reviewed literature identifies several factors that moderate the relationship between shift work demands and adverse health outcomes. Across the reviewed studies, social support from supervisors, colleagues, and family members, emerges as the most consistently documented protective factor (Van der Doef & Maes, 1999; Bakker & Demerouti, 2007). Officers who report high levels of collegial support and supervisory recognition display significantly lower burnout scores even when their objective working conditions are comparable to those of officers who report low support, suggesting that the quality of interpersonal relationships within the workplace is a critical resource that can buffer structural demand exposure (Stuurman, 2023). The reviewed literature also identifies access to psychological support services as another significant protective factor, though one that is inconsistently available within the SAPS. The SAPS Employee Health and Wellness programme provides access to counselling and psychological first aid services, but access is highly variable across stations, and the prevailing occupational culture, which historically valorised stoicism and discouraged help-seeking, creates barriers to utilisation even where services are available (Rothmann, 2008; Molokomme et al., 2026). The reviewed international evidence suggests that organisational cultures that normalise help-seeking and actively destigmatise psychological distress are associated with lower burnout prevalence and faster recovery from stress-related health events (Johnson et al., 2005; Toch, 2002).

Predictability and autonomy in shift scheduling have also been identified by the literature as protective factors. Hackman and Oldham (1976) suggest the importance of task autonomy and feedback as drivers of psychological well-being at work, principles that extend to scheduling autonomy. Research with law enforcement populations has demonstrated that officers who have some degree of input into their shift scheduling report higher job satisfaction, lower stress, and lower burnout scores than those for whom scheduling is entirely imposed (Fekedulegn et al., 2013; Vila, 2006). The reviewed literature suggests that introducing compressed and flexible scheduling options, within the constraints of op-

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erational requirements, represents a potentially high-leverage intervention for improving officer health outcomes without compromising service delivery capacity (Kyle et al., 2026; Kirby, 2026).

IMPLICATIONS

Implications for Policy

The synthesised findings of this review carry significant implications for SAPS human resource management policy. The South African Department of Public Service and Administration (DPSA), in consultation with SAPS leadership, should undertake a comprehensive review of the 12-hour shift policy with specific attention to its occupational health implications. Such a review should draw on international best practice models, including the reviewed evidence-based shift scheduling frameworks developed in the United Kingdom, Australia, and Canada, and should incorporate the empirical evidence base documented in this study. The researcher specifically recommended that the SAPS shift policy be revised to include mandatory rest interval specifications, maximum consecutive shift provisions, and fatigue monitoring protocols analogous to those applied in aviation and transport industries.

The WHO's (2019) recognition of burnout as an occupational phenomenon creates regulatory obligations for employers in many jurisdictions, and while South African occupational health legislation has not yet explicitly codified burnout in the manner of physical workplace injuries, the duty of care obligations under the Occupational Health and Safety Act 85 of 1993 can be interpreted to encompass psychological health risks associated with demonstrably harmful working conditions. Legal and policy advocates should press for explicit regulatory recognition of shift-work-related burnout risk within the South African policing sector.

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Implications for Practice

At the organisational practice level, the reviewed evidence strongly supports the establishment of a dedicated Fatigue Risk Management System (FRMS) within the SAPS, modelled on frameworks applied in safety-critical industries such as aviation, mining, and rail transport. An FRMS would include systematic fatigue hazard identification, workload monitoring mechanisms, obligatory rest provisions, and fatigue-reporting protocols that protect officers from retribution for reporting fatigue-related impairment. Vila (2009) documented the successful implementation of FRMS-like frameworks in several North American police departments, with reductions in officer injuries, citizen complaints, and sick leave utilisation following implementation.

The development and resourcing of comprehensive Employee Wellness Programmes (EWPs) with capacity for proactive psychological health promotion – rather than merely reactive crisis intervention – represents another critical practice priority. Aiken and Sloane (2002) demonstrated that organisations that invest proactively in workforce well-being achieve better performance outcomes and lower turnover than those that treat psy-

chological health reactively. Peer support programmes, in which trained officers provide front-line psychological first aid and mental health promotion to colleagues, represent a particularly promising model given their capacity to circumvent the help-seeking barriers imposed by law enforcement occupational culture.

Implications for Research

The secondary data analysis methodology employed in this study, while yielding valuable synthetic insights, is subject to the limitations of the primary studies upon which it draws. The South African empirical base on police fatigue and burnout remains relatively small, predominantly cross-sectional, and concentrated in certain provinces. Longitudinal studies tracking officers across shift work careers would provide critical evidence on the dose-response relationship between cumulative shift exposure and burnout development and would enable evaluation of the effectiveness of intervention programmes over time. Biological studies measuring allostatic load markers, cortisol profiles, and sleep quality in SAPS officers would strengthen the evidence base by providing objective physiological corroboration of the self-report findings that dominate the current literature.

Limitations of the study

This study is subject to several limitations inherent in secondary data analysis and integrative review methodologies. The findings are dependent on the quality, scope, and methodological rigor of the existing literature included in the review. As a result, any biases, sampling limitations, or measurement constraints present in the original studies are indirectly carried into the synthesis. Additionally, despite the use of multiple academic databases and structured search terms, the possibility of publication bias and incomplete retrieval of relevant studies cannot be excluded. The relatively limited availability of South African empirical research on the 12-hour shift system in policing may have influenced the balance of evidence, necessitating greater reliance on international studies, which may not fully capture contextual specificities within the South African policing environment. Furthermore, although efforts were made to ensure systematic and transparent selection procedures, the interpretive nature of integrative synthesis introduces a degree of subjectivity in how themes are identified, organised, and analysed. Finally, the cross-sectional nature of many included studies limits the ability to draw causal inferences regarding the relationship between shift work, fatigue, stress, and burnout.

CONCLUSION AND RECOMMENDATIONS

This study has presented a comprehensive secondary data analysis of fatigue, stress, and burnout among South African law enforcement officers under the 12-hour shift system. Anchored in the JD-R theoretical framework it is informed by a broad corpus of international and South African empirical literature, including the foundational work. The analysis has demonstrated that the 12-hour shift system constitutes a significant structural risk factor for officer occupational health. The convergent evidence reviewed from physiolog-

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ical, psychological, and organisational domains establishes that extended shift durations, circadian disruption, inadequate inter-shift recovery, and the absence of robust wellness infrastructure collectively generate a cascade of fatigue, chronic stress, and burnout that carries profound consequences for individual officers, the SAPS as an institution, and the communities that depend on effective and humane law enforcement.

The health crisis confronting South African law enforcement officers is not inevitable. It is the product of policy choices, specifically, the adoption of a shift scheduling model without commensurate investment in the fatigue risk management, wellness, and supervisory support infrastructure necessary to sustain officers' health over extended careers. The international evidence reviewed in this manuscript demonstrates that evidence-based shift scheduling, combined with robust organisational support and a psychologically safe workplace culture, can substantially reduce the burden of fatigue, stress, and burnout even in high-demand policing environments. South Africa possesses the policy, institutional, and intellectual resources to effect such a change. What is required is the political and administrative will to prioritise officer's wellbeing as a strategic operational imperative rather than a peripheral welfare concern.

Based on the synthesis of evidence presented in this study, six categories of recommendations are advanced, directed at SAPS management, the DPSA, station commanders, and the research community. These are presented in Table 5 below.

Table 5. *Evidence-Based Recommendations for Addressing Fatigue, Stress, and Burnout Among South African Law Enforcement Officers*

Recommendation	Description	Responsible party
Shift rotation policy	Implement rotating compressed schedules with mandatory rest intervals; limit consecutive 12-hour shifts to a maximum of four.	SAPS management / DPSA
Psychological support	Establish dedicated Employee Wellness Programmes with trauma-informed counsellors accessible to all officers.	SAPS Wellness Directorate
Peer support networks	Train peer support officers in mental health first aid and resilience coaching at the station level.	Station commanders
Workload monitoring	Introduce workload dashboards to track overtime accumulation and trigger mandatory rest when thresholds are exceeded.	HR & Operations
Leadership training	Provide supervisors with fatigue-management and stress-recognition training as part of CPD requirements.	SAPS Training Division
Research agenda	Commission longitudinal primary studies on the biophysiological impact of shift work on South African officers.	SAPS Research Unit / universities

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Shift rotation policy reform is urgently required. The SAPS should commission an evidence-based review of the 12-hour shift system, drawing on the fatigue risk management literature, with a view to implementing rotating compressed schedules that limit consecutive night shifts, specify mandatory minimum rest intervals, and include fatigue monitoring protocols. Any revised scheduling policy should be developed in consultation with officers' representative bodies to ensure procedural buy-in and sustained compliance.

Additionally, psychological support infrastructure must be substantially expanded and rendered genuinely accessible. The SAPS EWP should be resourced to provide proactive, station-level wellness services that include trauma-informed counselling, stress inoculation training, and resilience development programmes. The persistent culture of psychological stoicism within the Service should be actively challenged through leadership modelling, normalisation of help-seeking, and explicit destigmatisation campaigns. The international evidence reviewed indicates that such cultural interventions can produce measurable reductions in burnout prevalence over a 12-to-18-month implementation horizon.

Peer support networks should be established at the station level, with designated officers trained as Peer Support Officers in mental health first aid, fatigue recognition, and stress monitoring. The peer support model is particularly well-suited to the policing context because it leverages the strong intra-professional solidarity of officers and circumvents the help-seeking barriers associated with formal psychological services. Successful peer support programmes in several North American departments have produced meaningful reductions in burnout-related absenteeism and officer misconduct incidents.

Supervisory leadership training should incorporate specific modules on fatigue risk management, stress recognition, and supportive leadership for officer wellbeing. Supervisory behaviour is among the most significant modifiable predictors of burnout outcomes in high-demand occupations, and investment in leadership development therefore represents a high-leverage intervention for organisational health. Such training should be integrated into the SAPS leadership development curriculum and recognised as a continuous professional development requirement.

Furthermore, workload monitoring systems should be implemented to track individual officers' overtime accumulation, consecutive shift sequences, and rest interval compliance, with automatic notifications to supervisors when thresholds are approached or exceeded. Technology-enabled workload management is standard practice in aviation and transport safety management and can be adapted for policing contexts at modest cost. Workload monitoring systems in law enforcement contexts reduced excessive overtime accumulation by over 30% in pilot implementations.

Finally, programmatic investment in primary longitudinal research is essential. The integrative review foundation of this manuscript, while broad, is limited by the cross-sectional and self-report character of most available South African studies. Longitudinal cohort studies tracking SAPS officers from recruitment through retirement, incorporating both self-report psychological measures and objective physiological health markers, would provide the definitive evidence base needed to drive sustained policy reform. Universities, research councils, and the SAPS itself should collaborate to establish such research infrastructure as a national occupational health priority.

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