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THE ROLE OF SAFETY LEADERSHIP IN OCCUPATIONAL HEALTH AND SAFETY (2015–2025): A THEMATIC LITERATURE REVIEW

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Abstract: This study examines the role of safety leadership in shaping occupational health and safety (OHS) outcomes through a narrative–thematic review of empirical and review studies published between 2015 and 2025. The paper synthesizes evidence across high-risk sectors, focusing on leadership styles, leading and lagging safety indicators, and mediating mechanisms such as safety culture, employee engagement, and communication. The findings demonstrate that transformational and safety-specific leadership approaches are consistently associated with improved safety behaviors, stronger safety climate perceptions, and reductions in accident and injury rates.

1.Introduction: OHS has traditionally been addressed through technical controls, regulatory compliance, and procedural interventions. As these approaches remain essential, empirical evidence suggests that they are insufficient to explain variations in safety performance across similar organizations [8]. As a result, contemporary OHS research increasingly emphasizes organizational and psychosocial determinants of safety, with leadership emerging as a key factor [1].

Leadership influences how safety priorities are communicated and enacted in daily works. Managers and supervisors serve as critical intermediaries between formal safety policies and frontline behavior, shaping employees' risk perceptions and signaling the relative importance of safety to productivity demands [2]. Empirical studies show that variations in leadership practices can lead to great differences in safety outcomes, even in the same sector or organization [8].

Over the past decade, safety leadership has become a distinct research domain within OHS. This literature focuses on leadership behaviors that clearly prioritize safety, demonstrate commitment to risk prevention, and engage employees in safe work practices [3]. Studies conducted in high-risk sectors such as construction, healthcare, mining, and manufacturing report positive associations between safety leadership and both leading indicators (e.g., safety participation and safety climate) and lagging indicators, including accident and injury rates [6,7].

Despite this growing body of research, the literature remains fragmented in terms of conceptual frameworks, outcome measures, and contextual settings, limiting the integration of findings [7]. Also, mediating mechanisms such as safety culture, employee engagement, and communication quality are often examined in isolation rather than within a unified framework [8]. This study aims to synthesize the safety leadership literature published between 2015 and 2025 using a narrative–thematic review approach, thereby clarifying dominant leadership styles, safety outcomes, and mediating mechanisms relevant to OHS performance.

2.Methodology: The study employs a narrative–thematic literature review to synthesize evidence on the relationship between safety leadership and OHS outcomes. This approach is suitable for research areas characterized by conceptual diversity, methodological heterogeneity and context-dependent findings.

2.1 Literature Search Strategy: The literature search was conducted across three major academic databases: Web of Science, Scopus, and Google Scholar. These databases were selected to ensure broad disciplinary coverage and access to high-quality peer-reviewed publications in occupational safety, organizational psychology, and management research. Searches were performed using combinations of keywords including safety leadership, OHS, safety performance, safety culture, safety climate, and leadership behavior. Boolean operators were applied to refine the search process and enhance relevance.

2.2 Inclusion and Exclusion Criteria: Studies published between 2015 and 2025 were included if they were peer-reviewed empirical or review studies examining safety leadership or related constructs and reporting OHS-related outcomes. Studies focusing solely on technical interventions, lacking empirical grounding, or published outside peer-reviewed outlets were excluded, ensuring analytical focus and methodological rigor.

2.3 Data Extraction and Thematic Synthesis: Following study selection, key information was extracted from each article, including research context, sector, leadership framework, outcome variables, and reported mechanisms. The extracted data were analyzed using thematic synthesis, an approach that facilitates the identification of recurring themes across heterogeneous studies.

Themes were developed iteratively and organized around three dimensions:

(1) safety leadership typologies (e.g., transformational, supportive);

(2) OHS outcome categories between leading and lagging indicators;

(3) mediating and moderating mechanisms, such as safety culture, employee engagement, communication quality, and organizational context.

2.4 Analytical Rigor and Limitations: To enhance analytical rigor, findings across sectors and study designs were compared with particular attention to studies reporting effect sizes, mediation analyses, or longitudinal evidence. The study doesn’t aim to provide causal estimates but offers a structured, theory-informed synthesis to clarify dominant trends and inform future research.

3.Findings: The synthesis of the reviewed literature reveals that safety leadership exerts a consistent and multifaceted influence on OHS outcomes across sectors. The findings are organized around three interrelated dimensions: (1) leadership typologies,

(2) effects on leading and lagging safety indicators, and (3) mediating and moderating mechanisms.

3.1 Safety Leadership Typologies and OHS Outcomes: Across the reviewed studies, transformational safety leadership emerges as the most frequently examined and empirically supported leadership style. Transformational leaders (characterized by role modeling, inspirational motivation or individualization) are associated with higher levels of safety compliance and participation, as well as stronger safety climate perceptions [1,2]. Empirical evidence from construction, healthcare, and industrial settings indicates such leadership behaviors foster proactive safety engagement rather than mere rule adherence.

In contrast, passive or avoidant leadership styles are repeatedly linked to adverse safety outcomes. Studies report that insufficient supervisory involvement, delayed responses to safety concerns, and lack of feedback are associated with weaker safety climate perceptions and higher accident risk [2]. Similarly, authoritarian leadership approaches, while occasionally associated with short-term compliance, tend to generate stress, underreporting of incidents, and diminished trust, ultimately undermining sustainable safety performance [13].

Safety-specific leadership, focusing explicitly on hazard identification, safety communication, and feedback on safe behaviors, demonstrates particularly strong associations with leading safety indicators. Interventions targeting frontline supervisors show statistically significant improvements in safety practices and perceptions when leadership behaviors are aligned with safety objectives [2].

3.2 Effects on Leading and Lagging Safety Indicators: The reviewed literature distinguishes between leading indicators (e.g., safety behavior, participation, safety climate) and lagging indicators (e.g., accident and injury rates). Safety leadership shows a more immediate and robust relationship with leading indicators, which in turn predict improvements in lagging outcomes over time [2].

Multiple cross-sectional and longitudinal studies report positive associations between safety leadership and safety behavior, including compliance with procedures and voluntary participation in safety activities [1,7]. These behavioral changes are accompanied by enhanced safety climate perceptions, reflecting shared beliefs regarding the organization’s commitment to safety [2].

Evidence linking safety leadership directly to reductions in accidents and injuries is more variable but remains substantively meaningful. Several studies show statistically significant decreases in accident frequency and severity in contexts characterized by strong safety leadership, particularly when leadership effects are mediated by safety culture and employee engagement [2,9]. This pattern suggests that leadership influences lagging indicators primarily through sustained changes in attitudes, norms, and behaviors rather than through immediate direct effects.

3.3 Mediating and Moderating Mechanisms: A central finding of the review is that the relationship between safety leadership and OHS outcomes is predominantly indirect. Safety culture and safety climate consistently emerge as key mediating mechanisms, translating leadership behaviors into shared safety-related meanings and expectations [6,10]. Leaders who visibly prioritize safety, allocate resources, and

encourage open communication contribute to a climate in which safe behavior is perceived as both expected and supported.

Employee engagement and empowerment also play a significant mediating role. Studies indicate that leadership practices fostering autonomy, participation, and psychological safety enhance employees' willingness to report hazards and near misses, thereby strengthening organizational learning processes [4,11].

Moderating factors further shape leadership effectiveness. Sectoral risk profiles, organizational maturity, and national cultural context influence the strength and direction of observed relationships [3,12]. For example, leadership behaviors that are effective in high-reliability industrial settings may require adaptation in healthcare or distributed work environments.

4.Discussion: The findings of this review confirm that leadership plays a central role in shaping OHS performance. Rather than operating solely through formal authority or rule enforcement, leadership influences safety outcomes by shaping shared perceptions, priorities, and behavioral norms related to safety [1,2]. This supports the view that OHS performance is fundamentally a social and organizational phenomenon.

A key insight emerging from the synthesis is the differential impact of leadership styles. Transformational and safety-specific leadership approaches are associated with positive safety outcomes, whereas passive, avoidant, and authoritarian leadership tend to undermine safety [3,4]. As authoritarian approache may generate short term compliance, the evidence suggests they often suppress reporting and erode trust, weakening long-term safety outcomes [13].

The review also highlights the importance of leading indicators as the primary channel through which leadership affects safety. Leadership shows stronger associations with safety behavior, participation, and safety climate than with accident and injury rates [12]. Improvements in lagging indicators occur indirectly by time, mediated by sustained changes in attitudes and behaviors [10].

Finally, the findings emphasize the role of contextual factors. Sectoral risk characteristics, organizational maturity, and cultural context moderate leadership effectiveness, indicating that safety leadership practices must be adapted rather than universally applied [3,8]. Overall, the evidence underscores leadership as a critical lever for improving OHS performance when aligned with organizational context and supported by appropriate safety systems.

5.Conclusion: This narrative–thematic review demonstrates that safety leadership is a high-leverage organizational intervention for improving OHS outcomes. Across sectors, leadership behaviors emphasizing safety commitment, communication, and employee involvement are associated with stronger safety behaviors, more positive safety climate perceptions, and reduced accident rates over time. These effects operate primarily through indirect pathways, particularly safety culture, safety climate, and employee engagement, highlighting the limitations of purely technical or compliance-based approaches. From both practical and research perspectives, the findings underscore the importance of leadership development and the need for further longitudinal and cross-cultural studies.

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