

Developing a Healthcare Transformational Leadership Competency Framework for Disaster Resilience and Risk Management

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Abstract

Climate change-induced hazards increasingly threaten healthcare systems worldwide, amplifying the frequency and severity of disasters and their adverse health effects. This necessitates fortified healthcare leadership and resilient systems capable of delivering quality care amidst escalating environmental challenges and emphasises the need for standardised competency frameworks to enhance disaster readiness and response. As healthcare organisations face evolving challenges, cultivating transformational leadership competencies becomes essential for building adaptive, resilient, and effective disaster management strategies.

This conceptual paper addresses the research question: "How can healthcare leaders' competencies be developed to support healthcare disaster resilience and risk management?". It employs Transformational Leadership Theory and the author's previously published 'APRR Model' to develop a competency framework for healthcare disaster resilience. Methods include literature review, comparative analysis, and synthesis, aiming to construct a transformative leadership model. Analyses explore societal relationships and the influence of fixed conditions, while synthesised frameworks clarify dimensions and relationships.

Eight 'domains' of competencies were identified, in addition to other 'transferring skills.' The domains were analysed regarding their component competencies and were broadly classified into knowledge, cognitive and interpersonal skills, and attitudes. This classification is proposed as a 'Healthcare Transformational Leadership Competency Framework' (HTLCF) for disaster resilience and risk management. The HTLCF supports leaders in navigating complexities, anticipating risks, and facilitating collaboration, communication, and accountability, leveraging their transformative agency. Recommendations associated with the framework include developing a standard disaster curriculum and enhancing academic and continuous training to strengthen disaster preparedness and response efforts.

Keywords: Transformational; Healthcare; Leadership; Competency Framework; Disaster Resilience; Risk Management.

1. Introduction

Various natural or human-induced hazards recurrently impact regions across the globe, leading to disasters that can harm healthcare services (Achour et al., 2014; Aghapour et al., 2019; Ghanaatpisheh et al., 2019). Moreover, climate change significantly influences human health, with future forecasts suggesting potentially disastrous consequences (Tong et al., 2022). Climate change intensifies weather-related events, leading to more frequent natural disasters and mass casualties (Lokmic-Tomkins et al., 2023).

Climate change has increased the frequency and severity of Extreme Heat Events globally over the past two decades, resulting in adverse health impacts. Moreover, such climate change exacerbates vulnerabilities, deteriorates health, and disrupts healthcare systems' ability to provide continuous, high-quality care, necessitating robust preparedness measures for medical facilities (Goniewicz et al., 2023; Hess et al., 2023; Sherman et al., 2023). This highlights the critical need for innovative healthcare systems that are resilient to climate impacts and capable of delivering quality care even in remote or underserved areas (Lokmic-Tomkins et al., 2023).

During disasters, hospitals often struggle to meet increased care demands due to shortages of staff and resources. Hence, healthcare services need to enhance their disaster readiness and response systems to manage the escalating environmental and health challenges effectively (AlDulijand et al., 2023; Ali et al., 2023). Hospital resilience is vital for preserving core functions amidst such disturbances (Khalil et al., 2022).

In disaster risk contexts, resilience refers to the capacity of systems, communities, or societies to efficiently withstand, adapt to, and recover from hazards, ensuring the preservation and restoration of essential structures and functions through effective risk management (UNDRR, 2016). Risk management encompasses assessing, preventing, controlling, and monitoring risks to forestall new risks and alleviate existing ones (World Health Organization, 2015).

Thus, the significance of hospital and healthcare leadership has been underscored (Graham & Woodhead, 2021), as organisational disaster resilience hinges on leaders possessing specific competencies to bolster healthcare organisational capacities throughout all risk management stages (Ali et al., 2023). Hospital leaders need more competencies to prepare and manage organisations for disaster response and recovery. Clinical professionals often need essential evidence-based knowledge and competencies in disaster management and leadership styles (Hutton et al., 2016; Perez, 2021). Despite the endorsement of numerous competencies, inconsistency hinders universal acceptance, emphasising the need for a standardised

competency framework for health professionals (Ali et al., 2022a; Batt et al., 2020), and leaders (Ali et al., 2023; Shuman & Costa, 2020). This standardisation is essential for implementing uniform disaster training for healthcare professionals and leaders (Farokhzadian et al., 2024; Goniewicz et al., 2021). This study aims to identify and develop the competencies of healthcare leaders necessary for supporting disaster resilience and risk management within healthcare organisations. Specifically, it addresses the question: "How can healthcare leaders' competencies be developed to enhance healthcare disaster resilience and risk management?"

2. Methods

This conceptual paper was grounded in Transformational Leadership Theory (Bass & Bass Bernard, 1985; Korejan & Shahbazi, 2016; Odeh et al., 2021). Specifically, it utilised the APRRA model, a transformational leadership framework for hospital disaster resilience that includes anticipatory, preventive, responsive, reflective, and regenerative (Ali et al., 2023). This model built upon and extended the well-known disaster management framework 'Prevent-Prepare-Respond-Recover' (Alexander, 2019; Neal, 1997). Review and framework articles, often used to synthesise research literature on a particular topic, are vital tools for advancing knowledge in a field of inquiry (Luft et al., 2022; Schwarz et al., 2007). Therefore, three methods were employed in this paper: literature review, comparative analysis, and synthesis.

- **Literature Review:** The literature review provided a foundation for understanding the existing frameworks and theories related to transformational leadership and disaster resilience in healthcare settings. A literature review is essential for any research study as it summarises existing research on a specific topic and highlights unanswered questions. (Luft et al., 2022).
- **Comparative Analysis:** This method aimed to develop a transformative leadership competency framework for healthcare disaster and emergency management. It explores relationships across societies and examines the influence of fixed conditions, emphasising the importance of commensurability in comparing competencies (Pickvance, 2001; Tilly, 1984).
- **Synthesis:** Synthesized frameworks were created by amalgamating concepts from theoretical foundations to explain or predict events or understand research problems. These frameworks were diagrammatically represented to elucidate dimensions, factors, and relationships (Botma et al., 2015; Liehr & Smith, 1999).

By integrating these methods, the paper aimed to provide a comprehensive understanding of transformational leadership competencies essential for enhancing disaster resilience in healthcare settings.

2.1. *Appreciation of terminology*

'Competence' is a “combination of skills, knowledge and behaviours that leads to effective performance on the job” (United Nations Industrial Development Organization, 2017, p. 3).

'Competence', in essence, denotes the skill to execute a specific task, action, or function successfully. Competencies establish distinctive standards within various disciplines and specialties (Cowan et al., 2005). Professional competence refers to the healthcare professional's capacity to effectively serve both the individual and the broader community in accordance with the standards of clinical performance (Billett et al., 2014).

'Competency' encompasses a holistic approach, encompassing the necessary knowledge, attitude, skills, and experience and the ability to make informed decisions, adapt effectively, and possess a nuanced situational understanding for delivering high-quality care (Lyng et al., 2022). Core competencies for health professionals (nurses and physicians) include “professionalism, ethical and legal issues, research and evidence-based practice, personal and professional development, teamwork and collaboration, leadership and management, and patient-centred care” (Yaqoob Mohammed Al Jabri et al., 2021, p. 87). Given the observable nature of competencies, this competency can be measured and evaluated to ensure skill acquisition (Frank et al., 2010). Many dictionaries treat *'Competence'* and *'Competency'* as having the same meaning (Centranum, 2024); therefore, for the remainder of this study, both terms will be used interchangeably.

'Competency frameworks' are pivotal in preparing health professionals for practice and ensuring their ongoing capability to meet the evolving demands of the community and health systems (Palermo et al., 2022). These frameworks outline a set of fundamental competencies, technical or functional competencies, behavioural competencies, and leadership competencies. Fundamental competencies encompass the values, attitudes, and beliefs representing the organisation, which all healthcare providers are expected to embody and exhibit consistently in their daily practices (Albarqouni et al., 2018).

2.2. *Exploring the interconnected dimensions of knowledge, skills, attitudes, and competency*

'Competency', in the context of health professionals, refers to their demonstrable capability, comprising elements including knowledge, skills, values, and attitudes (Frank et al., 2010). Competency frameworks can be designated as '*domains of competency*'. These domains encompass multiple competencies (Englander et al., 2013; Ten Cate, 2017). These competencies, also known as "transferring skills" or meta-skills, enable individuals to adapt and apply their existing skills across diverse situations and contexts, extending competence beyond familiar scenarios (Bridges, 1993; Fleming, 1991).

The philosophical definition of '*Knowledge*', coined as a belief that is both justified and true (Grossnickle et al., 2015), aligns with the perspective of educational psychologists who view knowledge as external information that integrates into individuals' internal mental repository, shaping their cognitive realm (Alexander, 2023). A 'skill' is defined as purposeful and efficiently organised behaviour acquired through practice, performed with a focus on minimising effort (Winterton et al., 2006). Interpersonal skills encompass the vital abilities required for interacting with and connecting with others, primarily individually (Barakat, 2007; McConnell, 2004).

In cognitive theories, a '*cognitive skill*' is perceived as an integrated ability characterised by a unique history of quantitative and qualitative developmental changes. This contrasts earlier behavioural theories, where cognitive skills were seen as discrete packets of information that could be acquired incrementally. (Royer et al., 1993).

Describing an '*attitude*' entails sharing an evaluative opinion about something. Attitudes can vary in intensity and direction, and anything that can be assessed in terms of preference can be seen as an object of attitude (Haddock & Maio, 2008). An '*attitude*' consists of three components: affective, cognitive, and behavioural. The affective component pertains to the subject's feelings toward the object of their attitude. The cognitive component involves what the person thinks or believes about the object, while the behavioural component focuses on the subject's behavioural responses that the object might provoke. Attitudes are evaluative, reflecting the individual's inclination to respond positively or negatively to the attitude's object (Kolman & Rymesova, 2007).

Over time, accumulating evidence highlights the pivotal role of specific cognitive skills in shaping leadership effectiveness. Utilising these skills relies on a foundation of case-based

knowledge. Consequently, nine essential skills were identified to be utilised by leaders roles when dealing with case-based knowledge to tackle leadership challenges: 1) articulating problem definitions, 2) analysing causes/goals, 3) scrutinising constraints, 4) strategising planning, 5) making forecasts, 6) fostering creative thinking, 7) evaluating ideas, 8) applying wisdom, and 9) engaging in sensemaking/visioning (Mumford et al., 2017).

2.3. *Healthcare leadership competencies in disaster resilience*

Effective team leadership and management skills are fundamental for successful disaster resilience (Farokhzadian et al., 2024; García-Martín et al., 2021). Healthcare organisations need leaders with strong relational skills, genuine concern for employees, and collaborative abilities, especially given impending leadership shortages (Cummings et al., 2010). Successful leadership requires clear vision, strategic planning, firm beliefs, and engaged employees (Oakland, 2011; Odeh et al., 2021).

Focusing on transformational leadership within healthcare services catalyses nurses' organisational commitment (Haoyan et al., 2023). It is associated with positive work outcomes like job satisfaction, motivation, teamwork, intent to stay, compliance, organisational culture and change outcomes, reduced work pressure, and improved patient outcomes. Healthcare professionals generally perceive transformational leadership styles more favourably than others (Ajanaku et al., 2022). This leadership style is vital for enhancing patient safety, balancing job resources and demands, and fostering a robust patient safety culture (Seljemo et al., 2020).

The recognition and communication of the need to shift from a reactive emergency response to a proactive disaster risk management strategy for health are evident. The objective is to ensure sustained commitments to risk management. Thus, a comprehensive all-hazards approach entails developing and implementing strategies for each disaster risk management cycle phase. The emphasis lies primarily on the health sector's role in managing risks (World Health Organization, 2015).

To examine healthcare leadership competencies in disaster resilience, it was necessary to note that risk management involves assessing, preventing, controlling, and monitoring risks to prevent new risks and alleviate existing ones (World Health Organization, 2015). Therefore, it was necessary to identify the key leadership competencies recommended in healthcare literature, even in the absence of disasters (see Table 1). Subsequently, the focus will shift to

specifically required healthcare leadership competencies for disaster resilience and risk management.

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Table 1 Key Healthcare Leadership Competencies Frameworks

Number of competencies	Description of Key Healthcare Leadership Competencies Frameworks	References
Seven:	Planning, Organising, Employee Performance Management, Leadership, Information Management, Clinical Governance, Resource Management, and Performance Indicators.	(Dadgar et al., 2012; Shafii et al., 2016).
Six	Visionary Leadership, Planning and Evaluation, Health Promotion, Disease Prevention, Information Management, Collaboration, and Communication.	(Mohd-Shamsudin & Chuttipattana, 2012).
Five	Leadership, Communication and Relationship Management, Professional and Social Responsibility, Health and Healthcare Environment, Business.	(International Hospital Federation, 2015). *
Six	Evidence-informed Decision-making, Operations, Administration and Resource Management, Knowledge of Healthcare Environment and Organisation, Interpersonal Communication and Relationship Management, Leading People and Organisation, Enabling and Managing Change.	(Liang et al., 2018).
Seven	<i>“Evidence-informed Decision-making, Operations, Administration and Resource Management, Knowledge of Healthcare Environment and Organisation, Interpersonal Communication and Relationship Management, Leading People and Organisation, Enabling and Managing Change, and Professionalism.”</i>	(Kakemam et al., 2020, p. 59).

*Healthcare Leadership Alliance (HLA) Competency Directory

2.4. *Specific leadership competencies required for disaster resilience and risk management.*

The literature identifies essential competencies for hospital leaders in disaster planning and management. Core competencies for nurses in emergency and disaster preparedness included *teamwork, communication, injury pattern recognition, and treatment skills* (Gebbie & Qureshi, 2002). Various organisations endorsed hundreds of competencies for disaster healthcare personnel, but inconsistency in terminology and structure hampered universal acceptance and stressed the necessity of developing a standardised framework for these competencies (Daily et al., 2010). The American Organization of Nurse Leaders (AONL) identified competencies for nurse nursing leaders during disasters, focusing on *communication, business, and leadership* (Shuman & Costa, 2020).

Core competencies for healthcare emergency management professionals in the Eastern Virginia Healthcare Coalition were identified. These competencies span *emergency operations plans, communications, policies and procedures, training and testing, patient support, utilities, and Security and Safety* (Eastern Virginia Healthcare Coalition, 2018).

Transformational leaders shape the behaviour of their employees by instilling values like honesty, loyalty, and fairness. They emphasise principles such as justice, equality, and human rights while driving organisational changes (Ghorbani et al., 2023; Groves & LaRocca, 2011). Transformational leaders inspire employees to collaborate and exercise self-leadership through their charismatic personalities, behaviour, and relationships. These leaders possess an intrinsic motivation to make sacrifices and prioritise the greater good of society and the organisation (Diggs, 2016; Ghorbani et al., 2023).

A study, conducted by Caro (2016), uncovered twelve key emergency transformational leadership capabilities, contributing valuable insights into effective disaster management: *visioning, strategic thinking, risk management, communication, collaboration, resource management, decision-making, problem-solving, adaptability, emotional intelligence, professionalism and ethics*. This study employed a triangulation approach and utilised complex adaptive systems as the theoretical framework for comprehending emergency leadership (Caro, 2016).

3. Synthesis of findings

In a previous study, Ali et al. (2023) identified seven key competencies of transformational leaders. The study employed a qualitative case-study design involving in-depth semi-structured

interviews with twelve senior hospital staff possessing operational leadership experience during disasters. These competencies are: '*transformative agency*', '*decisive accountability*', '*risk navigation*', '*disaster attunement*', '*planning agility*', '*communication accelerator*', and '*collaboration innovator*' (Ali et al., 2023).

Each of these seven competencies was considered a '*domain of competency*', encompassing various other competencies as '*transferring skills*'. These terms were introduced in the aforementioned literature review (Bridges, 1993; Englander et al., 2013; Fleming, 1991; Ten Cate, 2017). These domains were analytically compared with healthcare leadership competencies for disaster resilience and risk management described in the literature review. As a result, Professionalism and Ethics were added as an eighth '*domain of competence*.' (Kakemam et al., 2020; Stefl, 2008). Component competencies relevant to the established domains were analysed and broadly classified into knowledge, skills (cognitive and interpersonal), and attitude. See Table 2

Table 2 Healthcare transformational leadership competency framework (HTLCF) for disaster resilience and risk management

Domain of Competence	Description of Competency	Components competencies ‘transferring skills’/Source	Knowledge/Attitude	Skills/Attitude
1) Transformative agency	Creating room for evolving ideas, thoughts, and actions within organisational culture*.	Change managing (Kakemam et al., 2020; Liang et al., 2018).	Cognitive skills	
		Strategic Thinking (Caro, 2016).	Knowledge, skills	cognitive skills
		Self-awareness (Caro, 2016).	Cognitive skills	
		Strategic navigation in complex environments (Queensland Government, 2023).	Knowledge, skills and attitude	cognitive skills
		Visioning (International Hospital Federation, 2015).	Attitude	
2) Risk navigation	Forecasting scenarios and circumstances and evaluating potential weaknesses, threats, and risks*.	Risk Management (Caro, 2016; Mohd-Shamsudin & Chutturattana, 2012)	Cognitive skills	
		Resource management (Caro, 2016; Dadgar et al., 2012; Shafii et al., 2016).	Cognitive skills	
3) Disaster attunement	Adjusting planning and preparedness strategies according to risk assessment and diverse situational factors and considerations*.	Planning (Mohd-Shamsudin & Chutturattana, 2012).	Cognitive skills	
		Adaptability (Caro, 2016).	Cognitive skills	
4) Planning agility	Self-initiated adjustments in planning and decision-making rooted in previous knowledge and acquired experiences*.	Strategic navigation in complex environments (Queensland Government, 2023).	Knowledge, skills and attitude	cognitive skills
		Problem-solving (Caro, 2016)	Cognitive skills	
		Evidence-based informed Decision-making (Kakemam et al., 2020; Liang et al., 2018; Queensland Government, 2023).	Knowledge, skills	cognitive skills
		Resource management (Caro, 2016; Dadgar et al., 2012; Shafii et al., 2016).	Knowledge, skills	cognitive skills

Domain of Competence	Description of Competency	Components competencies 'transferring skills'/Source	Knowledge/Attitude Skills/Attitude
5) Communication accelerator	Promoting smooth communication vertically and across interdisciplinary teams within the organisation*.	Effective communication (Gebbie & Qureshi, 2002; Hsu et al., 2006; Kakemam et al., 2020; Liang et al., 2018).	Interpersonal skills
		Emotional Intelligence (Caro, 2016).	Interpersonal skills
6) Collaboration innovator	Recognising and incentivising inter-professional engagement and collaboration among colleagues within and across organisational units*.	Collaboration (Mohd-Shamsudin & Chuttipattana, 2012).	Interpersonal skills and attitude
		Emotional Intelligence (Caro, 2016).	Interpersonal skills
7) Decisive accountability	Assuming responsibility, making decisions, and handling fast-paced situations*.	Decision-making evidence-based informed (Kakemam et al., 2020; Liang et al., 2018).	Knowledge, cognitive skills
		Accountability (Queensland Government, 2023).	Attitude
		Strategic navigation in complex environments (Queensland Government, 2023).	Cognitive skills
8) Professionalism and ethics	Aligning individual and organisational conduct with ethical and professional standards**.	Professionalism & Ethics (Kakemam et al., 2020).	Attitude
		Ethical prioritisation (Diggs, 2016; Ghorbani et al., 2023).	Attitude

* (Ali et al., 2023) and ** (Kakemam et al., 2020; Stefl, 2008)

4. Discussion

Effective leadership is significant as a catalyst for change in disaster management. Adept leadership is a beacon of guidance in disaster resilience, vital for steering through disasters and fostering healthcare resilience (Lyng et al., 2022). Transformational leadership, characterised by its ability to inspire and empower others towards a common vision, encompasses a range of competencies essential for navigating the complexities of disaster scenarios (Caro, 2016).

Developing a common disaster curriculum incorporating cross-sectorial competencies and standardised terminology is significantly recommended (Gallardo et al., 2015). Furthermore, there is a pressing need to integrate emergency and disaster management education into graduate healthcare administration curricula to address workplace-provided emergency preparedness training gaps (Hertelendy et al., 2021). Creating the HTLCF for disaster resilience and risk management can contribute significantly to these curricula. Plans should be devised to enhance academic and continuous training, ensuring alignment with identified needs and adequate provision of facilities and equipment, emphasising practical training (Ali et al., 2022a, 2022b; Farokhzadian et al., 2024).

The APRRA model, an evolution of the traditional disaster management framework PPRR, is a broad approach that integrates anticipatory, preventive, responsive, reflective, and regenerative dimensions into its approach. (Ali et al., 2023). From proactive anticipation to reflective regeneration application, each competency domain plays a pivotal role in fortifying preparedness, response, and recovery efforts in the face of adversity. It's imperative to acknowledge the versatility of these competency domains. Each can dynamically contribute across different phases, demonstrating adaptability and playing an integral role in fostering resilience throughout risk management.

Transformative agency enables organisational change and innovation by fostering evolving ideas, thoughts, and movement within the culture. Essential cognitive skills, like strategic thinking and self-awareness, support this process. Strategic navigation and visioning in complex environments require knowledge, cognitive skills, and attitude (International Hospital Federation, 2015).

Risk navigation involves anticipating scenarios and assessing vulnerabilities, requiring risk and resource management skills. Disaster attunement emphasises adapting planning and preparedness approaches based on risk assessment, necessitating skills like planning and

adaptability (Caro, 2016; Dadgar et al., 2012; Mohd-Shamsudin & Chuttipattana, 2012; Shafii et al., 2016).

Planning agility requires self-directed modifications in planning and decision-making, including skills such as strategic navigation and problem-solving (Kakemam et al., 2020; Liang et al., 2018). The Communication Accelerator fosters cohesive communication within the organisation, requiring strong interpersonal skills such as effective communication and emotional intelligence (Gebbie & Qureshi, 2002; Hsu et al., 2006). The Collaboration Innovator encourages inter-professional engagement, requiring a positive attitude towards collaboration and emotional intelligence (Caro, 2016; Mohd-Shamsudin & Chuttipattana, 2012).

Decisive accountability involves managing fast-paced situations, demanding skills and attitude in decision-making and strategic navigation. Professionalism and ethics emphasise synchronising behaviour with standards, underlining a positive attitude towards professionalism and ethical prioritisation (Diggs, 2016; Kakemam et al., 2020).

5. Conclusion

This study underscores the multifaceted nature of transformational leadership in disaster resilience and risk management within healthcare organisations. Through an analysis of competencies across various phases of the disaster management cycle, it becomes evident that transformational leaders play a pivotal role in fostering resilience and driving effective responses to disasters. As healthcare organisations continue to face evolving challenges, the cultivation of transformational leadership competencies emerges as a cornerstone for building adaptive, resilient, and effective disaster management strategies.

If equipped with the developed HTLCF competencies, healthcare transformational leaders can harness their transformative agency to navigate complexities, anticipate risks, and facilitate collaboration, communication, and accountability. Developing HTLCF for disaster resilience and risk management can contribute to educational disaster management curricula and continuous professional development programs to strengthen the disaster resilience of healthcare services.

Ethical Consideration

The study was granted Ethics approval in Southeast Queensland by Griffith University's Human Research Ethics Committee (Ref No: 2020/542- 09/09/2020) and the hospital sector's

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Developing a Healthcare Transformational Leadership Competency Framework for Disaster Resilience and Risk Management

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