

Functional Freeze in Urban India: An Integrative Literature Review of Stress, Environment and Workplace Experience

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Stress is a physiological and psychological response to perceived threats in the environment, through which the body and mind attempt to protect themselves. Among the recognised stress responses: fight, flight, fawn, and freeze, this study focuses on freeze, specifically its contemporary subtype, functional freeze, within the Indian urban context. Freeze has been understood as an acute response to life-threatening situations; emerging research in clinical psychology suggests that persistent, non-life-threatening stressors can evoke a state of functional freeze. In this state, individuals meet everyday demands outwardly while experiencing internal disengagement, emotional flattening, and a reduced capacity to process stress.

In urban India, sensory overload, crowding, limited access to restorative natural spaces, fast-paced routines, and increasing dependence on digital devices for work and education can disrupt normal stress-recovery cycles. These conditions create a context in which functional freeze may emerge and persist.

This study synthesises perspectives from behavioural neuroscience, urban environmental research, and self-regulation to develop a systemic understanding of functional freeze. The review extends into organisational settings, examining how functional freeze may manifest in workplaces through patterns such as presenteeism, decision inertia, and mental withdrawal, despite apparent productivity. From the standpoints of human resource management, organisational behaviour and transformation, functional freeze recognition has propositions for employee wellbeing, sustainable performance, and workplace culture.

Keywords: Functional Freeze, Stress, Urban India, Organisational Experience, Self-Regulation

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1. Introduction

Stress responses are widely studied at the level of individual psychology and physiology; less attention has been paid to how chronic, everyday stressors embedded in urban environments shape sustained patterns of disengagement.

The freeze response has been understood to be a severe defensive response in a state of extreme threat. This encompasses a person “freezing” in terror, where they are not taking any action, inward or outward. However, recent work in behavioural neuroscience and clinical psychology suggests that chronic, non-life-threatening stressors can also sustain freeze-like responses, resulting in patterns of outward functioning alongside internal disengagement, a state of being framed as “functional freeze”. This state is increasingly prevalent in contemporary urban environments where stress is pervasive, continuous and often psychological rather than physically life-threatening, often lacking in pathways towards sustainable resolution.

In the Indian metropolitan context, factors such as sensory overload, crowding, limited access to restorative natural environments, fast pace and increasingly high levels of digital device dependence for education and work can create prolonged periods of stress arousal and disrupt normal recovery cycles of the mind and body. This raises the need to examine functional freeze not as an isolated stress response, but as a systemic outcome shaped by environmental conditions, socio-cultural constraints, and everyday demands of execution across personal and professional responsibilities. Functional freeze, thereby, draws attention to the interactions among neurophysiological responses, environmental constraints and situational coping mechanisms in behaviour.

Therefore, since functional freeze spans multiple domains, an integrative literature review framework is appropriate. Torraco’s (2005) approach enables the synthesis of diverse theoretical perspectives to develop a more comprehensive conceptual understanding of the inquiry at hand. With this direction, this review integrates neurobiological explanations of freeze responses, research on urban stress and inaccessibility of nature in India, organisational settings in post-pandemic India and insights into mindfulness-based self-regulation.

Seen together, these strands help explain how functional freeze develops and also suggest possible ways people might move out of it.

2. Methodology – Integrative Literature Review Approach

This review follows Torraco’s (2005) guidelines for conducting an integrative literature review. This emphasises the synthesis of concepts across diverse forms of scholarship to generate new theoretical insights. Four papers were selected for their relevance to different dimensions of functional freeze: the neurobiological mechanisms of defensive responses, contemporary interpretations of freeze behaviour, the psychological impact of urban environments in India, and mindfulness-based approaches to stress regulation. The selection was purposeful rather than exhaustive, aimed at enabling a cross-disciplinary analysis.

The review process involved reading, note-taking, and comparison of ideas across the texts. Rather than summarising each study independently, recurring patterns and complementary arguments were identified and organised into thematic categories. These themes are neurobiological foundations, urban environmental contributors, functional freeze in organisational settings and self-regulatory pathways. These themes form the basis of the integrated synthesis of the literature. This method enabled functional freeze to be examined through a complexity lens, thereby avoiding a limitation to a single disciplinary explanation.

2.1 Neurobiological Foundations of the Freeze Response

Across the behavioural sciences, the freeze response is understood to be an evolutionary defensive mode that emerges when an organism perceives a threat and is unable to take immediate action, or when immediate action is not possible. Kozłowska et al. (2015) describe freeze as part of a broader defence cascade involving coordinated activity across the amygdala, hypothalamus, and periaqueductal grey, which collectively mediate autonomic and motor responses to threat. This highlights the importance of noting that freezing is not passivity, but a complex interplay of sympathetic and parasympathetic activation.

Roelofs (2017) expands on this interpretation by framing freeze as a form of motor inhibition coupled with heightened perception, allowing the individual to conserve energy while still monitoring the environment.

This neurobiological view helps explain functional freeze: chronic exposure to non-life-threatening stressors can activate similar circuitry within the brain and body, but without a clear resolution pathway, individuals may remain in a prolonged state of internal withdrawal despite outward behaviour appearing typical. Together, these studies highlight that functional freeze is anchored in bodily mechanisms that can become dysregulated under persistent psychological stress.

2.2 Urban Environmental Contributors to Stress and Functional Freeze

While neurobiological mechanisms explain how freeze responses are activated, the conditions that sustain functional freeze are closely tied to environmental and social contexts. In rapidly urbanising Indian cities, daily life is characterised by sensory overload, dense population, limited access to restorative green space, and a high degree of digital mediation for livelihood. Sen and Guchhait's (2021) study demonstrate that reduced exposure to nature in Indian urban environments is associated with heightened psychological strain, diminished opportunities for cognitive restoration, and a pervasive sense of disconnection amongst the self, those around and the environment. The findings indicate that urban stressors act as ongoing pressures on the body's regulatory systems, reducing the chances, time and space people have to decompress. The mismatch between constant urban demands and limited ecological coexistence may therefore intensify or prolong freeze-like states, particularly for individuals already navigating chronic stress. When viewed alongside the neurobiological literature, these environmental insights indicate that functional freeze is shaped by both internal physiological responses and the wider socio-environmental conditions in which those responses unfold.

2.3 Functional Freeze in Organisational Settings: Mental Withdrawal and Apparent Productivity

The urban conditions that sustain functional freeze extend into organisational and workplace environments,

where chronic stress is often normalised, and productivity is measured primarily through visible output rather than internal engagement. In the Indian post-pandemic context, Das and Verma (2025) examine psychological employee withdrawal as an increasingly prevalent yet understated workplace phenomenon. Their review highlights how employees may remain physically present and continue fulfilling role expectations while experiencing emotional detachment, reduced motivation, and cognitive disengagement. Importantly, this withdrawal is not always expressed through absenteeism or overt underperformance, making it difficult to identify within conventional organisational metrics.

This conceptualisation closely aligns with the functional freeze context, particularly in its emphasis on outward functionality coexisting with internal withdrawal. Patterns such as presenteeism, decision inertia, and mental disengagement, as discussed by Das and Verma, reflect states in which individuals are operational but psychologically disconnected from their work. Within fast-paced urban Indian organisations characterised by high cognitive load, digital saturation, and performance pressure, such patterns may represent adaptive responses to prolonged stress rather than individual deficits. Viewed through this lens, functional freeze offers an explanatory framework that connects neurobiological stress responses and urban environmental pressures with contemporary workplace experiences.

2.4 Self-Regulatory Pathways: Mindfulness, Conscious Attention and Exit Routes from Functional Freeze

Alongside biological and environmental contributors, the literature points to the importance of self-regulatory practices in interrupting freeze states and restoring a sense of presence. Kabat-Zinn's (2003) work on mindfulness-based interventions positions mindful attention as a deliberate re-engagement with the present moment through non-judgmental awareness of bodily, emotional, and sensory experience. Such practices can help individuals recognise early signs of stress arousal, strengthen introspective awareness, and counter tendencies toward dissociation. Since mindfulness emphasises grounding and gentle reorientation rather than avoidance or suppression, it aligns with the mechanisms required to shift out of functional freeze, where internal disengagement is a core feature.

Importantly, Kabat-Zinn also highlights the adaptability of mindfulness to varied cultural and practical contexts, making it feasible within digitally mediated and environmentally constrained urban settings. When integrated with insights from neurobiology and research on Indian urban environments, mindfulness and related self-empathic strategies emerge as potential low-barrier pathways through which individuals may gradually re-establish internal connection, bodily presence, and cognitive flexibility, thereby opening possible routes out of functional freeze.

3. Discussion

Bringing the four themes of literature together demonstrates that functional freeze is not solely a biological reflex nor a purely psychological experience, but a multi-layered phenomenon shaped by the interaction of neurophysiology, environmental conditions, workplace experience and accessible coping mechanisms or resources. The neurobiological studies reviewed here emphasise that freeze responses arise from defensive circuits that prioritise conservation of energy and heightened vigilance when threat is perceived. However, in modern urban settings, individuals may encounter a continuous flow of low-level stressors that trigger these mechanisms without providing the opportunity for resolution or recovery. This creates conditions in which the body remains in a state of default readiness while the mind retreats, resulting in the outwardly functional yet internally disengaged pattern characteristic of functional freeze.

Environmental research from the Indian urban context further highlights how urban living amplifies this risk. Sensory saturation, limited access to natural environments, and dependence on digital interfaces restrict opportunities for psychological restoration and can exacerbate dissociative tendencies. In such settings, functional freeze may be less a response to isolated events and more a cumulative outcome of living under sustained pressures that overwhelm the body's regulatory systems.

In organisational contexts, functional manifests as sustained performance on the surface alongside diminished cognitive flexibility, delayed decision-making, and emotional withdrawal, reinforcing the invisibility of functional freeze within conventional understanding of productivity and well-being.

Within this broader picture, mindfulness-based and self-empathic practices offer meaningful opportunities for intervention. Their emphasis on grounding the mind and body through introspection and present-moment awareness directly engages the mechanisms disrupted during freeze states, thereby providing a counterbalance to emotional dissociation and apathy. Importantly, these practices can be adapted to urban constraints, requiring neither long periods of time nor extensive access to nature, making them particularly relevant for individuals experiencing a freeze within metropolitan conditions.

Overall, the literature synthesis shows that functional freeze needs to be understood and addressed as a systemic issue. A purely neurobiological or purely psychological explanation is insufficient; instead, an integrated perspective reveals how repeated chronic stressors, socio-environmental context, culture of work and self-regulatory capacities together shape both the onset and the persistence of this state. Such a model also provides a conceptual foundation for designing interventions, such as systemically implementable and culturally grounded empathising tools that align with the realities of urban Indian populations.

4. Conclusion

This integrative literature review positions functional freeze as a complex, multidimensional phenomenon shaped by the convergence of neurobiological defence mechanisms, chronic urban stressors, workplace experience and the availability of self-regulatory strategies. The literature demonstrates that while freeze responses originate in the body's neural circuits, their persistence in contemporary contexts is strongly influenced by environmental pressures such as sensory overload, limited access to restorative natural environments, and the psychological demands of urban living. Mindfulness-based and self-empathic practices offer practical and self-accessible pathways for re-engaging bodily awareness and counteracting the internal disengagement characteristic of functional freeze. By synthesising insights across these domains, the literature review provides a coherent conceptual foundation for understanding functional freeze within Indian metropolitan settings and for developing interventions that are culturally relevant, accessible, and responsive to the constraints of modern urban life.

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